GRIT ASSESSMENT OF STUDENTS-AT-RISK OF DROPPING OUT (SARDO)

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ABSTRACT

Research Title : GRIT ASSESSMENT OF STUDENSTS-AT-RISK
OF DROPPING OUT (SARDO)

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Summary :

For many years, intelligence was the most documented predictor of achievement. The quest for studying non-cognitive predictors of achievement has been the recent trend in many educational researches indicating grit as a better predictor of success over I.Q. Though many studies have been published on positive effect of high grit level to achieving long-term goals, no research paper was ever written on its extreme opposite particularly in grit studies regarding students-at-risk of dropping out (SARDO). This study aims to assess the grit level of SARDO across three secondary island schools in the *Cagraray* Island, *Bacacay, Albay*. Purposive-sampling technique was employed through coordination with schools' guidance facilitators who have the records of SARDO for SY 2020-2021. Result of the study revealed poor grit level of SARDO across all three schools. However, a pattern of increasing grit level was observed in the data indicating that grit grows when SARDO successfully finish a grade level ensuing closer attainment of finishing school (F $(3,36)$ =3.93, $p<0.05$), (F $(3,27)$ =24.68, $p<0.05$), (F $(3,27)$=3.21, $p<0.05$). Post-hoc analysis revealed that variation in responses across grade levels was due to comparatively poor grit level of Grade 7 SARDO when matched to Grade 10 ($p<0.008$). Nevertheless,

correlational test showed no relationship to majority of sociodemographic data to the grit level of SARDO which connoted that privileges in life, age, and gender do not make SARDO gritty. On the other hand, causes for possibly dropping out showed moderate relationship to grit, while grade level denoted a high relationship with levels of grit. Educational implication pointed out the need to consider character and personality measures of SARDO in order to truly understand the phenomenon of possibly quitting school. Model ARMORED (*Assess, Rank, Mark, Observe, Revive, Evaluate, Determine*) was developed to help teachers and administrators predict and address problems of SARDO in school by using a whole-child approach, specially to Grade 7 SARDO who manifested poor grit level. This can be implemented by using the grit instrument tool and with the use of growth mindset instruction for teaching and improving grit.

Conclusion :

Precision in truly understanding SARDO needs the employment of whole-child approach where grit must be considered as a driving factor to sustain motivation for long-term commitment in finishing school. Recalibration of instruction needing to mainstream growth mindset approach is vital to boost poor grit levels of SARDO.

Recommendations :

The study generally recommends further studies and adjustment on the following concerns: (1) method of experiment, (2) grit comparison of SARDO and non-SARDO, (3) grit studies on Senior High School and elementary schools, (4)

effects of the model ARMORED through action research, (5) repetition of method in other school locality, (5) other personality and character measures related to motivation, (6) grit build-up, (7) growth mindset application and other approaches that will improve grit, (8) grit assessment of drop-out students, (9) hindrances of gritty students for finally quitting school, and (10) testing the reliability coefficient of the modified grit instrument.

ACKNOWLEDGEMENTS

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Nobody has been more important in the pursuit of this project than the members of researcher's family, specially to his mother, who understood the path the researcher has chosen. Your support and understanding provided the researcher with unending joy and inspiration.

With the divine grace of the Almighty God, the researcher will always be grateful for showering him good health, success, and challenges that hone him to be a better person. Thank you for making the researcher gritty about getting the school children grittier.

-MikeBibon

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A. INTRODUCTION OF THE RESEARCH

It is said that one of the criteria for an effective educational system is looking to its drop-out rate along with the percentage of student absenteeism (Graeff-Martins *et al.*, 2006). Records and monographs spanning from 1927 attributed dropping out to potential mental inferiority (Fuller, 1927). Though Fuller (1927) associated dropping out to poor I.Q., Duckworth and Yeager (2015) proved that some measures of personality also play a pivotal role in dropping out in schools. In one of Duckworth *et al.*'s (2007) works studying cadets in military camps, participants in spelling bees, and teachers working in tough neighborhoods, they concluded that gritty individuals are more likely to persevere compared to less gritty ones. Duckworth and Yeager (2015) continued their studies on grit by asking thousands of students to take grit questionnaires and waited over a year to see who would graduate. It turns out that grittier kids are more likely to graduate compared to less gritty ones. Therefore, it is not just in military camps or spelling bees where grit matters, it is also in schools especially for students-at-risk of dropping out (SARDO). In this study, grit is defined as the motivational stamina of the students to commit themselves into finishing school despite life setbacks and obstacles.

In the context of Philippine secondary schools, Philippines star (2014) described the condition of drop-outs as continuously rising from 2007 (7.45%) to 2012 (7.82%). The national ranking of regions placed *Bicol* region 10th having 5.5% of the total drop-outs in 2012 statistics (Boyaci, 2017). One of the municipalities in the *Bicol* Region is *Bacacay, Albay* with almost 8,000 secondary school students.

The municipality is divided into two land masses; the (1) mainland Bacacay: and the (2) *Cagraray* island. Due to the geographical isolation of the *Cagraray* island, many shortcomings were faced by the struggling families to send their children at school. In fact, the School, Monitoring, Evaluation, and Adjustment (SMEA) in the *Cagraray* island secondary schools reported an increasing number of drop-outs from 2018 to 2020 respectively with consolidated SARDO for SY 2020-2021 equivalent to 6% of the entire student population (N=115) (a. SMEA, 2021). This record is comparatively higher than SARDO of mainland Bacacay secondary schools with consolidated percentage of 4% (b. SMEA, 2021). High drop-out rate and SARDO within the island schools are attributed to its culture where children from Geographically Isolated and Disadvantaged Areas (GIDA) were bonded to early responsibilities at home distracting their attention to pursue the need for schooling (Jovinius, 2015). Family, finances, lack of interest, employment, illness, and others were the reported common root causes for dropping out and possibly quitting school (PSA, 2016). Using these data from PSA (2016), it can be inferred that grit plays a significant role in SARDO as shown in the Lack of Interest profile having 24.7% (*The Challenge*, n.d.) among the casted reasons, hence no perseverance to finish studies. Interest and perseverance were the embodiments of grit as Duckworth *et al.* (2007) described it as "*passion and perseverance for long term goals*". During TEDTalks, Angela Duckworth encouraged educational reformers to understand drop out from motivational and psychological perspective-- understanding grit (TED, 2013). Using grit, it will provide educational sectors a bigger picture on the profile of grit and how this personality affects student's

success in schooling. For the meantime, the Department of Education coined the term Students-At-Risk of Dropping Out (SARDO) to designate students who are more likely to stop or quit, and provide necessary interventions to keep them engaged in learning hence developing the Drop-Out Reduction Program (DORP) (DO No. 74, 2010). Furthermore, the meta-analysis studies of Christopoulou *et al*. (2018) suggested the need to examine the grit level of SARDO to deliver educational reformers a wider perspective to determine the pattern of similarity among students who are also at risk of dropping out.

This paper aims to assess the grit level of SARDO's from Junior High Schools of the three (3) island schools in the Municipality of Bacacay. The research locale of the study was considered due to its comparatively high rate of SARDO immersed in a challenging environment that is detrimental for the sustenance of their commitment in schooling. After which, findings of the study were used to develop a predictive model to help teachers and administrators determine and address problems earlier on SARDO.

B. LITERATURE REVIEW

The Drop-out Reduction Program of DepEd (DO. 74, s. 2010) aims to target the goal of *Education For All (*EFA) and Millennium Development Goals (MDG) on improving school performance indicators. One of which is lessening the drop-out rates by identifying SARDO and provide intervention to keep them committed in schooling.

Rai (2013) stated that drop-out is a prevalent issue in many educational institutions and the quest for solving the problem is a painstaking effort to many educational reformers. Many attempts have been made to address this issue by developing methods for prediction to determine early those students who are at risk of dropping.

These literatures suggested that efforts on the institutions and Rai (2013) were made to provide solution on predicting students who are more likely to drop. This implied that the current study is helpful in achieving those educational goals by developing a predictive model to assist educational reformers in determining SARDO and provide interventions for lessening drop-out rates.

Though literature indicated that potential for dropping out is attributed to poor I.Q (Fuller, 1927), Duckworth and Yeager (2007) presumed that personality factors were also predictors for potentially quitting school. This is related to current study by dealing with grit as a personality measure through data mining. Assessing it will provide significant information on the power of determination of SARDO.

Harackiewicz and Hulleman (2010) cited the vital role of interest in becoming successful to the selected life goals. In school, they discovered that interest promotes academic achievement, course choices, and career decisions which in turn develop more their perseverance if it follows their life plans.

Study of Ashraf *et al.* (2018) emphasized the importance of interest in developing motivation and perseverance of students. This was shown in the likelihood of finishing school when college students were interested in the

course/major they are pursuing. Less interested students tend to shift more courses until they found the course that is worth their perseverance and motivation to graduate.

The studies of Harackiewicz and Hulleman (2010) and Ashraf *et al.* (2018) showed how interest played a big role in the achievement of success particularly in finishing school. These studies provided significant implication in the current study by stipulating a platform on how interest can power the sustenance of grit to commit in schooling.

Interest and perseverance were the embodiments of grit (Duckworth *et al.*, 2007). Duckworth *et al.* (2007) defined grit as the perseverance and passion for long term goals. They engaged the concept in studying personas in military camps, sales, national spelling bees, and to schools which turn out that success in all those super challenging environments showed higher correlation to grit. These findings of Duckworth *et al.* (2007) implied that amplification of grit is not only grounded to interest but must be accompanied with perseverance as good predictors for achieving success. On the other hand, this is related to the current study suggesting that poor consistency of interest and effort for long term goals like schooling can possibly lead to quitting school.

In schools, Lucas *et al.* (2015) found out that gritty students were more likely to pledge themselves in tasks even when they are losing. More positive outlook was also observed to students with higher grit measurements, and shared common characteristics like persistence, resilence, and willingness until

completing an undergraduate degree. On the contrary, this indicated that poor grit level can lead to becoming a SARDO.

Grit is a personality measure and it is affected by many factors including socioeconomic status (Hanford, 2012), race (Pina-watson *et al.*, 2015), and environment (Moreau, 2018). These factors seem to resemble the systems in Brofenbrenner's (1979) bio-ecological model, and were the factors cited in *The Challenge* (n.d) involved in the statistics of drop-out rates.

Considering factors of drop-out rates relating to Bronfenbrenner's systems, Torres and Saromines (2016) cited the six root codes that emerged from their phenomenological study. These were Adversity, Family Hostility, Peer Influence, Learning Difficulty, Financial Support to Schooling, and Poor Disposition, and Negative Social Interaction.

Duckworth and Quinn (2009) showed in their study that grit is affected by varying factors and somehow moved by many sociodemographic profiles of subjects related to the task they are doing. They showed that grit increases with age and with educational attainment. Nonetheless, they concluded that results still vary depending on the culture and practice of the individual.

These studies showed that grit is affected by many factors that lead to dropping out. These include family, economic status, peer influence, age, and education. These are related to the current study by implying that grit level can be predicted by those factors and can be used as a forecaster for potential SARDO.

In an interview with Duckworth, Perkins-Gough (2013) cited that the new school scheme shall not focus alone on the standardized measurements of IQ or tests but rather measure aptitude on schooling success. This has to be done to facilitate and measure the development of students' character traits related to grit.

Timbal (2019) developed a predictive model to determine who among the students could possibly be a drop out. Analyzing the results from the data generated her rule-based classifier identifying grade-level retention, large sibling number, and poor academic performance as predictors for dropping.

Slick and Lee (2014) developed a new scheme on changing the ways of schooling in the university to cope with the grit level of students. They plotted DIT tools often used for moral reasoning and crafted situations and stories from real personas regarding failure and success. Their innovation found significant improvement in the grit level particularly to those students who were foreign.

Studies of Timbal (2019), Slick and Lee (2014) and Pergins-Gough (2013) showed the need to incorporate programs/innovations that assess the grit level of students. This implied that with the use of proper predicative model and innovation in school, grit level will be increased and SARDO will commit to schooling. This is related to the current study by providing a similar pattern on the development of a predictive model which can be used by schools to address students who were possibly SARDO.

C. RESEARCH QUESTIONS

The study primarily aims to conduct grit assessment of SARDO across secondary schools in *Cagraray* Island, *Bacacay, Albay*. The identification of this locale for the study was due to comparatively high rate of SARDO than mainland schools. The schools considered as locale for the study were Cawayan National High School, Cabasan National High School, and San Pablo National High School. To attain the aim of the study, a sociodemographic profile checklist integrated in the grit questionnaire was used to gather the data (see Annex E). Specifically, the gathered data from these instruments answered the following research questions:

1. What is the grit level of SARDO?

2. What sociodemographic characteristics of SARDO showed higher correlation to grit?

3. What educational implications can be derived from the findings of the study?

4. What predictive model may be proposed to help teachers and administrators address early problems of SARDO using the findings of the study?

5. How could the predictive model derived from the findings of the study be used to address early problems of SARDO?

D. SCOPE AND LIMITATION

The study covered the SARDO from SY 2020-2021 of Junior High School from secondary schools in the island of Cagraray, Bacacay, Albay. Due to its geographical location and isolation, statistically high reports on SARDO were documented from the last three years of records including SY 2017-2018, 2018-2019, and 2019-2020. The locale was a good location for the study.

The identification of sociodemographic profile of SARDO was consolidated by a researcher-made checklist. The scope of the variables for the sociodemographic profile include age, gender, grade level, school allowance, family type, family income, mode for going to school, and causes for possibly dropping out. These variables were deemed relevant to the commitment in attending school following the existing literature and studies on motivation and determination for finishing studies.

As to educational implications, the variable was limited to the repercussions of the grit level vis-à-vis the sociodemographic profile on the teaching and learning process. On the other hand, the variable for predictive model developed used the findings on grit level vis-à-vis the sociodemographic profile.

Grit studies focused only in schooling. The grit instrument of Duckworth *et al.* (2007) was used for identifying grit level but modified and tested for parallelism. The grit questionnaire has 10 indicators from perseverance and interest pointers. Responses required the selection from any of the 4-point scale across all

indicators. Grounding the attribution on poor grit using sociodemographic profile and meta-analysis of literature was also a qualitative scope of the current study.

E. RESEARCH METHODOLOGY

The study employed mixed methods. Quantitative data from Likert scales were used to gather information regarding grit level of SARDO. Inferential statistics was performed for correlation. Qualitative data generated from the quantitative findings of the study were used to support the meta-analysis of the literature, and a foundation for the development of the predictive model and its usage.

1. Sampling

Samples of the study were determined through non-parametric measures using purposive sampling technique. The study purposely selected SARDO based from the school records currently enrolled for SY 2020-2021 from Grades 7 to 10. Three (3) public secondary island schools across the Municipality of Bacacay were considered as research locale. The guidance facilitator of these schools were held responsible for the identification of the SARDO. SARDO were identified through absenteeism, poor academic performance, undesirable behavior, disability/underlying illness, and early emplorment (Dorough, 2003). These schools were tabulated in Table 1 with their corresponding number of enrollees and SARDO per grade level.

The harnessing of information was guided by the 3rd sentence of section 5 on the Implementing Rules and Regulations of the Data Privacy Act of 2012 stating that gathering of information for the purpose of research is permissible.

Table 1. **The SARDO**. School profile on number of enrollees with its corresponding number of identified SARDO.

Schools	Grade Level	Enrollment	Number of SARDO
Cawayan National High School	10	174	7
	9	177	11
	8	151	11
	7	202	16
Cabasan National High School	10	161	8
	9	172	5
	8	219	6
	7	175	13
San Pablo National High School	10	114	8
	9	132	9
	8	156	6
	7	143	15
TOTAL		**1976**	**115**

2. Data Collection

Letters of request were secured by the researcher from the office of the superintendent to conduct the study on the identified schools. After which, the researcher tied up with the identified schools to determine the SARDO across all junior high school grades through guidance facilitators/counsellor. The guidance facilitator coordinated with their school's respective grade level chairmen to facilitate the data gathering from identified SARDO simultaneously to the delivery and retrieval of modules.

Instruments were prepared and delivered to the schools where the researcher instantaneously oriented the guidance facilitator on the process and

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methods of gathering the data. The instrument has two (2) parts: A checklist for the sociodemographic profile of SARDO; and the grit questionnaire with ten (10) indicators for perseverance and interest with 4-point scale for the selection of responses by indicating check marks (See Annex E). During data gathering, the guidance facilitators and grade level chairmen directed and informed the class advisers on the proper translation of indicators if it is hardly understood by SARDO. Home visitation was conducted which merited SARDO who needed assistance for reading and comprehending the instrument. After which, the answered questionnaires were collected.

Answered research instruments were retrieved and processed for data analysis, both inferential and interpretative, by the researcher.

3. Ethical Issues

For ethical reasons, willingness of SARDO to participate in the study was considered as critical entry point in the study. Since most of the participants were minors, letter of consent was sent to their parents seeking approval for the children's participation. Safeguards were applied for the optimum trust build-up between class adviser and the SARDO. Data, information, and identity of the SARDO were not disclosed to the public. Also, the use of information gathered in the study was used solely for the purpose of research as directed by the Rules and Regulations of the Data Privacy Act of 2012. The research was guided by the ethical procedures and principles described by Mack *et al.,* (2005) namely: respect for persons, beneficence, justice, consent and confidentiality. The study is also founded on the ethical procedures directed by the National Ethical Guidelines for

Health and Health-Related Research (2017) such as social value, informed consent, vulnerability of research participants, risks, benefits and safety, privacy and confidentiality, justice, and transparency.

4. Plan for Data Analysis

Quantitative data generated from the instruments were used for statistical tests. Descriptive and inferential statistics were used to deduce the information from the data. Specifically;

(1) Proportions from mode were used since data generated in the Likert were nominal. Grit level was calculated by the following formula.

$$\text{Proportion of response} = \frac{\text{Frequency of responses in the Likert from 3 to 4}}{\text{Number of SARDO}}$$

In order to determine the level of grit of SARDO, the scale from Duckworth *et al.* (2007) was used as shown below.

Table 2**. Descriptive Equivalent**. Reference Scale of Grit (Duckworth *et al.*, 2007)

Proportion Range	Verbal Scale	Level of Grit
0.76 to 1.0	Very much like me	Extremely gritty
0.51 to 0.75	Mostly like me	Most likely gritty
0.26 to 0.50	Not much like me	Not much gritty
0.25 below	Not at all like me	Not at all gritty

(2) Pearson *r* correlation was used to correlate the grit level of students to their sociodemographic profile. This analysis provided understanding on which of the sociodemographic data showed higher correlation to grit which can be used as a springboard for addressing problems of SARDO through the development of the predictive model and its guidelines for usage.

F. DISCUSSION OF RESULTS AND RECOMMENDATIONS

Out of 115 SARDO identified within the research locale, only 103 filled out grit instruments were successfully retrieved indicating willingness to participate in the study. The retrieval rate is equivalent to 90% for data tabulation and interpretation.

The narratives below were the significant findings of the statistical analyses conducted on data sets.

1. *Grit Level of Students-at-Risk of Dropping Out (SARDO)*

Since the nature of the data is nominal, mean of proportions of 3 and 4 responses in grit instrument was computed to determine the grit level of SARDO. Table 3 shows the summary of proportion of responses.

Table 3. **The Grit Level**. The grit level of SARDO across three public secondary schools in *Cagraray* Island

School	Grade Level	N	M of Proportions	Grit Level	Sig. ($p=0.05$)	Post-hoc (*Bonferroni*)*
Cawayan NHS	10	4	0.450	Not Much Gritty	0.016	p>0.008 for G7 and G 10 (H_1). H_0 for other events.
	9	11	0.436	Not Much Gritty		
	8	9	0.311	Not Much Gritty		
	7	16	0.288	Not Much Gritty		
Cabasan NHS	10	8	0.588	Most Likely Gritty	0.000	p>0.008 for G7 and G8, G7 and G10, and G7 and G9 (H_1). H_0 for other events.
	9	5	0.560	Most Likely Gritty		
	8	6	0.380	Not Much Gritty		
	7	13	0.207	Not at all gritty		
San Pablo NHS	10	5	0.467	Not Much Gritty	0.039	p>0.008 for G7 and G10 (H_1). H_0 for other events.
	9	5	0.240	Not at all Gritty		
	8	6	0.250	Not at all Gritty		
	7	15	0.200	Not at all Gritty		
AVERAGE		**103**	**0.365**	**Not Much Gritty**		**0.000**

Bonferroni Correction (post-hoc) has six (6) events for every school (p=0.008)

One surprising finding from the table of data (Table 3) is the pattern of similarity on increasing grit level of SARDO on succeeding grade levels. Though most of descriptive equivalents were categorized as *Not at all Gritty*, the quantified means of proportions of grit level were continuously increasing. This result is further supported by the statistical difference in the data ($p<0.05$) indicating that grit level across grade level do vary, supporting the Grade 10 SARDO having the uppermost grit level in the pool of participants. Recent reports in the literature of personality assessment documented the concept of "goal looms larger effect" where vivid increase in commitment, or grit level, of individuals is observed who are closer in achieving life goals (Higgins, 2012). The data, as supported the existing literature, suggest that Grade 10 SARDO tend to persevere more into schooling believing that the goal for finishing school is one step closer. Though further studies need to be conducted to testify the truthfulness of comparatively high grit level of Grade 10 SARDO, the result of the current study measures the validity of the existing accounts of Duckworth and Seligman (2005) who noted that gritty individuals were more likely to finish schooling, which on the contrary, showed that SARDOs have distinctively poorer grit level as shown in data set (most of responses were *Not at all Gritty* to *Not Much Gritty*). Though Duckworth and the present study dealt with the opposite extremities of grit level, the harmonious relationship and sufficing results of two studies signified and reflected the active role of grit in achieving success for finishing or quitting school.

Post-hoc analysis through *Bonferroni* correction was conducted to determine the data set/s that caused the varying result of grit level within grade

levels. Post-hoc analysis revealed the significant difference in the data sets particularly between Grades 7 and 10 across all possible comparative events. This indicated that grit level of the SARDO on those grade levels were distantly related and incomparable causing the entire data set to be interpretatively different from one another. Meanwhile, this result of post-hoc analysis was further supported by no statistical difference (p>0.008) on the grit level of SARDO between Grades 8 and 9. This result further validated the superior grit level of Grade 10 SARDO which is significantly higher than lower grade levels (see Table 3). Conversely, the grit level of Grade 7 SARDO was significantly lower than the succeeding grade levels, indicating that these students were more likely to quit. This supposition is supported by the aforementioned documented study where individuals tend to be more committed in achieving life goals when they get closer to accomplishing their purpose (Higgins, 2012). On the contrary, Grade 7 SARDO foresee education as a long-term task which dampens their will and spirit to persevere in schooling.

Though Higgins (2012) have proven that commitment becomes stronger when a person becomes closer to his goals, this literature only proves the inverse connotation that grit level is poor when the goal is outlying from reality. But little by little, when people successfully surpass hard task and move closer to their goal, their grit level is increasing one step at a time. This means that grit is not stagnant; that it can change with effort. Furthermore, this implied and reflected the need to invest focus and industry to supervise Grade 7 SARDOs who have fragile grit level seeing their schooling endeavor as a long way to go. As a matter of fact, recent reports have shown that young learners have fragile personality and were more

likely to quit school when they were not given enough attention and academic support (Morsy and Rothstein, 2015; Johansson, 2019). This fragile personality of Grade 7 SARDO contributes to their poorer grit level which will results to quitting school when not given intervention measures. To visualize the data growth of grit level of SARDO as they move closer to finishing school, Figure 1 is presented.
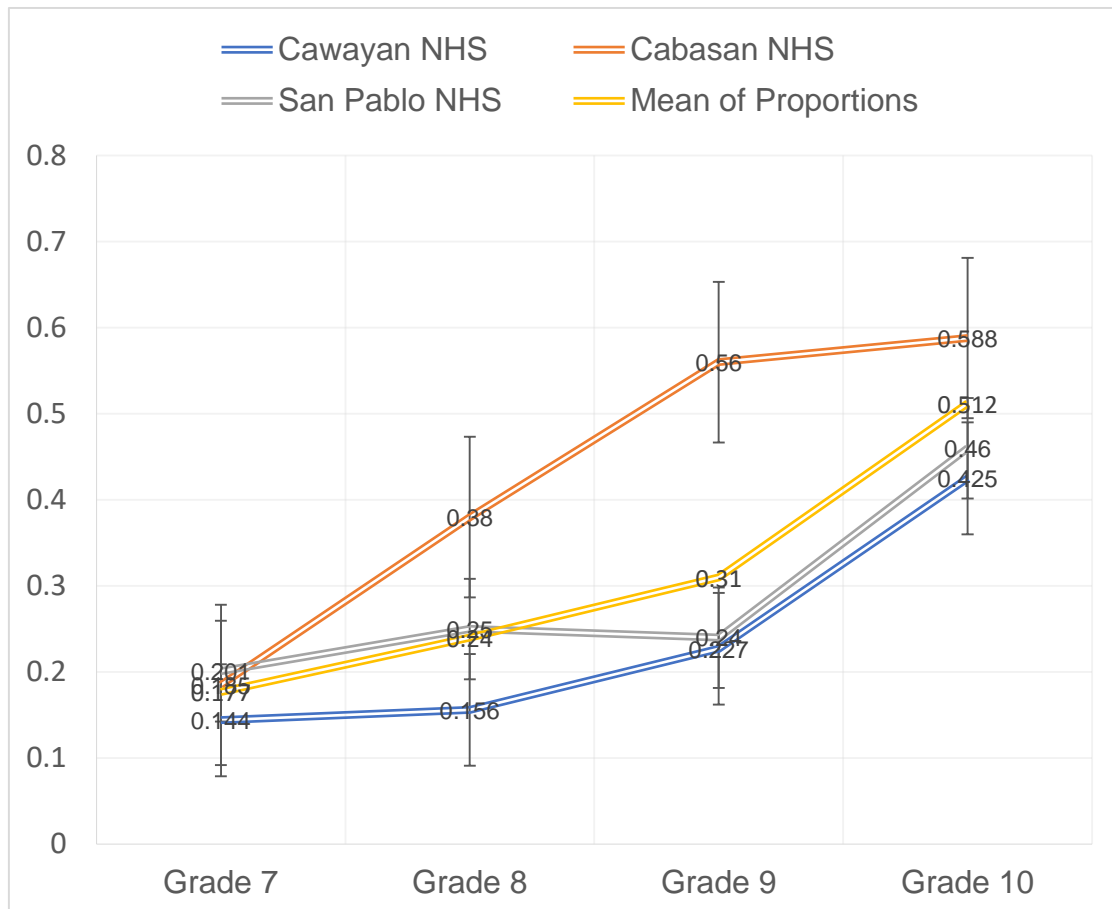

Figure 1. **Growth of Grit Level**. The increase in the grit level of SARDO on succeeding grade levels.

The mean of proportions combined from three (3) schools showed the continuous increase in the grit level of SARDO from Grades 7 to 10. This reflects that grit level grows when SARDOs successively finish a grade level.

It is recommended to further investigate the other factors that contribute to the growth of grit since presumption of its growth was primarily grounded on the pool of literature studies and limited data. Investigation on grit level of Grade 7 and 10 SARDO need to be thoroughly studied across other schools to generate a more inclusive research result.

2. Correlation Between Sociodemographic Profile of SARDO and Their Corresponding Grit Level

To test the degree of relationship between sociodemographic profile and grit level of SARDO, frequency count (for nominal data) of SARDO for every option in the sociodemographic indicators was correlated to their corresponding grit level. Table 4 shows the result of the correlational test.

Table 4**. Correlation.** Degree of Relationship Between the Sociodemographic Profile and Grit Level of SARDO in Each School

Sociodemographic Profile	Cawayan NHS	Cabasan NHS	San Pablo NHS	AVE.	Relationship
Grade Level	0.809	0.834	0.792	0.812	High
Age	0.056	0.342	0.283	0.227	Low
Gender	0.005	0.120	0.114	0.080	None
Daily Allowance	0.215	0.028	0.212	0.152	Low
Causes for Possible Dropping at School	0.556	0.429	0.592	0.526	Moderate
Family Type	0.312	0.182	0.324	0.273	Low
Mode of Transportation	0.192	0.216	0.398	0.269	Low
Family Income	0.232	0.271	0.198	0.234	Low

Common to all three school locales was the high correlation of grit level pertaining to the grade level. This is an indication that grit grows directly proportional to the grade level of SARDO. Result of this correlational test is proven valid by the previously reported findings on the increasing grit level when SARDO successfully enters a higher grade level (Table 3). Though the data showed high

relation between grade and grit level, thorough studies need to be conducted to testify the truthfulness of the data. On the other hand, previous report in the literature indicating the relationship between grit and age (Flaming and Granato, 2017; Aswini and Amrita, 2017), and grit and gender (Cupitt and Golsham, 2015) were contradictory to the current findings of no existing relationship between the variables. Investigation on the records of this unparalleled results showed that the previously documented studies dealt with collegiate studies focusing on specific courses like engineering, military camps, and arts that were stereotyped by genders and age resulting to higher degrees of correlation. Meanwhile, basic education is gender and age neutral which was depicted by the result having no relationship to grit level for finishing school. Recent studies supported this assumption where gender and age roles do not compensate for personality measures when unnecessary and irrelevant (Weisberg *et al.*, 2011; APA, 2003). Though grade level showed high relationship to grit whereas age showed no relationship to the personality measure, the current study confirms that grit grows with time but not with age. This result showed that the success of a SARDO to finish a grade level on the continuum of time develops their resilience to keep committed in schools resulting to improved grit level.

Data also showed that privileges in life do not affect grit levels. In fact, family income and school allowance showed poor relationship to the grit level of SARDO. Existing literatures have shown how extrinsic motivation involving money can drive students to go to school (Iftody, 2019; Jackson and Mackevicius, 2021), but the current study revealed that the use of such motivation is not a helpful tool to boost

grit. As to motivational aspect, extrinsic factors can only improve the effort in short term goals while grit deals with long term commitment to achieve success dealing both with interest and effort. Therefore, the use of money to stimulate school children in going to school is impractical and will only affect their effort for short term goals but will not teach them to develop interest and long term commitment in schooling, thus grit is not sustained. In fact, the data clearly shows that there are many privileged SARDO who do not follow through on their commitment to finish schooling. The same result was obtained following the mode of transportation suggesting that privileges in school distance and obstacles for going to school do not affect school children's grit level.

While family type showed poor relationship to grit level, other causes for dropping out like family problem, early employment, lack of interest, peer influence, sickness, school problems, and finances showed moderate relationship to grit level. Indeed, these identified causes were used as springboard to designate entry point of the SARDO participants in the study. Moreover, the correlational test suggested that these indicators can somehow affect grit and a good predictor to determine those students who are risk of quitting school. The existence of this moderate relationship would also imply that we need more of indicators to truly identify the strong forecaster for students at risk of dropping. Nevertheless, the data implied that environmental and physical setbacks of SARDO can somehow affect their grit level, which in turn, can also be detrimental to their dedication of going to school. In addition, there are also accounts in the body of literature signifying that life setbacks affect grit level (example: Nebel, n.d.). The result of

this study is a measurement of the existing records proving the reliability of the related studies where problems and obstacles do affect grit. Therefore, grit shows reasonable association to the life incidents and natural impediments experienced by SARDO.

It is recommended that teachers shall establish a devoted effort to address these causes for dropping out to improve the grit levels of SARDO along with other intervening factors that indirectly affect commitment in going to school.

3. *Educational Implications Derived from the Findings of the Study*

Privileges in life do not make school children gritty. Though extrinsic motivation involving money can increase the likelihood of driving students to attend school, the effect is only short term (Iftody, 2019). Educational reformers shall coordinate with parents by enlightening them that feeding school children with wealth and increased school allowance do not make them engaged with long term goals for schooling. Privileges in life shall not be seen by parents as a long-term motivational factor but rather a simple element to fill up physiological needs. Also, teachers must develop a wider understanding of learning and commitment of children from motivational perspective; from psychological perspective. Whether SARDO or non-SARDO, education must cause a paradigm shift to students that finishing school is much more than students' ability to learn quickly and easily. It also comes with perseverance and interest. As intelligence counts, emphasis must be given to the concept that grit counts twice.

Since I.Q. has been long known in education as a fuel for success, educational reformers shall consider personality factors, like grit, to determine the commitment stamina of the students for finishing school. This way, educational reformers and students will recalibrate the old definition of success where, oftentimes, success means smart while failure means dumb (Dweck, 2006). Emphasis in character and personality development must be given impetus especially for Grade 7 students who see education as a long-term goal. One of the goals of *Education For All* (EFA) is to "*achieve a 50% improvement in adult literacy, especially for women, and equitable access to basic and continuing education for all adults*" (International Bureau of Education, n.d). This educational campaign is only attained when schools develop intervention plans for their SARDO through mainstreaming the Drop-Out Reduction Program (DORP) (DO No. 74, s. 2010) where majority of focal concerns deal with the aforementioned causes for dropping out that urge students from quitting school. DORP shall not only focus on these life setback issues around SARDO, but must be inclusive into wide-ranging elements of personality assessment as tool to predict students who are more likely to drop. In fact, the use of life setbacks/causes of dropping out as sole factors for identifying SARDO were non-reliable considering some existing studies indicating that resilient students were not affected by family issues, peers, employment, poor grades, behavior, or even sickness (Widyastuti, 2017; Adebusuyi, 2018; Wu *et al.*, 2020). Resilience is equal to grit (Bshant, n.d.; Perkins-Gough, 2013). Therefore, grit assessment is a helpful and accurate tool to truly measure the personality of students on their interest and perseverance in finishing school. If grit truly signals

greater chances of SARDO to continue schooling, educators shall work on levelling off the grit level of students upon entry in schools. This must be part of educational assessment to determine how hard and long can students cope with academic standards despite of setbacks and obstacles they encounter in their physical environment. Intervention strategies must be developed to address personality and will-driven issues of identified students who are less gritty. Devotion of schools to develop grit among students must be established to help students set long-term goals and attention in achieving so.

The most shocking thing about grit is how little psychologists know, how little science knows about building it. So far the best idea about building grit is something called growth mindset. It was originally developed at Stanford University by Dweck (2006), and it is the belief that mind is not fixed, that it can change with effort. This is manifested by the mentality on pursuing and working really hard to make a future a reality. Training SARDO to have growth mindset will shift their personality of helplessness, and consider their foreseen academic failure as a non-permanent condition. Growth mindset approach for teaching can be done through reflection activities where SARDO, along with other students, must be given autobiographical and socialization sketches of successful people who started with tough experiences and failures. These life setbacks of successful people should demonstrate to students that their personal obstacles must not hinder them from pursuing their life goals, which will develop their grit in the long run.

One factor found to be detrimental for the development of grit is the engagement of school children to speedy life conveniences (Bshant, n.d.). Since

education has encouraged the use of technology and internet, this teaches the students to lose the sense of perseverance, and solid work ethics. Limited use of academic convenience must be provided to students to impart to them the value of hard work and determination towards achieving long-term goals, which in return, expands their grit level. Educational sectors, both teaching and non-teaching staff, shall devote and invest effort to elucidate to school children the worth of finishing education, and how this ticket can head someone for a better future. Grit and sustenance of schooling determination will prevail if SARDO will see the benefit of finishing school. Therefore, schools must adjust their instruction to encompass the personality development of students related to grit, perseverance, interest, resilience, work ethics, and determination to impart the commitment of children to reach long term goals.

It is recommended to develop a school culture for character and grit build up which must be mainstreamed in education for a more inclusive instruction to SARDO and non-SARDO.

4. The Proposed Predictive Model to Help Teachers and Administrators Address Early Problems of SARDO

Grounded on the findings of the study, this proposed predictive model can be used to determine students manifesting poor grit level, thus categorized as SARDO. This more precise predictive model is hereby developed to help teachers and administrators identify those students who are more likely to quit schooling.

The data revealed that grit shows higher correlation to grade level and moderate relationship to the causes for dropping out. A predictive model integrating these two vital elements must be used to accurately identify SARDO in a school. However, identification of the grit level must serve as springboard prior to identification of the causes for dropping out since literature believed that resilient students do not exhibit quitting behavior despite life setbacks (example: Adebusuyi, 2018). This would indicate that some students experiencing these causes for dropping out might not display quitting behavior because of their strong determination and long-term motivation to finish school. Therefore, the need to explicate grit level beforehand will be the first course for identifying SARDO.

As to providing the solutions to sustain the grit level, teachers shall diagnose the causes for dropping out. Identification of the causes may expound further from the cited drop out causes, and shall treat the root cause of the problem through whole-child approach. Meaning, internal and external factors shall be taken into consideration to determine the element/s that dampen/s the SARDO's grit level. Identified root causes for dropping out shall be given intervention plans and assistance to spare the SARDO away from uproar of concerns that distract their attention in schooling. If no identified external factor causing the SARDO to have poor grit level, the problem is solely based on character or personality, which is internal.

Instruction using growth mindset approach shall be integrated and mainstreamed in classrooms to improve, or at least sustain, the grit level of students as a whole. A post-grit assessment must be done at the end of the school

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year to measure changes in grit level of SARDO. Figure 2 shows the predictive model and ways to address problems of identified SARDO, called model ARMORED.

This model is recommended to be implemented to determine its effectiveness through an action research proposal.

🟥 The Predictive Model
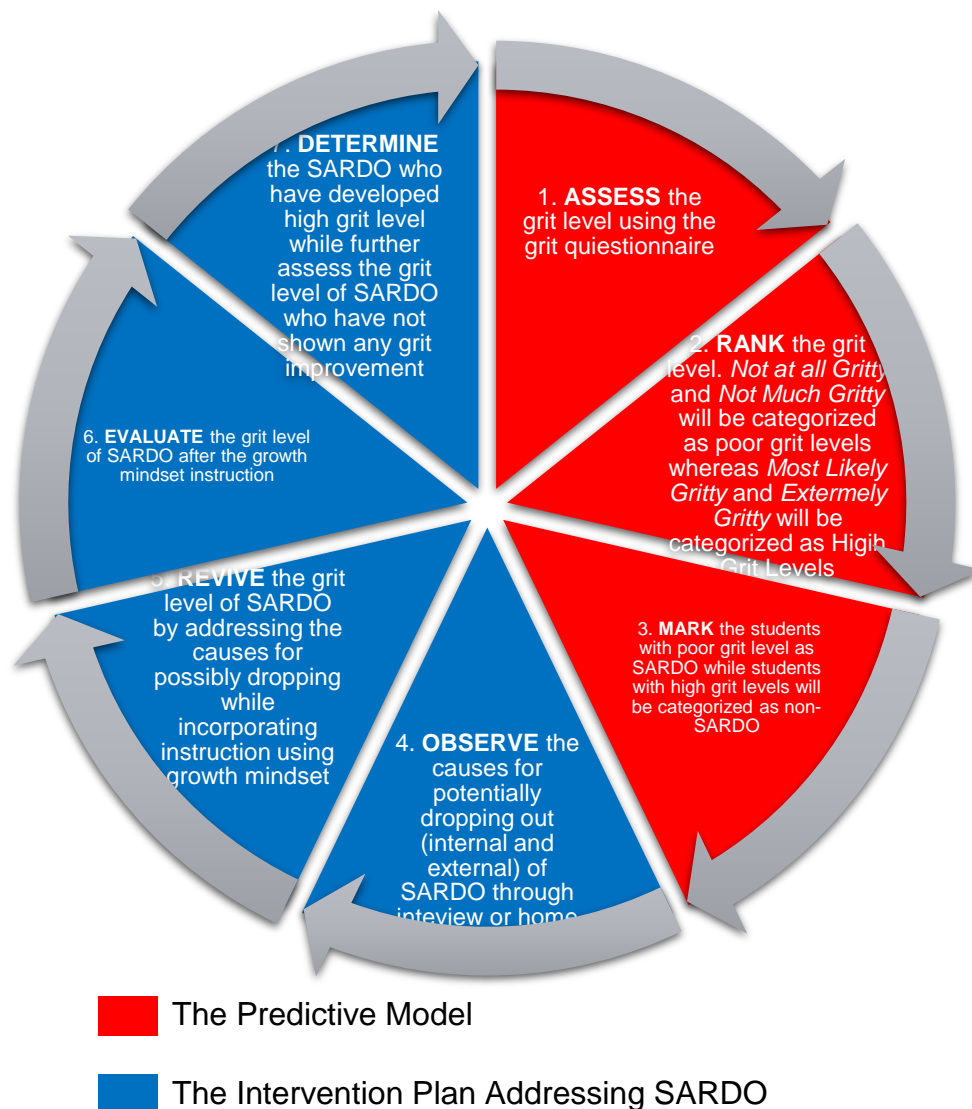
🟦 The Intervention Plan Addressing SARDO

Figure 2. **The Model ARMORED**. The Predictive Model for the Identification of Students-At-Risk of Dropping Out (SARDO) and Their Corresponding Intervention Plan Integrating Growth Mindset Instruction.

5. *Suggested Usage of the Predictive Model to Address Early Problems of SARDO*

The DORP aims to reduce or eliminate school dropout in response to EFA goals on inclusive education. Schools have adapted various measures to be integrated in their school-based DORP which primarily dealt with home visitation and addressing the identified causes for dropping out (Drop Out Reduction Program Handbook, 2008). The developed model ARMORED can be utilized as DORP to establish a whole-child approach to treat the problems for potentially quitting school.

The model ARMORED has two phases. The (1) Predictive Model, and (2) the Intervention Plan using growth mindset instruction. The predictive model encompasses three major steps (*Assess, Rank, Mark*) primarily dealing with grit level. On the other hand, the intervention plan deals with four steps (*Observe, Revive, Evaluate, Determine*) to address the problems of the identified SARDO through whole-child approach.

In the ASSESS phase, the grit instrument must be used to level off the grit of the incoming students upon entry in the school, on the first day of classes, or during entrance exams. Following the same criteria measures, RANK the grit level of students who demonstrated grit levels of descriptive equivalents as to *Not At All Gritty* and *Not Much Gritty.* This can be done by computing the proportions of 3 to 4 responses and correspond the descriptive equivalent using the grit table. Students who exhibited poor grit level (*Not At All Gritty* and *Not Much Gritty)* must be MARKED as SARDO, thus qualifying them for the intervention plan. Once

SARDO were identified, OBSERVATION through series of interview or home visitation must be conducted to determine the causes for possibly dropping out. Teachers may venture on factors and data previously reported by DepEd like family problems, peer influence, finances, lack of interest, employment, illness, and others as root causes (PSA, 2016). These indicators showed moderate correlation to grit level denoting that attending to these internal and external causes can somehow improve grit level. Alongside with internal factors, character and personality shall also be considered for observation since they also contribute in the power of determination to achieve long-term goals (Baker, 2019; Indeed Editorial Team, 2020). Then, REVIVE the grit level by mainstreaming instruction integrating growth mindset in schools as an intervention plan/DORP to address personality and character issues for schooling. The normalization of growth mindset instruction can be done through integrating autobiographical sketches of local or international figures who went through life difficulties and yet succeeded in schooling. This instruction must be assimilated across all learning areas by integrating socialization stories of the successful people for selected topics. This will serve as inspiration to students, especially SARDO, to pledge themselves in learning as they set up a person of emulation with the belief that problems in life are not enduring situations. This is further supported by the related study documenting the positive effect of autobiographies and socialization stories in the development of determination (Berdin, 2017), and grit in due course. Also, instruction must teach students the concept of hard work by immersing them in real-life situations that will challenge their determination and willpower to resolve

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the classroom-based issue (Bshant, n.d.). This can be done by going back to the basics of learning like immersing in libraries instead of surfing internet, doing manual calculation instead of using calculators, employ hand-based calligraphy instead of font-styled printed computer texts and others. Resilience and commitment to learn will grow, along with patience, which will eventually develop growth mindset (Lechner, 2016) and boost grit levels. After a year of implementing the model ARMORED, the teachers may EVALUATE the grit level of SARDO using the same grit instrument to identify the effects of the intervention plan. After which, DETERMINE the SARDO who have significantly improved grit levels, while the cycle of the model ARMORED must be kept continuous for SARDO who showed no significant growth in grit at all.

Much emphasis must be given to Grade 7 SARDO who demonstrated poorer girt level compared to SARDO from higher grade. This predictive model can be used as a DORP that deals with a vividly different perspective in order for teachers and school administrators to determine how personality measures are responsible for shaping the long-term motivation for schooling.

Testing grit level of SARDO filled the gap between commitment to continue in school and corresponding causes for dropping out. If intervention plans for SARDO will primarily focus on the old practice of allocating effort to address the previously known causes for dropping out, this will not bridge the gap of long-term motivation and school success. Dealing with drop out problems in schools must be holistic and follows a whole-child approach where the totality of the child is a vital part of the diagnosis.

6.   *Recommendations for Further Research*

The present study had shown the poor grit level of SARDO through assessment across all grade levels in Junior High School. It was also documented the growth of grit when SARDO successfully finish a grade level where commitment to schooling becomes stronger seeing that finishing school becomes closer. Moderate relationship was also found between grit level of SARDO and to their corresponding causes for potentially dropping out, whereas grit has no relationship at all to other sociodemographic profile like privileges in life, family structure, distance in school, age, and gender. Though the literature has minute accounts on how to build grit, the best idea by far is integrating growth mindset in instruction to boost the mental state and personality of SARDO to keep them engaged with schooling despite life setbacks. Growth mindset is integrated to the proposed predictive model of SARDO to address their potentiality of quitting school (mode ARMORED). It was suggested to implement the proposed model across all grade levels while putting premium to Grade 7 SARDO who showed poorer grit level along with its cohort.

However, the current study needs to tackle the following issues to further testify the claims and interpretation of the researcher. Hence, this study recommends the following to the future researchers who wish to venture in the same field of interest.

a. Repeat the procedure of the study while running a quasi-experiment design by comparing the grit level of SARDO and non-SARDO.

Furthermore, the same quasi-experiment shall be conducted to Senior High School and elementary schools.

b. Since the findings revealed a continuous growth pattern of SARDOs' grit in Junior High School, it is therefore vital to test whether the growth of grit is continuous until Senior High School, or inversely declining in elementary PARDO.

c. Grit is the only personality issue that was tested in the study. Accounts from the literature have shown how this personality is related to other personality measures like resilience, determination, and motivation. Therefore, future researchers may further expound the content of the study by determining the resilience, determination, and motivation levels of SARDO for long-term goals especially in schooling.

d. Context of the study was implemented in island schools. Levelling off the grit in mainland schools must be conducted if the same grit level of their SARDO correlates to the SARDO of island schools.

e. Measure the grit level of students who have dropped from schooling.

f. Venture on grit build-up studies and develop innovative ways on how growth mindset instruction can be successfully mainstreamed across all learning areas to develop grit level of SARDO and non-SARDO.

g. Further expound and understand why privileges in life do not affect grit levels of SARDO.

h. Study other factors which show higher relationship to grit levels of SARDO.

i. Duplicate the correlational test between grit level and sociodemographic profile of SARDO from other schools and locality since the literature has fluctuations and inconsistent results in the correlational analysis of the two variables. Result of the future studies may develop measurements or new discoveries in relation to the existing documents.

j. Examine the grit level of SARDO in minute scales. This can be done through identifying grit level for learning mathematics, science, language etc.

k. Determine the stopping points and intervening factors through which gritty students immediately quit school.

l. Conduct an action research and determine the effectiveness of the developed model ARMORED in improving grit levels of SARDO. Likewise, determine the issues of the model upon actual implementation in schools.

m. Though the instrument was adapted, it was modified based on the need and context of the study. Therefore, *Cronbach Alpha* analysis shall be conducted if the instrument retains its reliability and internal consistency of responses from a pool of sample respondents.

G. WORK PLAN/TIMELINE

The timeline below was the actual dates of pre-, during, and post-implementation proper of the research paper.

Activity/ Strategy	Time Frame	Persons Involved	Means of Verification
A. Pre-Implementation Plan			
1. Coordination and orientation with schools and guidance facilitators on the conduct of the study.	May 2021 (1st week)	Researcher Principal Guidance facilitator	Planned dissemination of the questionnaires for the SARDO
2. Identification of SARDO	May 2021 (2nd-4th week)	Guidance facilitator	List of SARDO
B. Implementation Plan			
1. Printing and distribution of questionnaires	June 2021 (1st week)	Researcher	Printed questionnaires
2. Collection of Data	June 2021 (2nd-3rd week)	Guidance facilitator SARDO	Answered questionnaires
3. Retrieval of data from identified schools	June 2021 (4th week)	Guidance facilitator Researcher	Retrieved questionnaires
4. Analyzing and drafting of results	July 2021 (1st -4th week)	Researcher	Tabulated results
C. Post-implementation Plan			
1. Dissemination of Data	July 2021 (4th week)	Researcher Guidance Facilitators	Documentation of activity and published paper
2. Submission of the final copy and result to the offices	Aug. 2021 (4th week)	Researcher	Approved copy of completion report

H. COST ESTIMATES

Below is the detailed list of research cost and materials needed for the duration of the entire study on assessment for grit. Expenses were broken down per research task activity, and/or deliverables based from the incidentals allowed by DO 16., s. 2017.

ACTIVITY	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL AMOUNT
Pre-Implementation				
Coordination and orientation with schools and guidance facilitators on the conduct of the study.	Bond Paper Canon Ink (black) Travel Expenses Communication	1 ream 1 - 1	P228.00 P430.00 P1490.00 P1000.00	P3,148.00
Identification of SARDO	Communication Travel Expenses	1 -	P1000.00 P1490.00	P2,490.00
Implementation Proper				
Printing and distribution of questionnaires	Bond Paper Ink (Black) Travel Expenses Communication Folders Punchers Paper Fasteners Food for SARDO Biscuits Candies Juice	10 reams 3 - 1 115 3 115 50 packs 50 packs 130	P228.00 P430.00 P1490.00 P3000.00 P4.75 P81.75 P3.75 P76.00 P45.75 P21.00	P18,100.25
Collection of Data	Travel Expenses Communication Foods for teach. Biscuits Juice	- 1 50 packs 40	P1490.00 P1000.00 P76.00 P21.00	P7,130.00
Retrieval of data from	Travel Expenses Communication	- 1	P1490.00 P1000.00	P2,490.00

identified schools				
Analyzing and drafting of results	Bond Paper	10 reams	P228.00	P2,280.00
Post-Implementation				
Dissemination of Data Submission of the final copy and result to the offices	Publication fee Bond Paper Canon Ink (Black) Travel Expenses INSET Foods (Catering)	5 4 reams 1 - 1	P2,000.00 P243.00 P478.75 P1490.00 P15,000.00	P27,940.75
Submission of Final Draft	Bond Paper Canon Ink (Black) Binding cost Travel Expenses	10 reams 3 8 -	P228.00 P430.00 P200.00 P1316.00	P6,486.00
GRAND TOTAL				**P70,065**

I. ADVOCACY, UTILIZATION, AND DISSEMINATION

The result of the research was relayed to the school guidance facilitators and teachers through an INSET which disseminated a whole new perspective for identifying SARDO. Also, the INSET taught the teachers on the appropriate growth mindset strategies to boost grit among identified SARDO. The model ARMORED was also introduced to help teachers predict students who are more likely to quit and strategize on how causes for dropping out can be resolved by school in partnership with parents. For wider dissemination of the data, the result of the study was written through an article-type document which was submitted to newspapers with wider dissemination. Online-based platforms of publication that were Scopus-based were also used for broadcasting the research result.

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K. FINANCIAL REPORT

ACTIVITY	CASH OUT	BALANCE
Pre-Implementation		
BASIC EDUCATION RESEARCH FUND FACILITY GRANT		Php 70, 000.00
Coordination and orientation with schools and guidance facilitators on the conduct of the study.	Php 3,148.00	Php 66, 852.00
Identification of SARDO	Php 2,490.00	Php 64, 362.00
Implementation Proper		
Printing and distribution of questionnaires	Php 18, 100.25	Php 46, 261.75
Collection of Data	Php 7, 130.00	Php 39, 131.75
Retrieval of data from identified schools	Php 2, 490.00	Php 36, 641.75
Analyzing and drafting of results	Php 2, 280.00	Php 34, 361.75
Post-Implementation		
Dissemination of Data Submission of the final copy and result to the offices	Php 27, 940.75	Php 6, 421.00
Submission of Final Draft	Php 6, 486.00	Php 0.00