Psychometric Properties of MRRF-Academic Resilience Scale (MRRF-ARS): A Multifaceted Measure of Resilience

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Abstract
Resilience views as a multifaceted construct anchored on the strength of the human being to withstand and bounce back despite adversity. MRRF- Academic Resilience Scale (MRRF-ARS) is a newly developed instrument that will help measure the academic resilience of Senior High School Students. Hence, this paper aims to establish the psychometric properties of the MRRF- Academic Resilience Scale in terms of factor structures, reliability, and validity. The sample consisted of senior high school students (N=340) from different educational institutions. Preliminaries in test construction were anchored on factors identified based on existing literature. Exploratory factor analysis was employed to evaluate the factor structure of the initial 108-items of MRRF-ARS. Using Varimax Extraction Method, the initial 108-item questionnaire was reduced to 68 items with only two factors, while other factors were excluded due to the low commonalities. The factors that emerged after the extraction are (1) Positive coping and regulation and; (2) Negative coping and Perception of academics. The result proved high internal reliability and constructed validity for the final 68 items inventory. It suggests that the MRRF-Academic Resilience Scale has a good implication in measuring academic resilience and the emerging identified factors represent standard features evident in existing research investigating resilience. Thus, this research can be used both academic and counseling intervention.

Keywords: Academic Resilience Scale, Resilience, Academic Resilience, Coping, Adversity

Introduction

The implementation of the Senior High school programs throughout the Philippines was instigated to cater to and address the pressing trend of education. However, the transition from the old to the new curriculum and its academic guidelines has further adjusted Filipino students. These affect the students' cognition, affect, and behavior in terms of dealing with/handling their academic demands. In connection with this, some Filipino researchers observed that the implementation of Senior High School affects the student's academic standing and psychological wellness predominantly. With this, the present study aims to develop an instrument that can measure the Academic Resiliency of Senior High School students in the Philippines.

Since resilience was used to measure the functioning of an individual in a general context, there is limited research that focuses on measuring resilience in the school context. Although literature proved the strong association of resilience and academic performance, further research is essential to identify other factors and measures that will help strengthen and establish the association of resilience and academic performance (Arif & Mirza, 2018). With this, Resilience is defined as the ability of an individual to bounce back and cope despite adversity and hindrances (Sarwar et al., 2010). Therefore, resilience indicates that individuals have stable and healthy functioning after experiencing adverse events (Bonanno, 2004). According to Pietrzak and Southwick (2011), argued that researchers must clearly define resilience since resilience is a construct with a multi-dimensional aspect that can be viewed as a trait, process, or outcome. Also, it can be considered to be the mechanism that aids individuals in coping with different adversity that keeps them going and moving towards the present. In this study, resilience is treated as a process of coping with academic adversities that bring them to academic success.

As defined in this instrument, academic resilience is the ability to adapt and withstand academic diversity, challenges, and stress from academic requirements and experiences; it can also recover and maintain wellbeing and effective coping strategies to attain academic success in Senior High School. According to Cassidy (2015), it was observed and discussed that the students in the high Success Group were found to have reported higher resiliency skills than students in the Low Success Group. It implied that students' reported level of construct and resiliency skills would predict future high school success. With this, resilience entails that the student's level of academic resilience creates an impact on their academic success.

Resilience, along with positive psychology, comes with a typical dynamic. Both are, indeed, showing a humanistic view of Perception. In the observation of Rao and Krishnamurthy (2017), the resilient individual is those person who demonstrate "the ability to remain well, recuperate, or even succeed in the face of adversity." Although most individuals are coping, they are ordinary people dealing with the challenges and tragedies of everyday life (Masten, 2001). In these two statements, the dynamics of being resilient and positive psychology play a beneficial role for the individual given the same situation. Pietrzak and Southwick (2011) also support these two dynamics. He emphasized the process and described resilience as a psychological activity that energizes goal-directed behavior, cognition, and emotions. Goal-directed behavior is congruent to finding our meaning and purpose in the positive psychology discipline. This was also supported by Harvey and Delfabbro (2004); and De Haan et al. (2002) that resilience is a factor that may function as a risk factor or protective factor depending on the circumstance. For instance, running away from home might fall into

protective factors if the home environment is more dangerous than the streets. Still, the opposite is true if not, which creates scoring problems for such items on the questionnaires.

Different studies pointed out the various components that affect academic resilience, including social influences, cognitive, emotional, and behavior. For instance, it is not only the student alone who contributes to his academic success but also the environment. A recent study concluded that a powerful predictor of the academic outcome for children might be the quality of the immediate caregiving environment (Adriance & Shaw, 2009). A caregiving environment is equivalent to the supportive environment that the student is subjected to. These include the immediate family members, school authorities, peers, and other individuals the student recognizes as a significant other. According to Chung et al. (2017), "despite the burden of parental, family concerns, or chronic poverty, most children identified as resilient have had the ability and opportunity to form a close bond with at least one person [not necessarily the mother or father] who provided them with stable care" (p. 46). A family member takes a role in building the student's resilience through their effort and constant contact with their children.

Along with the social influence is the cognitive or students' academic competence. Kuyper (2014) that "above average and above" students had a sense of belonging to the school, which was a predictor of academic resilience. They also concluded that high-achieving students reported reading more pages per week, doing more homework, and having higher grades than low-achieving students. The students' intrinsic motivation and its value to the importance of studying feeds the resiliency, respectively. On the other hand, the "below average' students, Fernandez et al. (2018) concluded that human relationships are the most critical factor in student resiliency which at some point falls to be a factor contributed by social influences.

This study includes assessing the student's emotional capacity to complete the dynamics of academic resilience and success. Masten (2011) concluded that a person who adapts well to stress encountered in the academic setting might fail to adapt well in terms of their personal life and relationships. Stress is one of the academic adversity. It is majorly categorized as the academic requirements, meeting deadlines, and achieving expectations. But stress for a highly resilient student could be another thing. Pietrzak and Southwick (2011) observed that the more we can learn about resilience, the more potential there is for integrating salient concepts of resilience into the field of medicine, mental health, and science.

Masten (2014) reported that resilience is composed of the ability and capacity of a dynamic system to cope successfully with hindrances that threaten system function, viability, or development. Literature also supported that resilience carries a connotation of positive or typical developmental adaptations despite exposure to explicit threats or adversity. With this concern, there is a high need to explore the psychological aspects of the students. Thus, it supports the findings of Pietrzak and Southwick (2011) that determinants of resilience include a host of biological, psychological, social, and cultural factors that interact with one another to determine how one will respond to stressful experiences. However, Masten (2014) and Mwangi et al. (2015) supported the claim that resilience is multidimensional encompasses different domains such as academic, social, and emotional resilience. In connection with this, the present study determined and addressed academic resilience in the school context, which is crucial in education.

In the Philippines, there are no established norm/psychological tests that will measure students' resilience in terms of academics/school context. It will also explore the

manifestation of external and internal factors affecting the academic resilience of the students. Therefore, this test utilized the use of resilience in academics and adapted the theoretical framework of resilience in education. This test may offer keys to improved school organization, instructional delivery, data analysis, and teacher training that will enhance and improved student outcomes in Senior High School (Grade 11 & 12).

With this, the present research aims to answer the following research questions to the newly develop Melvin Roda Rave Faye-Academic Resilience Scale (MRRF-ARS):

1. What are the psychometric properties of the MRRF- Academic Resilience Scale in terms of factor structures?
2. What is the Reliability and validity Analysis of the MRRF- Academic Resilience Scale?

METHODS

Participants and Design

MRRF- Academic Resilience scale is a newly developed academic resilience scale. MRRF was derived from the name initial of each author. The present study utilized Exploratory Factor Analysis to investigate the factor structure of the newly constructed questionnaire, the MRRF- Academic Resilience Scale. Also, the present study explored Psychometric Properties using Inter-item Reliability Analysis and Validity Analysis.

The sample consisted of 340 Senior High School Students with an age range of 14-21 years old. Senior High School (SHS) refers to Grade 11 (n=176) and Grade 12 (n=164) in both private and public educational institutions in Camarines Sur, Philippines. DepEd has implemented the K-12 program since 2012. The researchers completed the MRRF-Academic resilience Scale measure during a single data collection point, at which time participants' gender, age, and grade-level data were also recorded.

Materials

First, the present study utilized the Academic Resilience Scale-30 (ARS-30), which was developed by Cassidy (2016). It is a recently developed measure used to assess resilience in a particular context, specifically, academic success. The items in scale fall into one of three factors: “Perseverance, Reflective and Adaptive Help-Seeking, and Negative Affect and Emotional Response” (Cassidy, 2016, p.7). High scores on component (factors) 1 and 2 and low scores on factor 3 indicate high resilience. The scale mentioned above was found to be highly internally reliable, and scores correlated significantly with the measures of self-efficacy. The ARS-30 is also used in various academic contexts; however, the MRRF-ARS also specializes in academics. The researcher adds some factors that will measure the cognitive, affective, and behavior of the student.

Second, the MRRF-ARS scale was used to measure the academic resilience and academic success of Senior High School Students. Participants responded to 108 statements relating to their level of resiliency in terms of academic context using a 4-point Likert scale (1-Highly Disagree, 2-Disagree, 3-Agree, and 4-Highly Agree). Example items include: “*I monitor and evaluate my achievements and effort in my academics*”; *“I am able to apply my academic learning when I am facing conflict with my friends.*”; “*I always finish my school task despite my personal issues*.” The scale has three (3) main components during the pilot testing:

Academic Components, Emotional Well-being, Motivation, and Adaptive Social/Help-Seeking. Under academic components, there are three (3) sub-areas: Academic Performance, Social Competence, and Personal Competence. There are four (4) sub-areas on emotional wellbeing: Acceptance of Change/Perseverance, Self-Esteem, Ability to handle stress, and Sense of Well-being. Lastly, motivation and adaptive social/help-Seeking are also three (3) sub-areas known as the ability to set goals, Strong Connections or Relationships with Adults and Peers, and Seek for help when needed.

The authors of the scale report high reliability with .888 using Cronbach Alpha in all 108-item. The MRRF-ARS scale has a theoretical range of 108-432, with higher scores indicating more excellent academic resiliency. There are a total of 320 participants who completed the MRRF-ARS measure.

Test Development Procedure

The initial goal was to develop a single set of items that could be administered to Senior High School Students to provide objective measures of their academic resiliency. Related studies found changed our theoretical conception and assumptions about the variable; thus, the goals and procedures were modified. Now, measures of subcomponent items on factors affecting academic resiliency were included. Hence, the researchers are also opening the possibility of the emergence of the new components that might emerge in the data despite the pre-existing pieces of literature used for questionnaire development. Before the data gathering, all participants wrote an informed consent and all institutions involved were adequately informed about the nature of the study. The researchers followed and complied with all ethical guidelines in conducting research.

When the test construction began, the initial pool of items was compiled. The items demonstrated a relationship to factors that affects a student's academic resiliency. Such factors were based on previous literature pieces: student's Academic Competence, Emotional Wellbeing and Motivation, and Adaptive/ Help-Seeking Behaviors were included in 110 items.

The scale presented was then submitted to three content validators with Ph.D. degrees for content validation. Some changes and revisions were made to measure the academic resiliency of Senior High School Students accurately. After content validation, the test with 110 items was revised and reduced to 108 items.

Then, the test developers run the test for Pilot testing in four Universities and schools. The test booklet was composed of two sets of tests, the MRRF-ARS and ARS-30. Then, two groups of examinations were administered to 340 students. After the pilot testing, the test developer encoded all the Items in Statistical Package for Social Sciences (SPSS) for data analysis.

Exploratory factor analysis was employed to measure the factor structure that might emerge in the preliminary data gathering. After factor analysis, only 68 items were accepted out of 108 items occurs using Principal Component Analysis. After removing the factors with low commonalities, which did not contribute much with representing components, only two (2) components (Factor Loading) emerged in the data set using Varimax as rotation method. Thus, a Reliability test was used to re-assess the internal consistency of all items. The researcher uses Pearson r correlation to MRRF ASR4 and ARS-30 to establish concurrent

validity. ARS-30 is an established resilience scale that served as a standardized test for concurrent validation.

RESULTS

Factor Structure

Exploratory factor analysis was employed to measure the factor structure essential to the 108-item Academic Resilience Scale for Senior High School Students. Results of the sampling adequacy measure of this instrument reported a high KMO of 0.812, and Bartlett's test of sphericity (χ^2 = 16044.973, degrees of freedom = 5578) yielded a statistically significant p = 0.000, which suggests that variables are associated and therefore appropriate for extraction.

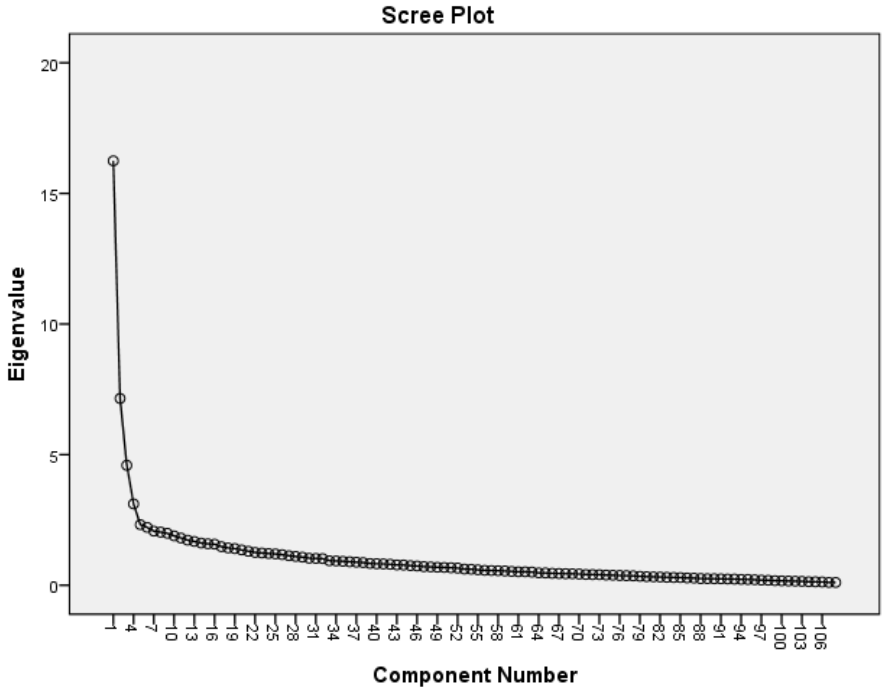

Figure 1. Scree Plot for the MRRF-ARS showing the amount of variance described for each factor loading (SPSS Output).

Figure 1 shows the scree plot, which presents items with a minimum of .40 factor magnitude, which accounted for the amount of variance described for each factor loading. Thirty-two components emerge from 108 items. The initial 108-item questionnaire was reduced to 68 items through the Varimax Extraction Method, with two factors accounting for 21.662 % of variances. At the same time, other components were excluded due to the low communalities or unaccepted factor loadings. After the extraction method, only 68 items qualified in the final inventory. Components 1 and 2 consist of items that are included in the last inventory. However, components 6, 8-17, 19-32 do not have any item included on the final list, while components 5 & 4 each have one item included on the last inventory. Although, there are items that have negative factor loading from components 1, 2, 3, 4, 7, and 18.

Table 1. *Factor Loadings, Eigenvalues, Percentages of Variance, Mean and Standard Deviations of the 68-item Academic Resilience Scale (First factor)*

Academic Resilience	FL	M	SD
Factor 1: Positive Coping and regulation on Academics Eigenvalues: 16.245; Percentage of Variance: 15.041%			
1. I monitor and evaluate my achievements and effort in my academics.	.564	3.1471	.72186
2. I study my lessons and topics before coming into class.	.432	2.6559	.72205
3. I always read the instructional materials that my teachers have assigned.	.573	3.1941	.74309
4. I do my assignments and my projects ahead of time.	.541	3.0147	.74653
5. I put a high standard on the projects and assignments that I need to comply with.	.539	2.9971	.73069
6. I am able to utilize my learning when I am interacting with people.	.581	3.0824	.68635
7. I am able to apply my academic learning when I am facing conflict with my friends.	.451	2.9559	.79885
8. I am able to interact with friends when we are doing related academic activities.	.553	3.1324	.77772
9. I am open-minded when other people explain new ideas.	.511	3.3971	.72339
10. I am able to empower myself when I am helping other people with their schoolwork.	.603	3.0412	.74355
11. I give high value in achieving challenging schoolwork and achievement.	.552	3.1324	.71032
12. I always finish my school task despite my personal issues.	.499	3.1971	.75218
13. I tend to analyze my problem in school and come up with wise decisions.	.532	3.0824	.69489
14. I commit to putting effort into my task despite my priorities.	.511	3.0735	.72291
15. I am confident in my effort and performance, even under challenging subjects.	.408	2.8559	.74060
21. I am assured that I will be able to accomplish the performance tasks given by our teacher.	.605	3.2029	.70187
22. I can fully understand the lesson, ideas, and skills taught in school.	.406	2.9059	.61684

30. Keeping track of my stressors helps me manage them efficiently.	.528	2.7735	.72373
31. Exercising helps clear my mind and allows me to absorb the ideas and skills taught at school.	.468	2.9412	.81074
33. I allow myself a treat whenever I finish my academic requirements.	.508	3.0676	.84043
34. Having quality time with my friends inspires me to have better grades.	.502	3.1206	.78717
35. I breathe and rest for a while whenever I feel tired from my academic tasks.	.606	3.3088	.79929
36. Surrounding myself with loving and supporting family and friends drives me to achieve more and have high grades.	.547	3.4706	.72606
37. My motivation in my studies is essential to reach my academic goals.	.621	3.3618	.74964
38. The belief that I can do whatever I put my mind to pushes me towards my academic goals.	.584	3.1412	.72711
42. My academic goals keep me inspired to continue studying.	.652	3.2412	.76852
43. It seems interesting to set academic goals.	.555	3.1059	.79487
52. I could admit that I need help from others.	.454	3.1912	.78814
53. My room for improvements could be supplemented by others.	.408	2.8500	.71509
56. I always *submit* my class output/requirements on time.	.476	3.0765	.77955
59. I always check my notebooks, pen, projects, and school materials ready.	.505	2.8676	.87077
60. When I have difficulty with a particular topic, I take note of it and study in the evening.	.447	2.6853	.80801
79. Having the ability to cope with academic stress helps me know how I should perform at school.	.635	3.0647	.69251
80. I am able to respond to academic challenges quickly.	.503	2.8618	.71334
82. I am able to cope up with my stress every time I encounter it in school.	.449	2.8500	.71096
84. I breathe and rest for a while whenever I feel stressed about the performance tasks given by our teachers.	.520	3.1441	.78319

90. Eating the right foods is important for me to understand the things taught in school fully.	.479	2.9412	.82873
91. I accept challenges given to me by others.			
94. The encouragement I receive from my friends helps me to do better.	.554	3.2471	.76279
95. I am motivated when I am doing my school tasks.	.514	3.0912	.66557
96. I would be completely in charge of my academic goals.	.531	2.9941	.76035
97. Challenges make me firm with my academic goals.	.468	3.0118	.76415
98. I could stay focused on my academic goals despite struggles.	.457	2.9206	.68884
105. I would feel motivated if I could share all of my thoughts.	.476	3.0912	.74107
106. I could comfortably accept suggestions from others.	.492	3.1618	.72483

Table 1 above illustrates the final 68 items after the 108 items Academic Resilience Scale factor analysis. Table 1 shows Factor Loadings, Eigenvalues, Percentages of Variance, Mean and Standard Deviations of the 68-item Academic Resilience Scale. There were a total of two factors for the final 68-item Academic Resilience Scale, such as (1) Positive Coping and regulation on Academics, (2) Negative coping, and Perception on academics.

Moreover, the table above shows the first factor, Positive Coping and regulation on Academics, which consisted of items 1-15, 21-22, 30-31, 33-38, 42-43, 45, 47, 52-53, 56, 59-60, 79-80, 82-84, 90-92, 94-98, and 105-106. Statements from all of the items indicate the positive Coping and regulation on Academics. These include the student's academic competence and ability to withstand academic pressures and demands. In this factor, positive regulation of wellbeing and the ability to seek support when needed are also highlighted.

Table 2. *Factor Loadings, Eigenvalues, Percentages of Variance, Mean and Standard Deviations of the 68-item Academic Resilience Scale (Second factor)*

Academic Resilience	FL	M	SD
Factor 2: Negative coping and Perception on Academics Eigenvalues: 7.151; Percentage of Variance: 6.621%			
24.I am not as good as my classmates.	.452	2.6206	.80569
26. My routine in-home and school would change every time I am pressured in academics.	.464	2.2000	.88648
28. I outwardly express my stress in school in the form of anger and/or sadness.	.526	2.6382	.87661
39. A slight criticism of how I do my projects discourages me.	.431	2.4000	.84070

40. Having low grades on major exams dismays my spirit to work towards my academic goals.	.437	2.3176	.86166
41. I find it burdensome to set academic goals.	.413	2.6324	.80749
55. The tendency of being rejected holds me back from asking for help.	.471	2.2588	.79679
61. I am not competent enough when I am doing projects with my group mates.	.422	2.5206	.81080
62. I tend to withdraw from any responsibility when exposed to a bad situation.	.488	2.7500	.80878
64. I have difficulty understanding others' opinions.	.516	2.8882	.79777
65. When I am expressing my idea, I feel that my classmates always disagree with my idea.	.580	2.6382	.86646
66. I have difficulty in identifying my personal strengths that help me in my academics.	.643	2.3735	.82291
67. I have difficulty in recognizing how my feelings affect my performance.	.627	2.3735	.84064
68.I am not good at identifying my perspective/viewpoint about myself whenever I faced challenges in my academics.	.526	2.4471	.85884
69. Sometimes, I am not quick at decision making particularly in uncertain and pressurized academic circumstances.	.533	2.2324	.78075
70. I always tend to lost control of my academic priorities.	.645	2.6059	.77037
71. It makes me uncomfortable when the professor gives surprise tests and quizzes.	.483	2.3029	.84804
75. I often avoid changes.	.408	2.4118	.79146
85. I cry and isolate myself every time I feel stress out.	.452	2.3500	.98865
100. I could hardly know what I really "want."	.433	2.1088	.80002

Table 2 above shows the second factor, Negative coping and Perception of academics, which consisted of items 24, 26, 28, 39-41, 55, 61-62, 64-71, 75, 85, and 100. Statements from all of the items indicate how a senior high school student's negative traits or behavior could influence a student's academic resilience. These include the students coping and Perception of academic demands like stress, negative views about self-esteem, and harmful practices that affect a person's wellbeing.

Reliability Analysis

Table 3. *Reliability of 68 items of academic Resilience*

Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item1	.475	.909
Item2	.403	.909
item3	.495	.908
item4	.485	.909
item5	.421	.909
item6	.526	.908
item7	.420	.909
item8	.516	.908
item9	.437	.909
item10	.523	.908
item11	.479	.909
item12	.431	.909
item13	.517	.908
item14	.428	.909
item15	.380	.909
item21	.520	.908
item22	.406	.909
item24	.247	.911
item26	.024	.913
item28	.204	.911
item30	.459	.909
item31	.403	.909
item33	.424	.909
item34	.407	.909

item35	.522	.908
item36	.421	.909
item37	.527	.908
item38	.524	.908
item39	.061	.912
item40	.021	.913
item41	.190	.911
item42	.559	.908
item43	.437	.909
item45	.439	.909
item47	.345	.910
item52	.330	.910
item53	.271	.910
item55	.094	.912
item56	.385	.909
item59	.472	.909
item60	.387	.909
item61	.138	.911
item62	.189	.911
item64	.179	.911
item65	.202	.911
item66	.216	.911
item67	.095	.912
item68	.239	.911
item69	.128	.911
item70	.272	.910
item71	-.024	.913

item75	.099	.912
item79	.536	.908
item80	.476	.909
item82	.392	.909
item84	.471	.909
item85	.147	.912
item90	.414	.909
item91	.437	.909
item92	.540	.908
item94	.461	.909
item95	.437	.909
item96	.472	.909
item97	.353	.910
item98	.412	.909
item100	.074	.912
item105	.331	.910
item106	.404	.909

Internal Consistency of the MRRF-ARS	
MRRF-ARS	α 0.91

N= 340

The item-scale analysis is presented in table 3 for the MRRF- ARS. Cronbach's α of 0.91 indicates high internal consistency reliability for the full scale (i.e., summation of the 68 items). All item-total correlations were above 0.1 except items 39 (0.061), 40 (0.021), 55 (0.094), 67 (0.95), 68 (0.239, 71 (-0.024), 75 (0.099), and 100 (0.074); as omitting of these items does not increase the overall Cronbach's α, it is recommended that all items positively contribute to the scale's reliability, supporting the case for retaining these items. 'Alpha if item deleted' revealed and indicate that deleting items 16-20, 23, 25, 27,29, 32, 44, 46, 48-51, 54, 57, 58, 63, 72-74, 76- 78, 81, 83, 86-89, 93, 99, 101-104, and 107-108 would increase—marginally—the reliability of the test.

Table 4. *Correlation of the MRRF-ARS and ARS-30.*

Variables	ARS-30
MRRF-ARS	.468**
N	340

Note: N= 340, *p<0.05

Validity Analysis

Table 4 presents the Correlation of the MRRF-ARS and ARS-30. The present test, MRRF-ARS, correlated it to ARS-30 to identify and find the theoretical connection between the existing standardized instruments. The significant positive correlation between MRRF-ARS scores and ARS-30 (r=0.49) reported in the present study demonstrated the scale's concurrent validity. Therefore, the component in ARS-30 shows the similarity and theoretical foundations are relevant.

DISCUSSION

The present study used Academic Resilience to measure and identify the various construct used in the assessment. This study includes assessing the student's emotional capacity to complete the dynamics of academic resilience and success. The present study aims to construct a test that will measure the Academic Resilience of the Senior High School student. MRRF-ARS measures academic resilience and ability to withstand academic diversity, challenges, and stress from academic requirements and experiences as senior high school students. Factor analysis was used to analyze the data from 340 senior high school students.

Exploratory factor analysis was used to investigate the factor structure of the MRRF-ARS. Two factors emerged: factor 1 is interpreted as Positive Coping and regulation on Academics, while factor 2, analyzed as Negative Perception in coping with academics. The emerging factors reported for a total of 21.62 % of the variance in academic resilience scores and bear a resemblance to factors previously reported in studies focusing on the assessment of resilience construct and reflecting aspects of self-regulation and self-efficacy. The most crucial factor was Positive Coping and regulation on Academics, accounting for 15.04 % of the variance. A Negative perception followed this in coping with academics, accounting for 6.62 % of the variance. Thus, the emerging factors reflect previously identified and meaningful aspects of resilience.

The first factor, Positive Coping and regulation on Academics, includes items featuring academic performance, social and personal competence, highlights the implication of self-esteem, coping to stress, and ability to promote a sense of wellbeing. Some of the items also include students; motivation to set goals, have strong connections/relationships with peers, and seek help when needed. This research also has a parallel construct with Lereya et al. (2016) researched that self-regulation and effective coping to handle academic demands in the school setting are determinants of the student's resilience.

On the other hand, the second factor, Negative Coping and Perception of academics, includes the items with negative Perception in self-esteem, personal and social competence in academics, difficulty accepting change, and difficulty handling stress. Some items include

low motivation to succeed, negative Perception of setting goals, and difficulty in asking for help when needed. The factors identified were parallel to Masten's (2011) findings that concluded that a person who adapts well to stress encountered in the academic setting might fail to adapt well in terms of personal life and relationships. Since maintaining balance with wellbeing and withstanding academic pressures is challenging.

On the other hand, Item analysis presents a strong indication for internal consistency reliability of the items, with the reported Cronbach's alpha of 0.91 exceeding levels customarily considered acceptable. Low item-total correlations did raise uncertainties regarding the functioning of forty items (items 39, 40, 55, 67, 68, 71, 75, and 100). Meanwhile, the researcher retained items that contributed positively to the internal reliability of the scale since its deletion did not raise the overall reliability of the global scale and did so only minimal at the factor level.

In terms of validity, Senior High School Academic Performance scores were associated with increased academic resilience. MRRF- ARS, its concurrent validity, scores are related to other scores on other measurements, ARS-30, that have already been established as valid. Related literatures both of MRRF- ARS, and ARS-30 reported significant associations between Academic performance and academic resilience. The essential scores between ARS-30 and MRRF- ARS and its considerable positive correlation had demonstrated good concurrent validity of the scale. These two tests have a significant relationship that would assess the same constructs.

Conclusion and Recommendation

The psychometric properties of the MRRF-ARS were reported as convincing and as a constructed measure of resilience in academics and the ability to withstand from academic diversity of 340 Senior High School Students. It proved that MRRF- Academic Resilience Scale has good psychometric properties and can measure its academic resilience. The two factors/components identified, such as Positive Coping and regulation on Academics and Negative Coping and Perception on academics, measured and served as a predictor of Academic Resilience. Therefore, a high score on this scale revealed that positive coping and self-regulation in academics. A high score can also suggest that a student can cope and withstand the stress and adversities that he or she encountered. Therefore, the present study clarified that the previous emerging factors identified served as a meaningful aspect of resilience.

Generally, this test measures academic resilience with two factors that identify the students' ability to adapt and withstand academic stress and demand. Each of the emerging factors represents standard features evident in existing research that investigate resilience. Although there is limited research on academic resilience in the Philippines, the resilience concepts and constructs identified were contextualized in the Philippines' setting. Thus, the emerging factor structure, and the degree to which it relates to accepted theoretical definitions and relevant constituents of resilience, support the construct validity of the MRRF-ARS as a resilience construct. Therefore, further research is encouraged to increase its generalizability and scope. Hence, an improvement on several areas and components was needed, particularly involving further assessment to establish the concurrent validity and reliability of the scale. Administering the test result to different school/grade levels, such as college students, can strengthen and widen the scope of this instrument. Administering the MRRF-ARS scale to other nationalities or cross-cultural norming can also enhance its psychometric properties.

On the other hand, this instrument can also measure the academic resilience of the student in times of the COVID-19 pandemic. This pandemic might affect the resilience of students while coping in times of pandemics. Future program developers and school institutions can use this test to strengthen their policy, programs, and curriculum that can aid the students to enhance their resilience to cope in their difficult situation and stress encountered on their academics.

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