

Development of Study Habits Inventory for Filipino High School Students

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ABSTRACT

Filipino psychologists advocate the development of instruments that will suit the needs, background, and language of the Filipinos. This study aims to develop a Study Habits Inventory for Filipino High School students using the exploratory sequential mixed methods research design. For the qualitative phase of the study, the researcher conducted interviews to explore and identify the study habits of Filipino high school students. Results from the qualitative data analysis were used to develop the items of the inventory. After the content validation, reliability analysis, and application of Exploratory Factor Analysis, four domains were extracted and 45 items were considered valid. The four domains are reliable with Cronbach's alpha ranging from .77 to .789. Study Habits Inventory for Filipino High School Students can be used to assess study habits of Filipino high school students in terms of application of learning strategies and techniques; self-regulation; goal-orientation; and influence of mood.

Introduction

Psychological assessment seeks to understand the individual whatever the circumstances are, whether in clinical, forensic, educational, counseling, health, coaching or occupational settings. Inventories, tests or questionnaires are psychological instruments and tools used to understand an individual in all settings including educational and counseling (Coaley, 2010; Lover, McIntire & Miller, 2010).

Practitioners in the field of guidance and counseling have the responsibility in the selection of standardized psychological tests that will meet the purpose for which they are used and their appropriateness to the clients. The tests should be culturally-fair, in gender, ethnic background and race, and in the use of language. To address cultural issues in psychological testing in the Philippines, Filipino psychologists initiated to create instruments that will suit the needs, background and language of the Filipinos (Cervera & Munarriz, 2013).

In the Philippines, the educational system explores various ways to improve the quality of education for the benefit of its clientele. Thus, Republic Act No. 10533, also known as Enhanced Basic Education of 2013, is being implemented. It is an act enhancing the Philippine basic education system by strengthening its curriculum and increasing the number of years for basic education. The focus of this reform is on learner's acquisition of 21st century skills such as effective communication; information, media and technology; learning and innovation; and life and career skills (Corpuz, 2012). Likewise, every institution develops and provides support system to address the needs of the learners, one of which is the Guidance and Counseling.

Education and guidance support each other to maximize students' growth and development. The Guidance and Counseling Office provides support services such as testing service to help the students gain understanding of their needs and personality, realize their potentials, identify their strengths and weaknesses, and know the implications of these test results to better help them. The office utilizes different tools and instruments to achieve this purpose and assist students in achieving their full potential and performance in school.

Study habits affect students' performance in school. It is believed that effective study habits can raise educational accomplishment in school (Indla, 2016; Khan, 2016; Lawrence, 2014). Guidance programs that will enhance the study habits of students are also created (Alutu & Edoh, 2012; Deasis, 2009). Therefore, it is necessary to know the study habits of students and a standardized test is needed for this purpose. The use of standardized test to know study habits is needed, so that students would identify what their study habits are.

Literature Review

Professionals such as school psychologists, guidance counselors, organizational psychologists and social workers administer psychological tests. Psychological test data provide objective and reliable information in understanding an individual. Tests are data gathering tools used in the course of evaluating people in their present life situation including that of the students (Gregory, 2011; Indla et al., 2016; Khan, 2016; Khurshid et al., 2012).

In the educational setting, psychological tests are used to select students into schools, award scholarships, place students in programs, measure student learning, identify problems, and career interests. Psychological tests can benefit student motivation, retention, and transfer of learning, self-assessment, and instructional effectiveness (Acido, 2010; Aquino, 2011; Lovler, et al., 2010; Maiyo & Siah, 2015; Malik & Parveen, 2013; Martin, 2014; Mendezabal, 2013; Narvaez et al., 2009; Norris & Yeghiazarian, 2013; Razia, 2015). Educational institutions use different tests for different purposes depending on the need of the students and schools. For instance, achievement tests are used to assess the academic status of students. In assessing study habits of students, psychological tests are also used (Lovler, et. al., 2010).

Studying has a great impact on learning. It is an application of one's mental capacity, feeling, personality, social interaction and physical activities in order to learn. It is also defined as devoting time and effort to acquire knowledge, especially, in education. On the other hand, habits are routine behaviors that are repeated regularly and acquired through repetition of experience. Hence, study habits can be defined as routine behaviors and activities of students including feeling, personality, social interaction and physical activities in

order to learn (Alutu & Edoh, 2012; Bhat et al., 2014; Cerna & Pavliushchenko, 2015; Chamundeswari & Kumari, 2015; Ormrod, 2012) as contributing factors in academic achievement and student's success (Aquino, 2011; Dawood, 2010; Mendezabal, 2013; Muchnick, 2013; Nagaraju, 2011; West, 2009). Study habits of students have great impact on academic performance (Alutu & Edoh, 2012; Aquino, 2011; Hudson & Nonis, 2010; Oluwatimilehin & Owoyele, 2012).

The use of tests to know study habits is needed so that students would identify what their study habits are. To know student's study habits, psychological test can be used (Chadha, 2009; Kaplan & Sacuzzo, 2009). However, foreign-made standardized tests are used to measure study habits of Filipino students (Aquino, 2011; Gemora & Judilla, 2015; Mendezabal, 2013). Problems may arise because the test developed from the west and for western learners in which the vocabulary alone can be a problem. Thus, many researchers are encouraged to conduct studies that will develop locally made tests (Bernardo, 2011). Although translation of foreign-made psychological tests are being done by many researchers to address issues in using foreign psychological tests, translation also involves many problems such as construct, method and item biases (Bernardo, 2011), hence development of localized psychological tests should be done (Bernardo, 2011; Cervera & Munarriz, 2013). Thus, this present study would like to fill in this research gap.

Filipino high school students may have different study habits in the present generation where internet and social media are important part of young Filipinos' life. Another difference in study habits of Filipino high school students is the influence of their peers in studying (Amarnani, et al., 2009; Venturina, 2014). In this regard, the researcher attempted to devise an instrument which is locally established that will measure study habits of students.

Objectives of the study

The main purpose of this study is to develop an instrument that will measure study habits of Filipino High school students. Specifically, the present study aims to:

1. Identify the domains of the Study Habits Inventory for Filipino High School Students.
2. Develop the test items of the preliminary form of Study Habits Inventory for Filipino High School Students.
3. Determine the content validity and reliability of the preliminary form.
4. Identify the reliability and domains of the final form of the Study Habits Inventory for Filipino High School Students.

Methodology

Research Design

This study used the exploratory sequential mixed methods research design. The stages involved in the proposed study are as follows: (1) qualitative research: interview of respondents, data analysis, development of the theoretical domains of the instrument, item development of the instrument for face and content validation; and (2) quantitative research: pilot testing, factor and reliability analysis scale of Study Habits Inventory for Filipino High School Students.

Participants

The researcher conducted an interview to the first group of respondents for the qualitative phase of the study. There were two representatives from parents, five teachers and 10 students of different grade levels. A

total of 17 representatives were interviewed for the qualitative phase. Respondents for qualitative phase were chosen through maximum variation technique.

The second respondents of the proposed study were 694 high school students from selected private and public schools in Quezon City. Respondents for the quantitative phase were chosen through purposive sampling technique. Target samples were chosen according to these criteria: Filipino citizen, junior and senior high school level, Grade 7-10 and Grade 11-12, respectively; regular student (without special needs).

Research Instrument

This research utilized semi-structured interview guide and an audio recorder to aid in the recording and note taking.

Interview Guide Sample Questions for Students

Paano ka mag-aral? Anu-ano ang mga paraan mo ng pag-aaral? (What are your ways to study)

Paano ka mag-aral sa paaralan? (How do you study in school?)

Paano ka mag-aral sa bahay? (How do you study at home?)

Ano ang mga paraan mo sa pag-aaral na masasabi mong epektibo? (What study habits do you consider effective?)

Interview Guide Sample Questions For Teachers

Batay po sa inyong obserbasyon, paano po mag-aral ang mga mag-aaral ngayon? (Based on your observations, how do the high school students study?)

Anu-ano po ang mga paraan nila ng pag-aaral? Paano sila nag-aaral? (What are the students' different ways of studying?)

Anu-ano ang mga paraan nila na epektibo? (What study habits do you consider effective?)

Interview Guide Sample Questions For Parents

Anu-ano po ang naobserbahan ninyong paraan ng mga estudyante ngayon ng pag-aaral? (Based on your observations, how do the high school students study?)

Paano po sila nag-aaral? Paano po sila natututo? (Based on your observations, how do the high school students study?)

Sa bahay, paano po sila mag-aral? (How do they study at home?)

Anu-ano yung mga paraan nila na epektibo? (What study habits do you consider effective?)

For the second phase of the research, a researcher made Study Habits Inventory for Filipino High School Students was utilized.

Data Collection

In the qualitative phase, the researcher interviewed the first set of respondents to explore the study habits of Filipino high school students. Based on the recordings of the researcher, the average length of the interview for each respondent was forty (40) minutes. The data gathered from the respondents were subjected to data analysis. The results of the analysis were used in establishing the theoretical domains of the instrument. After the theoretical domains had been established, the construction of

the test items of the instrument's tentative form followed. The tentative form was subjected to content validation by five experts. These experts included registered psychologist, registered psychometrician, registered guidance counselors, educator and language expert. The preliminary form was administered for pilot testing. The second set of respondents from selected private and public high schools in Quezon City answered the preliminary form of the test. After the administration of preliminary form for pilot testing, Factor Analysis, Test for Reliability and Standardization of the instrument followed.

Ethical Consideration

Participation in the research study was completely voluntary and each participant had a consent form. An informed consent form was given to participants together with the discussion of the nature of the research study. Considering that the participants of the study were minors, an Informed Consent Form was also given to the parent or guardian of the participants to assent the participation of their child to the study. The consent form also discussed the nature and scope of the study and the assurance that all the data gathered will be kept in utmost confidentiality and for research purposes only.

Data Analysis

In the analysis of qualitative data, interview transcripts were transferred to a word processing application. Open coding was used to ensure proper organization of transcripts. The researcher searched for words or phrases that were frequently used, organized these ideas into categories, and grouped them into meaningful themes using thematic analysis. After the thematization, the themes generated were used to develop the theoretical domains of the instrument. Thorough review of literature was done to establish the domains of the instruments.

Seven domains composed the instrument. Test items were developed based on these domains. The researcher also consulted experts on instrument development in establishing the items of the instrument.

In the analysis of the quantitative data, statistical procedures were performed using IBM Statistical Package for Social Science (SPSS) 21. The statistical treatment that was used to measure content validity of the instrument was Anova Two-Factor without Replication. Pearson product moment correlation coefficient was used to identify item-total correlations. Rotated Component Matrix was used for inter-item correlations. Exploratory Factor Analysis was used to identify which items go together and which did not. It checked whether items are related to a factor indicating a common theme, or not. Cronbach alpha reliability coefficient was used to compute the reliability of the instrument. To establish the norms of the psychological test percentile ranks were used through the aid of SPSS 21.

Results and Discussion

The study explored the study habits of Filipino High School students to form the theoretical domains of the Study Habits Inventory for Filipino High School Students. This section discussed the results of the qualitative and quantitative data analysis and the development of the items of the inventory and the validity and reliability of the developed instrument.

Domains of the Study Habits Inventory for Filipino High School Students

The qualitative data analysis of transcripts revealed that study habits of Filipino high school students were categorized into seven themes. The themes with the corresponding descriptions and frequency of occurrence are presented in Table 1.

Table 1*Generated Themes on Study Habits of Filipino High School Students*

General Theme	Description	Sample Codes		Frequency
		Initial Coding	Final Coding	
Application of learning strategies and techniques	The students utilize different strategies and techniques in order to learn. These strategies and techniques include taking down notes, memorization techniques, reading, preparation to periodical exam, reviewing, continuous work improvement, and self-assessment.	Taking down notes Memorization techniques Reading Review before periodical examination	Application of learning strategies and techniques	11
Goal Orientation	The students express their desire to achieve in learning. These include getting high grades, excellence and perfection, fulfilling parents' desire, value for education, and academic achievement.	Grade conscious Desire for high grades Desire for excellence and perfection Fulfilling parents' desire Value for education and learning	Goal Orientation	12
Independent learning	The students states that they take the initiative in studying, learn on one's own, and seek knowledge and skills independently. They can learn more when they learn on their own.	Taking initiative Learning on one's own Does not need parents' supervision when doing assignments Does not need to be reminded to accomplish tasks	Independent learning	6
Influence of Mood	The student's emotional condition influences their learning. These moods include shyness, fear, motivation, laziness feeling, excitement, and calmness.	Fear to recite Feeling lazy Enjoy the teachers' approach Can study more when relaxed Feel shy to ask questions Doing tasks when in the good feeling	Influence of Mood	8
Knowledge, availability and accessibility of learning resources	Students states that it is important that they have the needed resources in school. Learning resources include reading materials, textbooks, school supplies; technological resources such as computer and internet; and resources from the library. It is also necessary that they know how to use these learning resources when needed.	Use computer and internet when doing assignment and research Difficulty studying when lack learning materials Materials are provided Use textbooks and other learning references	Knowledge, availability and accessibility of learning resources	8
Self-regulation strategies	Students apply actions in monitoring and controlling one's own behavior; feelings, and thoughts and modify them in order to learn. These include class participation, class attendance, time management, attention control, and showing appropriate behavior in school.	Class participation Perform the tasks given by the teacher Sit quietly Avoid fights Attend classes Attention control Time management	Self-regulation strategies	22

Social Influence	The respondents states that group help and support, group dependence, teacher supervision, parental influence and support, and competition influence learning. These are the external factors that influence the students' learning.	Group help and support Teacher supervision Appropriate help seeking Parental influence Socialization Parental support Competition Group dependence	Social Influence	20
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The qualitative study looked into the study habits of Filipino high school students. Based on the result of qualitative data analysis, the study habits of Filipino High School Students include (1) application of learning strategies and techniques; (2) goal orientation; (3) independent learning; (4) influence of mood; (5) knowledge, availability and accessibility of learning resources; (6) self-regulation; and (7) social influence.

Based on the verbatim statements of the respondents, "Application of learning strategies and techniques" emerge as a theme from the interview. A grade 9 student, NY, responded, "*Magrereview po ako tapos magtatanong po ako sa kanila kung pwede ba nila ako tanungin tungkol doon at kung maasagot ko. Kung di ko po masasagot yun po ang irereview ko.* (When I am reviewing, I request them (classmates) to ask me about the lesson to know if I can answer. If I failed to answer, then I will review that). Application of learning strategies and techniques pertains to the utilization of different strategies and techniques in order to learn. These strategies and techniques include taking down notes, memorization techniques, reading, preparation to periodical exam, reviewing, continuous work improvement, and self-assessment. The students used different strategies and techniques in order to learn. According to Ormrod (2012), learning strategies is a procedural knowledge, which is knowing how to approach learning tasks. Note-taking, memorizing, reading

planning, reviewing, self-assessment, and improvement are examples of learning strategies. Pressly and Harris (2006) noted that these strategies are being used by the students when necessary. Filipino high school students also apply these learning strategies (Magno, 2010 & Bernardo, 2010). Likewise, in relation to the present study, the student participants in the study apply these strategies and techniques in studying. With this finding, teachers can provide more opportunities to students so that they can apply and develop these learning strategies. The learning strategies are varied. Different learning tasks also need different strategies.

Another theme anchored on the study habits of Filipino high school students themed from the interview is *goal-orientation*. This theme refers to the students' expressed desire to achieve in learning. Parents and teachers also share their observation on the students' goal in learning. Their observations include getting high grades, excellence and perfection, fulfilling parents' desire, value for education, and academic achievement. M.F, a grade 12 female student said, "*Yung mga group project na iyon sa kagustuhan ko na magkaroon ng mataas na grade, nagvovolunteer na lang ako na ako na lang sa ganito, ako na lang aayos ng ganito. May pagka-perfectionist talaga ako. Gusto ko perfect ganun.* ("Those group projects, because I want to get high grades, I will volunteer to do certain tasks, I will fix this. I am like a perfectionist. I want

perfectionism, like that”). According to Woolfolk (2013) and McGrew (2009), goal-orientation in learning include belief systems that reflect the reasons why students engage in learning tasks. These goals are considered essential in learning because they affect how the learners study and approach studying (Ormrod, 2012). Goal-orientation is part of study habits of Filipino high school students. For them, it is an essential approach in completing their learning task that ensures clarity. This result implies that educators and parents may help the students know their goals in studying to aid their students achieve clarity of paths towards task completion.

Independent Learning

The third theme of the Filipino high school students’ study habits is *independent learning* wherein the students take the initiative in studying, learn on one’s own, and seek knowledge and skills independently. M.F., a grade 12 female student said, “*Kapag kasi dito sa bahay mas gusto ko yung mag-isa lang ako kaysa yung halimbawa group work yung magkakasama. Hindi ako makapagconcentrate na may kasama. Kaya mas gusto ko na ako lang.*” (“At home, I prefer to be study alone than, for example group work, working together. I cannot concentrate in the presence of others. I prefer to be on my own”). This theme describes that student can learn more when they learn on their own. They obtain knowledge and skills through own efforts (Pritchard, 2013). This skill is evident in the present study as student stated that she can learn more when she is alone. And she develops skills independently. Independent learning is also part of study habits of Filipino high school students.

The fourth theme of study habits of Filipino high school students is *influence of mood*. The study revealed that emotions influence their learning. N.Y., a grade 9 male student said, “*Pagkauwi po, papahinga*

muna ako bago ko simulan ang pag-aaral kasi po kapag wala akong pahinga parang wala pong gana yung utak ko saka wala pong pumapasok sa utak ko kapag ganun po na wala pong pahinga.”) (“When I get home, I rest for a while before I start studying because when I do not have rest, my brain is not functioning and nothing enters my mind when I do not have rest”). Mood is feeling or emotion that influences the whole of one’s life (Clark, Friston, & Watson, 2018). Moods can also influence learning (Martin & Kerns, 2011). A study conducted by Markman (2010) supported that positive mood affects the person’s ability to learn. With this finding, emotional condition of the students can also be considered as an indirect study habit. Teachers and the school community may give consideration that the learning environment is conducive for learning and elicits positive climate for the students.

Knowledge, availability and accessibility of learning resources is an emerging theme of Filipino high students’ study habits. Eight students who participated on the interview stated that it is important that they have the needed resources in school. Learning resources include reading materials, textbooks, school supplies; technological resources such as computer and internet; and resources from the library. It is also necessary that they know how to use these learning resources when needed. M.F. a grade 12 female student said, “*Tapos, sa tingin ko talaga sobrang hirap mag-aral kapag kulang ng gamit. Sobrang hirap makakuha ng mataas na grade kasi isang kulang lang parang ang laki na ng kawalan kapag kunwari walang printer sa bahay, ang laki ng kawalan nun, internet, lalo na internet kasi duon kumukuha ng source kadalasan eh.*” (“I think it is so difficult to study when resources are lacking. It is so hard to get high grades because there is a big loss with just one lacking material. For example, when there is no printer at home, internet, especially

internet because you often get your source in the internet".) According to Okada (2012), learning resources are in different forms. There are various learning resources for students and teachers that aid both teaching and learning. Learning resources include reading materials, textbooks, school supplies; technological resources such as computer and internet; and resources from the library. Participants in the present study stated that it is important that they have the needed resources in school. It is also necessary that they know how to use these learning resources when needed.

Moreover, the study revealed that *self-regulation* is one of the themes of study habits of Filipino high school students. Students apply actions in monitoring and controlling one's own behavior, feelings, and thoughts and modify them in order to learn. These actions include class participation, class attendance, time management, attention control, and showing appropriate behavior in school. H.D., a grade 8 male student stated, "*Nakikinig na mabuti habang nagsasalita ang guro. Nagpaprioritize kung ano po yung mas mahalagang dapat gawin. Ginagawa ang pinapagawa ng guro.*" ("I listen attentively while the teacher is talking. I also prioritize those that are important to do. I also do what the teachers instruct us to do").

Self-regulation is the process we use to start, manage, and continue our thoughts, behaviors and emotions to reach our goals (Schunk & Zimmerman, 2011). Self-regulation also applies in learning (Dinsmore, Alexander & Loughlin, 2008.) According to Ormrod (2012), self-regulated learning strategies include goal setting, planning, self-motivation, attention-control, self-monitoring, and time management.

Lastly, the theme social influence also emerged as a theme for study habit of

Filipino high school students. N.Y., a grade 9 student said, "*Sa tingin ko po mas mahirap intindihin kung ako lang mag-isa yung mag-aaral kaya po sa eskwelahan pa lang pinag-aaralan ko na agad.*" ("I think it is more difficult to understand the lesson if I will study it alone so I study it immediately in school"). He also added, "*Nagpapatulong din po ako sa mga kaklase ko lalo na kapag nagrereview. Mas sanay po ako na hihingi ako ng tulong sa kanila. Magrereview po ako ng kaunti tapos magtatanong po ako sa kanila kung pwede ba nila akong tanungin tungkol doon at kung masasagot ko.*" ("I also ask my classmates to help me when I am reviewing. I will review first then I ask them if they can ask me about that and test if I can answer"). Social influence refers to the change in behavior that is influenced by other person, intentionally or unintentionally (Forgas & Williams, 2016). Social influence can be seen in conformity, socialization, peer pressure, obedience, leadership, and persuasion. The respondents stated that group help and support, group dependence, teacher supervision, appropriate help seeking, parental influence and support, and competition influence learning. Significant people in the life of the students influence their capacity to learn.

Developed Items

The themes generated from the results of the qualitative data analysis were used to develop the theoretical domains of the proposed instrument. Test items were developed based on these seven domains. A total of 70 items, which were written both in English and Filipino languages, were developed. For content validation scores of the experts were based on the relevancy of the items using five-point likert scale ranging from strongly not relevant (1) to strongly relevant (5). Table 2 shows the Table of Specifications (TOS) of the initial items of the developed instrument.

Table 2*Initial Seventy Items of Study Habits Inventory for Filipino High School Students*

Test Domain	Indicators	Item Distribution	Number of Items	Sample item
1. Application of Learning Strategies and Techniques	The students utilize different strategies and techniques in order to learn. These include taking down notes, memorization techniques, reading, preparation to periodical exam, reviewing, continuous work improvement, and self-assessment	1-10	10	Naglalaan ako ng panahon para sa pagbabasa ng lecture notes mula sa klase. (I spend time reading lecture notes from classes.)
2. Goal-Oriented	The students express their desire to achieve in learning. These include getting high grades, excellence and perfection, fulfilling parents' desire, value for education, and academic achievement.	11-20	10	Nais kong makakuha ng mataas na marka sa aking mga asignatura. (I want to get high grades in my subjects.)
3. Independent Learning	The students take the initiative in studying, learn on one's own, and seek knowledge and acquire skills independently. They can learn more when they learn on their own.	21-30	10	Kapag mayroon akong di maunawaan, pinag-aaralan ko ito sa sarili kong pagsisikap. (If I do not understand something, I study it on my own.)
4. Influence of Mood	The student's emotional condition influences their learning. These moods include shyness, fear, motivation, laziness feeling, excitement, and calmness.	31-40	10	Hindi ako nakakagawa ng takdang-aralin kapag tinatamad ako. (I fail to make assignments when I feel lazy.)
5. Knowledge, Availability, and Accessibility of Learning Resources	Students have the needed resources in school. Learning resources include reading materials, textbooks, school supplies; technological resources such as computer and internet; and resources from the library. It is also necessary that they know how to use these learning resources when needed.	41-50	10	Madali akong nakakagawa ng mga proyekto dahil mayroon ako ng mga kailangang kagamitan para sa mga ito. (I can accomplish my school projects easily because I have the materials needed.)
6. Self-Regulation	Students apply actions in monitoring and controlling one's own behavior, feelings, and thoughts and modify them in order to learn. These include class participation, class attendance, time management, attention control, and showing appropriate behavior in school.	51-60	10	Pumapasok ako sa paaralan sa tamang oras. (I come to school on time.)
7. Social Influence	The respondents states that group help and support, group dependence, teacher supervision, appropriate help seeking, parental influence and support, and competition influence learning. These are the external factors that influence the students' learning.	61-70	10	Mas naeengganyo akong mag-aral kapag may kompetisyon sa klase. (I am more motivated to study when there is competition in class.)
Total Items			70	

After the intensive review of related literatures and studies of each theme and domain, the researcher drafted the initial items of each domain. Questions were drafted based on the construct being measured. Items of each test domain composed the actions, attitudes, personality, feelings, beliefs, and preferences of the students in order to learn. Questions relevancy to the domain was considered. To address the language issue in the test development, Five-point likert scale ranging from strongly not relevant (1) to strongly relevant (5) was used for the experts' validation of the instrument.

Content Validity and Reliability

Data were subjected to statistical analysis using the ANOVA Two-Factor without replication. Items that have .7 above coefficients, substantial relationship, are retained. Items that have below .7 are discarded. Table 3 shows the summary of items that are discarded in the preliminary form of the proposed instrument.

Table 3 shows a total of 10 items are discarded after the content validity analysis. Sixty test items composed the preliminary form of the Study Habits Inventory for Filipino High School Students. After pilot testing, data were subjected to reliability and factor analyses. Table below shows the Cronbach's Alpha of Study Habits Inventory in its sixty-item composition.

Table 3
Reliability of the Study Habits Inventory for Filipino High School Students

Cronbach's Alpha	Number of Items
.789	60

Table 3 shows that the preliminary form is .789 reliable in its 60-item composition. The researcher used Exploratory Factor Analysis or EFA

to explore the domains that compose the instrument. Four domains were extracted. After the domains and items of the instrument had been identified, the reliability analysis was employed to check for the reliability of each domain.

Table 4
Reliability of the Four Domains

Domain	Items	Total	Cronbach's Alpha
1	1, 2, 3, 4, 8, 31, 38, 40, 43, 46, 47, 50, 51, 52, 54, 56, 57	17	.787
2	5, 6, 7, 17, 18, 20, 36, 39, 42, 44, 48, 49	12	.722
3	9, 10, 11, 12, 13, 14, 15, 28, 32, 53, 58	11	.742
4	23, 25, 26, 27, 29, 30, 33, 35, 41, 59	10	.748
Total		50	

Table 4 shows that the new domains of the proposed inventory have Cronbach's alpha ranging from .722 to .787.

Naming the four domains of the proposed inventory

Table 5 shows the name of the domains that make up the Study Habits Inventory for Filipino High School Students.

After further analysis and reexamining of the domains and items, these four domains compose the Final Form of Study Habits Inventory for Filipino High School Students. Test items are based on the result of the exploratory study of the researcher on the study habits of Filipino high school students. To further analyze the 60 items, the researcher used the method of Exploratory Factor Analysis or EFA to explore the domains that compose the instrument. Exploratory Factor Analysis is a class of mathematical

Table 5*Name of the Domains*

Domain	Domain Name	Item Composition	Sample Item
1	Application of Learning Strategies and Techniques	1, 2, 3, 4, 8, 31, 38, 40, 43, 46, 47, 50, 51, 52, 54, 57	<i>Naglalaan ako ng panahon para sa pagbabasa ng lecture notes mula sa klase.</i> (I spend time reading lecture notes from classes.)
2	Self-Regulation	5, 7, 17, 18, 20, 36, 39, 44, 48, 49	<i>Hindi ako naglilibang kung hindi pa tapos ang mga dapat kong gawin para sa paaralan.</i> (I avoid pleasures if I am not yet done with my school works.)
3	Goal-Orientation	9, 10, 11, 12, 13, 14, 15, 32, 53	<i>Nais kong maging pulido at maayos ang lahat ng aking mga trabaho.</i> (I want all my work to be done perfectly and excellently.)
4	Influence of Mood	23, 25, 26, 27, 29, 30, 33, 35, 41, 59	<i>Tinatamad akong mag-aral kapag hindi ko gusto ang paraan ng pagtuturo ng aking guro.</i> (I feel lazy when I do not like the strategy of my teacher.)

Table 6*KMO and Bartlett's Test of Sphericity*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.847
	Approx. Chi-Square	9369.106
Bartlett's Test of Sphericity	df	1770
	Sig.	.000

*Legend:**Kaiser-Meyer-Olkin indicators**.00 to .49 = Unacceptable**.60 to .69 = Mediocre**.80 to .89 = Meritorious**.50 to .59 = Miserable**.70 to .79 = Middling**.90 to 1.00 = Marvelous*

procedures employed to estimate factors, extract factors, or decide how many factors to retain. It helps people discover the smallest number of factors that can account to the various behaviors or test scores we observe. It is also helpful if we want to efficiently summarize data when we are not sure which items load on which factors (Cohen & Swerdlik, 2013). To identify the domains of the instrument, Principal Components Analysis is employed. Before conducting the analysis, the researcher verified first Kaiser-Myer Olkin (KMO) measure of sampling adequacy and Barlett's test of sphericity.

Table 6 shows the result of KMO and Barlett's test of sphericity. Results show that the KMO index of sampling adequacy is .847. This means that the sample size is meritoriously adequate and Barlett's test of Sphericity value is .000, which is < .05 p-value. Assumptions were met before conducting the factor analysis.

Exploratory Factor Analysis

In the initial analysis, four domains were extracted. Domains that have eigenvalue of 2.0 or greater were retained. Based on the Kaiser's criterion extracted components

Table 7*Eigenvalue of Four Domains Extracted*

Domain	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.952	13.253	13.253	7.952	13.253	13.253
2	3.710	6.183	19.436	3.710	6.183	19.436
3	2.798	4.663	24.099	2.798	4.663	24.099
4	2.014	3.356	27.455	2.014	3.356	27.455

Extraction Method: Principal Component Analysis.

that have eigenvalue of 1.0 or greater can be retained. In the case of the proposed inventory, domains that have eigenvalue of 2.0 or greater were considered. Table 8 shows the eigenvalues of four domains or extracted in the initial extraction method of Principal Component Analysis.

Table 7 shows that the four domains have eigenvalue ranging from 2.014 to 7.952. Domain 1 has the highest eigenvalue which is 7.952. To further analyze the number of domains to be considered, the researcher applied the parallel analysis using the Monte Carlo PCA for Parallel Analysis calculator. If the initial eigenvalue of the domain is greater than the eigenvalue in the parallel analysis, the domain can be retained.

Table 8*Eigenvalue Computed After Parallel Analysis*

Domain	Initial Eigenvalue	Random Eigenvalue
1	7.952	1.6212
2	3.710	1.5687
3	2.798	1.5292
4	2.014	1.4975

Table 8 shows that each of the four domains has a computed eigenvalue that is greater than the eigenvalue in the parallel analysis. Thus, all four domains are retained.

After the parallel analysis, factor structure was analyzed using principal component analysis and direct oblimin rotations involving the four domains. Initially, direct oblimin was used to see if correlations among four factors are present.

Table 9*Correlation Matrix of Four Domains*

Domain	1	2	3	4
1	1.000	-.100	.063	-.325
2	-.100	1.000	-.035	.024
3	.063	-.035	1.000	.004
4	-.325	.024	.004	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Table 9 shows the component correlation matrix of the four using Oblimin rotation method. Results show that four domains are not strongly correlated since each correlation value is not greater than .5. With this consideration, the rotation method was switched to varimax solutions to further analyze the component structure of the instrument.

Conclusions

The main purpose of this study is to develop a valid and reliable instrument that will measure study habits of Filipino High school students.

Based on the qualitative data, study habits of the Filipino high school students are comprehensive and these are categorized into seven themes: (1) application of learning strategies and techniques; (2) goal orientation; (3) independent learning; (4) influence of mood; (5) knowledge, availability and accessibility of learning resources; (6) self-regulation; (7) social influence. These findings give new insights with regard to the study habits of Filipino high school students. Educators can modify instructions and strategies to help students develop their study habits.

The proposed Study Habits Inventory for Filipino High School Students is reliable and valid. It can be utilized as an instrument to assess study habits of Filipino high school students in terms of the four domains - application of learning strategies and techniques, self-regulation, goal-orientation, and influence of mood. Evidence-based programs are encouraged in the education sector. Local made standardized instruments are limited. Instruments are also utilized to come up with evidence-based programs. Moreover, study habits are considered important factors that contribute in learning and academic performance. Based on the review of literature and studies, the factors that compose the study habits of the Filipino High School students contribute to the success of the students in school and learning. The domains of the instrument – application of learning strategies and techniques, self-regulation, goal-orientation, and influence of mood- can be further studied using the instrument.

Recommendations

This study only utilized Content Validity as test of validity of the newly developed instrument. Other tests of validity, like Divergent Validity, can be done for further study. The instrument is intended for Filipino high school students. However, initial respondents of the study came from one area only. Further study is recommended using more comprehensive normative sample.

Moreover, study habits of Filipino high school students are explored. Researches can be done to explore more about these factors as these can give more knowledge and insights about the study habits of the students in the country.

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APPENDIX 1

Content Validity Analysis of Initial Test Items

Anova: Two-Factor Without Replication						
<i>SUMMARY</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	Verbal Interpretation	Decision
Item 1	5	24	4.8	0.80	Marked relationship	Valid
Item 2	5	20	4	1.00	Very high relationship	Valid
Item 3	5	22	4.4	0.80	Marked relationship	Valid
Item 4	5	22	4.4	0.80	Marked relationship	Valid
Item 5	5	23	4.6	0.80	Marked relationship	Valid
Item 6	5	24	4.8	0.20	Definite but small relationship	Not valid
Item 7	5	24	4.8	0.20	Definite but Small Relationship	Not Valid
Item 8	5	22	4.4	0.90	High relationship	Valid
Item 9	5	22	4.4	0.80	Marked relationship	Valid
Item 10	5	22	4.4	0.80	Marked relationship	Valid
Item 11	5	24	4.8	0.20	Definite but small relationship	Not valid
Item 12	5	24	4.8	0.90	High relationship	Valid
Item 13	5	23	4.6	0.90	High relationship	Valid
Item 14	5	21	4.2	0.70	Substantial relationship	Valid
Item 15	5	20	4	0.50	Moderate relationship	Valid
Item 16	5	23	4.6	0.70	Substantial relationship	Valid
Item 17	5	24	4.8	0.80	Marked relationship	Valid
Item 18	5	22	4.4	0.90	High relationship	Valid
Item 19	5	23	4.6	0.70	Substantial relationship	Valid
Item 20	5	23	4.6	0.70	Substantial relationship	Valid
Item 21	5	24	4.8	0.70	Substantial relationship	Valid
Item 22	5	24	4.8	0.70	Substantial relationship	Valid
Item 23	5	24	4.8	0.70	Substantial relationship	Valid
Item 24	5	24	4.8	0.70	Substantial relationship	Valid
Item 25	5	17	3.4	3.30	Very high relationship	Valid
Item 26	5	17	3.4	3.30	Very high relationship	Valid
Item 27	5	16	3.2	3.20	Very high relationship	Valid
Item 28	5	23	4.6	0.30	Definite but small relationship	Not valid
Item 29	5	18	3.6	2.30	Very high relationship	Valid
Item 30	5	23	4.6	0.30	Definite but small relationship	Not valid
Item 31	5	20	4	1.00	Very high relationship	Valid
Item 32	5	20	4	1.00	Very high relationship	Valid
Item 33	5	20	4	1.00	Very high relationship	Valid
Item 34	5	22	4.4	0.80	Marked relationship	Valid

Item 35	5	23	4.6	0.80	Marked relationship	Valid
Item 36	5	23	4.6	0.80	Marked relationship	Valid
Item 37	5	21	4.2	0.70	Substantial relationship	Valid
Item 38	5	18	3.6	0.80	Marked relationship	Valid
Item 39	5	20	4	1.00	Very high relationship	Valid
Item 40	5	17	3.4	2.30	Very high relationship	Valid
Item 41	5	23	4.6	0.80	Marked relationship	Valid
Item 42	5	24	4.8	0.20	Definite but small relationship	
Item 43	5	23	4.6	0.80	Marked relationship	Valid
Item 44	5	22	4.4	0.80	Marked relationship	Valid
Item 45	5	22	4.4	0.80	Marked relationship	Valid
Item 46	5	24	4.8	1.00	Very high relationship	Valid
Item 47	5	24	4.8	1.00	Very high relationship	Valid
Item 52	5	21	4.2	0.20	Definite but small relationship	Not valid
Item 53	5	19	3.8	1.70	Very high relationship	Valid
Item 54	5	19	3.8	2.70	Very high relationship	Valid
Item 55	5	21	4.2	0.70	Substantial relationship	Valid
Item 56	5	22	4.4	1.00	Very high relationship	Valid
Item 57	5	23	4.6	1.00	Very high relationship	Valid
Item 58	5	22	4.4	1.00	Very high relationship	Valid
Item 59	5	24	4.8	1.00	Very high relationship	Valid
Item 60	5	22	4.4	1.00	Very high relationship	Valid
Item 61	5	18	3.6	2.80	Very high relationship	Valid
Item 62	5	18	3.6	2.80	Very high relationship	Valid
Item 63	5	21	4.2	0.70	Substantial relationship	Valid
Item 64	5	23	4.6	1.00	Very high relationship	Valid
Item 67	5	21	4.2	1.70	Very high relationship	Valid
Item 68	5	23	4.6	0.30	Definite but small relationship	Not valid
Item 69	5	22	4.4	0.80	Marked relationship	Valid
Item 70	5	22	4.4	0.50	Moderate relationship	Valid

APPENDIX 2

Component Structure and Item Loadings of Study Habits Inventory for Filipino High School Students

Rotated Component Matrix ^a				
Item Number	Domain			
	1	2	3	4
Item_01	.371			
Item_02	.347			
Item_03	.566			
Item_04	.305	.301		
Item_05		.428		
Item_06		.332		
Item_07		.483		
Item_08	.308			
Item_09			.504	
Item_10			.555	
Item_11			.518	
Item_12			.493	
Item_13		.322	.437	
Item_14		.308	.451	
Item_15		.327	.550	
Item_16				
Item_17		.368		
Item_18		.383		
Item_19				
Item_20		.493		
Item_21				-.432
Item_22		.414		-.437
Item_23		-.386		.525
Item_24				
Item_25				.423
Item_26				.639
Item_27				.573
Item_28			.407	
Item_29				.619
Item_30				.522
Item_31	.517			
Item_32			.424	
Item_33				.442
Item_34				

Item_35			.529
Item_39		.446	
Item_40	.433	.365	
Item_41		-.316	.414
Item_42	-.311	.514	
Item_43	.523		
Item_44		.402	
Item_45			
Item_46	.404		.388
Item_47	.507		
Item_48		.367	
Item_49		.384	
Item_50	.458		
Item_51	.545		
Item_52	.341		
Item_53			.461
Item_54	.393		.361
Item_55			
Item_56	.352		
Item_57	.352		.321
Item_58			.318
Item_59			.557
Item_60			

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 9 iterations.

APPENDIX 3

Item to Total Correlation Coefficient of the Proposed Inventory

Domain	Item Number	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	Item_01	.323	.780
1	Item_02	.381	.778
1	Item_03	.405	.775
1	Item_04	.320	.781
1	Item_08	.319	.781
1	Item_31	.414	.775
1	Item_38	.429	.773
1	Item_40	.395	.776
1	Item_43	.399	.775
1	Item_46	.391	.776
1	Item_47	.443	.772
1	Item_50	.401	.775
1	Item_51	.436	.772
1	Item_52	.363	.778
1	Item_54	.358	.778
1	Item_56	.265	.787
1	Item_57	.347	.779
2	Item_05	.362	.703
2	Item_06	.276	.715
2	Item_07	.387	.699
2	Item_17	.422	.695
2	Item_18	.379	.700
2	Item_20	.345	.705
2	Item_36	.386	.700
2	Item_39	.378	.700
2	Item_42	.266	.722
3	Item_28	.299	.742

3	Item_32	.411	.721
3	Item_53	.352	.730
3	Item_58	.294	.737
4	Item_23	.426	.724
4	Item_25	.357	.735
4	Item_26	.541	.706
4	Item_27	.494	.714
4	Item_29	.451	.721
4	Item_30	.389	.730
4	Item_33	.317	.740
4	Item_35	.371	.732
4	Item_41	.317	.740
4	Item_59	.409	.727

APPENDIX 4

Summary of Discarded Items in Preliminary Form

<i>SUMMARY</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	<i>Verbal Interpretation</i>	<i>Decision</i>
Domain 1						
Item 6	5	24	4.8	.20	Definite but small relationship	Discarded
Item 7	5	24	4.8	.20	Definite but small relationship	Discarded
Domain 2						
Item 11	5	24	4.8	.20	Definite but small relationship	Discarded
Item 15	5	20	4	.50	Moderate relationship	Discarded
Domain 3						
Item 28	5	23	4.6	.30	Definite but small relationship	Discarded
Item 30	5	23	4.6	.30	Definite but small relationship	Discarded
Domain 5						
Item 42	5	24	4.8	.20	Definite but small relationship	Discarded
Domain 6						
Item 52	5	21	4.2	.20	Definite but small relationship	Discarded
Domain 7						
Item 68	5	23	4.6	.30	Definite but small relationship	Discarded
Item 70	5	22	4.4	.50	Moderate relationship	Discarded