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Research Article

‘We can do it now!’: K to 12’s Influence on Self-Efficacy of Filipino Researchers

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Abstract

Baseline data to describe the ability of adult learners in research is indispensable for a successful curriculum evaluation. This study aimed to identify the level of perceived ability of college students in the Philippines who are graduates of the K to 12 Basic Education Curriculum, where a research-enriched Senior High School has been implemented. The study utilized a descriptive-status research design which employed a validated survey questionnaire administered digitally all over the Philippines from October to November 2020. Participated by 1250 participants from 9 regions and 27 provinces in the Philippines, the study revealed weak and strong areas of research ability of the participants. The authors concluded that the level of perception of the participants on their self-efficacy in research or ability-to-do-research is high. There is a strong implication that this result is due to the advanced subjects in research taken as part of the curriculum implemented in the Senior High School. Similarly, the authors are convinced based, on the findings, that writing a research report remains a concern in the next generation, as well as in statistical literacy as applied in solving research problems. However, recommendations for a targeted research curriculum audit and the establishment of a skill-focused school research committee have been recommended.

Keywords: *K to 12 Implementation, Self-Efficacy, Senior High School Research, Updates*

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Introduction

The literature is empty of baseline information on how 21st century learners view themselves in several areas that will concern the 'thinking humanity' in the following years to come. The Philippines, as a growing nation, deserves a citizenry that is inquisitive, imaginative, and inventive – and one way to do that is to identify if they could do it in the first place. Self-efficacy of Bandura has been an old concept but is still very functional even up to this time, in this case, in identifying if a person could perform an action or not. Thus, whether they believe that they could or could not do.

The prevailing assumption in education in the Philippines, and most of the world, is that people learn when taught, hence – the teaching-learning process. Therefore, it is safe to say that there is no teaching if there is no learning, and learning could be achieved through teaching. Teaching, on the other hand – like learning – is influenced by many factors, including curriculum preparation. In the Philippines, the learner is prepared through a 12-year basic education from kindergarten to senior high school. In Senior High School, the learner is given at the very least three research subjects. The number of research subjects in basic education must inform us that most of the 'adult thinking' of these 'students' are heavily dependent on research processes.

The country's quality of education is a fragile issue over the years. Statistics show that the literacy rate within the Philippines has steadily increased year-on-year for the past 40 years (UNESCO Institute of Statistics, 2020). Unfortunately, the numbers contrast with the numbers reported by the Department of Education (DepEd). The DepEd reports that the general performance of representative participants within the Education Research International Programme for International Student Assessment (PISA, 2018) significantly fell behind from its neighboring ASEAN countries in terms of reading, mathematical, and scientific literacy, where the country scored 340, 352 and 357, respectively. In fact, in all three categories, the Philippines ranked last among the participating countries, like Singapore, Malaysia, Brunei, Thailand, and Indonesia.

Based on the article posted on the website of Manila Bulletin, Senator Sherwin Gatchalian proposed a review of the country's K to 12 basic education programs because of the declining performance of scholars after its implementation. Gatchalian raised doubts on the effectiveness and quality of the country's K to 12 education program citing Department of Education (DepEd) figures showing the low proficiency end in the National Achievement Test Grade 6 and Grade 10 students from 2016 to 2017. The Department of Education targets a 75% level of proficiency in NAT but has only attained around 40%. Senator Gatchalian also pointed out a misalignment between the program,

and the demands of industries. He cited JobStreet Philippines's 2018 Fresh Graduates Report that showed only 24 percent of employers on its website are willing to hire senior high school graduates, while 35 percent cannot hire K-12 graduates. Government qualifications, particularly those imposed by the government officials Commission (CSC), remained unchanged despite implementing the K to 12 Program (Terrazola, 2019).

DepEd recognizes the urgency of addressing issues and gaps in achieving quality of basic education within the Philippines, including a curriculum review. The agency says its review will strengthen '21st century skills,' like information and media literacy, communication skills, and life skills are developed across all subjects and grade levels. It will emphasize checks on the event of "21st century skills" among students from kindergarten to senior high school. The DepEd is assessing the event of those skills in several grade levels and different subjects or learning areas are supporting it.. The department plans to try to do this by assessing the content, results, and performance standards of scholars across all subjects and learning areas altogether grade levels (Tomacruz, 2018).

While the review remains on-going, the onslaught of a COVID-19 Pandemic hits. The Philippines, together with the third-world country, is facing tons of difficulty altogether its public sectors. Marquez, *et al.* (2020) reported that many poor students and teachers cannot afford to shop for the required equipment for online learning. They also mentioned that the rich can afford unlimited internet access, the poor can barely buy metered mobile data packages. Moreover, while some students can afford to review within the safety of their own homes, others put themselves in danger with great care that they are not left behind in their education. In the essay, they cited that, some students go on the roof of their houses, on trees, or mountains just to seek out stronger internet connection. Some even juggle jobs and distance learning to earn a living.

At present, the Department of Education is implementing the K to 12 Enhanced Basic Curriculum. The said curriculum increased Philippine basic education from 10 to 12 years by virtue of Republic Act No. 10533 or the improved Basic Education Act of 2013. The Department of Education released the Most Essential Learning Competencies during the start of the school year to function as the rule for the implementation of the revised K to 12 curriculum to adapt to the country's pandemic situation (Gonzales, 2020). The MELC is part of the department's response to develop resilient education systems, especially during emergencies (Alcober, 2020) The MELCs further narrow down all the possible essential lessons, concepts, and skill sets that a student must know, acquire, and understand, albeit the classes are going to be conducted through different modalities sans face-to-face physical classroom interactions (Gonzales, 2020) to enable DepEd to focus on the indispensable competencies (Alcober, 2020). Similarly, as reported by Boliver (2020) and

Magsambol (2020), the Commission on Higher Education (CHED) also implemented changes within the possible delivery of the curriculum and accessibility to student services to further address the requirements of the scholars in education. These were also reported in the essay of Marquez, *et al.* (2020). With the relatively new implementation of the K-12 curriculum and therefore the introduction of MELCs there are no literatures and significant studies that might identify the status of student's competencies especially in their research subjects.

Several studies have been conducted regarding Senior High School learners' research capabilities and efficacy in the country. The study conducted by Estacio, Barcelona, & Mejia in 2018 looked into the students' conceptual understanding of four components of research namely: nature of research, understanding of literature and studies, research method and interpreting results. Meanwhile, Paurillo (2019) reported that students lack motivation in research writing. Further, qualitative changes in students' learning engagement and difficulties to learning were observed by dela Cruz (2019). Camara *et al.*, in a study reported that after graduation, 2% of the graduating population (2020a) did not engage in writing nor defending it as an individual or as a group. However, the rest in general (2021c) have high competence in research.

In this nationwide survey, the self-efficacy of Filipino college students as 21st Century Learners is presented as baseline data on the status of research competency of our K to 12 graduates in the Philippines. The regional and provincial distribution of the participants were also identified to propose regional and provincial policies appropriately.

Methodology

Research Design and Sampling Technique

This study employed descriptive research because it attempts to observe and measure the characteristics of the research participants without any form of intervention or manipulation to any prevailing conditions that affect them but (status) with possibility that these characteristics may be different with other populations and with the fact that these characteristics are present to the population under the study and during the data-gathering period. The sampling technique employed is purposive sampling for convenience and for wider geographical reach especially when the mobility of researchers is limited or restricted by Philippine IATF guidelines relative to the control of covid-19 pandemic, similar to the model employed by Camara *et. al. (2020b).*

Population and Instrumentation

The population of interest is *(1)* Filipino K to 12 graduates who are *(2)* enrolled in college during the data-gathering period. In this study, 1271 students participated but only 1250 of their responses were considered as data because the remaining 21 responses were college students but were not K to 12 graduates. The research instrument is developed by one of the authors. It is composed of two major parts. Part 1 included questions on the personal profile of the research participants including a few questions on their research profile as K to 12 graduates. Part 2 included self-efficacy questions relative to research writing. The research instrument underwent 2 major revisions and was finally rated as 'Very Highly Valid' *(M=4.51)* by experts of the Philippine Association of Research Practitioners, Educators, and Statistical Software Users (PARESSU), Inc [SEC RN: CN2019001170]. The Ethics Board of the PARESSU, Inc rated it 'Approved for Administration' dated October 10, 2020.

Data-gathering Procedure and Data Analysis

The data-gathering employed is the survey-questionnaire technique administered digitally all over the Philippines from October 15 to November 15, 2020 primarily through Messenger and Gmails. Further, a social media invitation with the link of the google form was also posted on the website of PARESSU, Inc to ensure that every netizen who possessed the inclusion criteria is invited to participate in the study. For data analysis, the data for this excerpt – were subjected to simple frequency counts, standard deviations, simple ranking, and weighted mean.

Results and Discussion

Respondents' Profile. The study participants were those who possessed the two inclusion criteria, namely, *(1)* are K to 12 graduates, *(2)* presently enrolled in college during the data-collection period. Based on these, *(N)* 1250 were considered from 1271 responses. The 21 invalid responses were identified because of 'screening questions' integrated into the survey-questionnaire. The data showed that there were nine (9) regions that participated in the study in terms of regional distribution. Majority of the participants came from Region I *(802, 64.2%).* Regions II, III, IV-A, and NCR had more than 100 participants. At the same time, few came from Regions IV-B, V, CAR, X. In terms of provincial distribution, there were twenty-seven (27) provinces that participated in the study. Majority of the participants were from Pangasinan *(713, 57.0%)*. Nueva Ecija, Manila, Ilocos Norte, and Rizal had more than 50 participants.

Competency of Student Researchers. Table 1 presents the weighted mean, standard deviation, and

simple rank of the research competencies of the participants *(N=1250)*. Generally, the participants believe that they can perform the specific competencies but will need the use of notes *(M=3.58, sd=0.77)*. The ability to differentiate a qualitative from a quantitative research topped all the competencies *(M=4.01; sd=0.86)* while the ability to compute using the correct statistical tool *(M=3.39; sd=0.74)* landed the lowest rank among all the 26 competencies, not to mention that the other competency that relates to computation, i.e. can compute using correct sampling method, landed 23rd in rank.

Further, Table 1 showed that only 4 out of 14 *(29%)* write-competencies made it to the Top 10 list. Of the other six in the Top 10 list, three are identify-competencies, two are explain-competencies, and one is a differentiate-competency. Furthermore, of the four write-competencies in the Top 10 list, interestingly, most of these write-competencies relate to writing the normal chapters for a final paper (Conclusions, Recommendations, and Bibliography). In contrast, one write-competency relates with writing Chapter 1. None appears for Chapters 2, 3 and 4 in the Top 10 list, and in fact, they even dropped down through the Bottom 10 list.

While all the twenty-six (26) competencies were rated with weighted means from 3.21 – 4.20 and were interpreted as 'Can do, but with notes', identifying those in the Top 10 and Bottom 10 could reveal strengths and weaknesses in the self-efficacy of the Filipino 21st century learners in terms of research writing and research in general.

Table 1. Weighted Mean, Standard deviation and Simple Ranks of Research Competencies

No	*Competency*	*M*	*DE*	*sd*	*R*
1	I can differentiate qualitative from quantitative research.	*4.01*	*Can do, but with notes*	*0.86*	*1*
2	I can write correct recommendations.	*3.71*	*Can do, but with notes*	*0.82*	*2*
3	I can explain the importance of Qualitative Research in Daily Life.	*3.68*	*Can do, but with notes*	*0.76*	*3.5*

4	I can identify the characteristics of research.	*3.68*	*Can do, but with notes*	*0.73*	*3.5*
5	I can write correct conclusions.	*3.67*	*Can do, but with notes*	*0.81*	*5*
6	I can identify the different processes of research.	*3.64*	*Can do, but with notes*	*0.72*	*7.5*
7	I can identify the different kinds of qualitative research.	*3.64*	*Can do, but with notes*	*0.69*	*7.5*
8	I can write a good Chapter 1.	*3.64*	*Can do, but with notes*	*0.76*	*7.5*
9	I can write correct bibliographical references.	*3.64*	*Can do, but with notes*	*0.81*	*7.5*
10	I can explain the importance of Quantitative Research in Daily Life.	*3.63*	*Can do, but with notes*	*0.76*	*10.5*
11	I can select relevant studies for my research.	*3.63*	*Can do, but with notes*	*0.82*	*10.5*
12	I can identify the different kinds of quantitative research.	*3.60*	*Can do, but with notes*	*0.68*	*12*
13	I can write a good research title.	*3.58*	*Can do, but with notes*	*0.87*	*13*
14	I can write a good Chapter 2.	*3.57*	*Can do, but with notes*	*0.74*	*14*
15	I can write the correct Abstract.	*3.56*	*Can do, but with notes*	*0.80*	*15*
16	I can write correct specific problems.	*3.55*	*Can do, but with notes*	*0.81*	*16*

17	I can identify the different ethical principles in doing research.	*3.53*	*Can do, but with notes*	*0.71*	*17*
18	I can write correct general problems.	*3.52*	*Can do, but with notes*	*0.81*	*18*
19	I can choose appropriate methodology for my study.	*3.51*	*Can do, but with notes*	*0.75*	*19*
20	I can write a good Chapter 5.	*3.50*	*Can do, but with notes*	*0.75*	*20.5*
21	I can write correct findings.	*3.50*	*Can do, but with notes*	*0.77*	*20.5*
22	I can write a good Chapter 3.	*3.49*	*Can do, but with notes*	*0.72*	*22*
23	I can write a good Chapter 4.	*3.47*	*Can do, but with notes*	*0.73*	*23*
24	I can compute using the correct sampling method.	*3.43*	*Can do, but with notes*	*0.74*	*24.5*
25	I can write correct synthesis of reviewed studies.	*3.43*	*Can do, but with notes*	*0.74*	*24.5*
26	I can compute using the correct statistical tool.	*3.39*	*Can do, but with notes*	*0.76*	*26*
	General Weighted Mean / sd	*3.58*	*Can do, but with notes*	*0.77*	

It is evident in the findings that students are quite confident in their knowledge on the nature of research and its application to daily life. This agrees with the findings of Estacio, Barcelona & Mejia (2018). As the students undergo the prescribed research subjects in Senior High School, understanding the nature of research and its application to daily life is being attained. In the study of

de la Cruz (2019), learning engagement and research difficulties were formed because of their actual research experiences. This is evident in the development of research skills and learning outcomes and their realization of the connection of research in the daily activity of learning.

Findings in this research on the lowest-ranked competencies involve the analysis of data congruent with Estacio, Barcelona & Mejia (2018). . This is probably due to the fact that these are sometimes not emphasized in the discussions or research teachers also lack such competencies. Atutubo and Estonanto (2020) reported that SHS research teachers in Sorsogon City demonstrate low competency level in methodological, evaluative and technical writing making them feel insufficient and incompetent in applying proper statistical analysis and selecting the proper research design, among others. This proves that developing teachers' research competencies are essential for them to be able to teach students these competencies also.

Conclusions and Recommendations

The idea that research is indispensable in nation-building is an ideology that all nations would agree with. To build a nation is to build the next generation and identifying the strengths and weaknesses of the next generation is half the solution. The authors of the study conclude based on the level of perception of the participants that their self-efficacy in research, or ability-to-do-research, is high *(M=3.58; sd=0.77)*. There is a strong implication that this result is due to the advanced subjects in research taken as part of the curriculum implemented in the Senior High School. Similarly, the authors are convinced based on the findings, that writing a research report remains a concern in the next generation, as well as in statistical literacy as applied in solving research problems.

While the self-efficacy of the Filipinos is positively established by the findings of this study, the authors would like to make major and minor recommendations. For the major recommendations, a more targeted curriculum audit for the research subjects in Senior High School has to be made by the Department of Education with the end in mind of identifying competencies that require writing. Once these competencies are identified, an approach to identify the depth of knowledge on how these competencies are achieved through spiral progression is then proposed. Another major recommendation is the formulation and adoption of a more skill-focused selection mechanism to

identify and establish a school research committee who are researchers themselves, with publications and citations. After all, curriculum evaluation from the perspectives of student-clienteles is a significant and healthy approach to curriculum improvement (Camara, 2020). Developing research teachers' competencies by attending training, workshops, seminars and conferences and enrolling in advanced education is also highly recommended. This is very important for them to be able to deliver the lessons well and advise their students during the conduct of their research. For the minor recommendations, the authors are convinced that the concept of mixed method research shall be introduced in Grade 12 already because of the belief that learners are already capable of combining the knowledge learned from both qualitative and quantitative methodology.

National and International Implications

Both research capabilities and interests of students can widely vary at the regional and provincial levels. According to the Philippines' Department of Science and Technology (DOST, 2015) Compendium S&T Statistics, most researchers among public institutions are in the provinces of Laguna, Batangas, and Cavite, followed by Iloilo and Aklan. Suppose in these provinces, efficacy in students in research is high, it is imperative to say that it is not on students alone that self-efficacy in research depends. It is also on how the environment is accommodative or receptive to research based on the teachers being their prime example. Thus, to take action, policies should also be directed to the teacher's needs to help the students learn. Take, for example, the endeavor initiated in Iligan city but later escalated to the whole province of Lanao Del Norte where its DepEd division issued Memorandum 187, s. 2016 to provide guidelines on the conduct and submission of basic research, action research, innovation, and intervention to streamline the teacher's research and development in the division.

It is also important to note the importance of provincial-level policy makers in gauging their teachers' current situation and barriers. Teacher research plays a vital role in the teaching-learning process. It serves as the backbone of the teaching approaches, strategies, techniques, instruction materials, and assessment that we currently use now (Hussien, *et al.*, 2019). The financial capability and stability and how the province prioritizes education should also be accounted for. A challenge that affects students' research engagement and, thus, interest is their access to reading materials and, ultimately, libraries and all other resources needed for robust literature searching (Paurillo, 2019). If we cultivate students' interests and form an environment that elicits and accommodates the curious young minds of 21st Century Filipino learners starting at the provincial level, we can achieve the

goal of supporting their learning of research and increasing their competency.

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Conflict of Interest/s

The authors declare no conflict of interests.

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