

The Comparative Analysis Of Self-Assessment Of Pre-Service Physical Science Teachers On The Extent Of Their Acquisition Of The 21st Century Skills In Selected Regions In The Philippines

Teresita C. Molano, Romano P. Cammayo, Georgina M. Dioses, Jesusimo L. Dioses, Jr.

Abstract: The study analyzed the 21st Century Skills of Pre-Service Teachers of Region II, Philippines. The study used descriptive method of research and correlational analysis to determine the significant relationship between the self-assessments of the respondents of their skills as compared with the 21st century skills according to group of respondents. Result shows that in terms of year level, there was a very significant difference between year level and the pre-service teachers' extent of acquisition of the 21st century skills. In addition, Fourth year pre-service teachers demonstrated higher 21st century skills higher than the third year pre-service teachers. On the other hand, if type of school is to be considered, there was a very significant difference between type of school and the pre-service teachers' extent of acquisition of the 21st century skills for critical thinking, flexibility and adaptability, communication, collaboration, and creativity and innovation. Moreover, there was a significant difference between type of school and the pre-service teachers' extent of acquisition of information and communications technology skills (ICT) and there was no significant difference between type of schools and the pre-service teachers' extent of acquisition of problem solving skills. Pre-service teachers from State Universities showed higher acquisition of 21st century skills compared with Private Sectarian and Private Non-sectarian teachers. Considering the region, there was a very significant difference between region and the pre-service teachers' extent of acquisition of the 21st century skills. Pre-service teachers from Region 4a demonstrated most of the 21st century skills compared with other regions. Additionally, respondents from Region 2 and 3 had a higher acquisition of communicative and collaborative skills respectively.

Index Terms: Adaptability, Critical thinking, Flexibility, Private Sectarian, Private Non-Sectarian

1. INTRODUCTION

The teachers demanded by the K to 12 curriculums are those who are equipped with these 21st century skills. The education graduates must possess the 21st century skills themselves so they can in turn develop them in their students. Future teachers will be handling digital natives and digital learners, who are capable of multi-tasking and who look for evidence and deliver outcomes. All of these factors demand change in the teacher-training program to better equip teachers with the necessary 21st century skills. This necessitates effective learning activities and instructional materials geared towards the development of specified competencies [1]. One of these is the utilization of instructional modules using Outcomes-based approach to assess the demonstration and acquisition of knowledge, skills and attitudes essential to the effective performance of real world tasks. The OBE approach entails several instructional methods and strategies that allow students to demonstrate the skills and knowledge they have learned, and require more assessment activities to ensure the achievement of the outcomes. Considering all the aforementioned information, it can be stated that the study of pre-service 21st century skills and the development of instructional modules to enhance these skills might help bridge the gap in preparing pre-service teachers to meet the needs of their 21st century learners. This is the reason why the researcher was able to come up with the study in which the Self Assessments and the 21st Century Skills of Pre-Service

Teachers of selected regions in the Philippines was analyzed.

2 THEORETICAL FRAMEWORK

The theory of Thomas L. Friedman (2007) on globalization was the basis of the theoretical framework of this study. His review of current globalization shifts suggests the need to integrate 21st century skills in education. Friedman's perceptions offer the first sign that American education does not sufficiently address the 21st century skills demanded for life in a changing global economy. In his book, *The World is Flat*, Friedman offers a clear picture of the shifting global economy. He explains specifically the development of job market and nationwide economies that resulted from ten flattening forces that happened since the early 1990's. These forces have contributed to the present global economy and demand a new set of skills to thrive in this economy. In order to prepare a new generation for a future economy, these globalization skills must be addressed by society as a new emphasis in education [2].

Friedman describes the development of globalization as having emerged during three important eras: globalization 1.0, 2.0, and 3.0. The development of these eras can be described as the global society progressing from one that worked in isolation, to one that works collaboratively. This has been made possible by the merging of personal computer and fiber optic cable (Friedman, 2007). It is in this sense that communication has grown rapidly and will continue to do so as technology becomes advanced. Currently, globalization provides an individual the chance to communicate and collaborate regardless of distance and location. The comfort of communication and sharing of information challenges an individual to compete for jobs internationally. In this era, workers will need to acquire skills that will allow them to be

- Teresita C. Molano*, Isabela State University-Cauayan Campus, Philippines
- Romano P. Cammayo*, Isabela State University-Echague Campus, Philippines
- Georgina M. Dioses*, Isabela State University-Echague Campus, Philippines Jesusimo L. Dioses, Jr.*, Isabela State University-Echague Campus, Philippines

competitive in the new global economy [3]. Education plays a crucial role in the society's ability to thrive and succeed in this economy. Educators that know and understand the changes brought about by globalization and rapid advances in technology, and embrace the instructional practices can better train and prepare students for future innovation. This new era of globalization necessitates transformation in education that demands immediate learning of relevant skills needed in the 21st century. Educators, researchers and employers identified these skills as 21st century skills that call for their introduction at all levels in education. To more adequately equip students with these 21st century skills, a shift in instructional practices will need to take place in every classroom. As a response to these emerging demands, educators need to think more holistically on how to transform instructional content to process skills. This transformation is the desired approach to 21st century [4]. With the aforementioned perspective, questions arise as to what instructional approaches, methods, strategies and resources must be introduced and designed so as to facilitate the acquisition and enhancement of 21st century skills that students need to be successful and effective in this rapidly changing world.

3 RESULT AND ANALYSIS

3.1 Rationale of the study

The objectives of the study is to compare the self-assessments of pre-service Physical Science teachers' 21st century skills according to year level, type of school and region. To attain the objective of the study, descriptive method was employed [5], [6] and [7]. The study was conducted in teachers of region I. The respondents of the study were the pre-service Physical Science third and fourth year levels teachers from private and public Teacher Education Institutions Region I, Region II, Region III, Region IVA, Cordillera Administrative Region and National Capital Region. The respondents are 342 pre-service Physical Science teachers.

3.2 Demographic Profile of the respondents

Table 1 presents the frequency and percentage distribution of the respondents in terms of year level, type of school and region .

TABLE 1
RESPONDENTS' DEMOGRAPHIC PROFILE

Profile	Variable	Frequency	Percentage
Year Level	Third Year	183	53.5
	Fourth Year	159	46.5
Type of School	Private Sectarian	183	53.5
	Private Non-sectarian	159	46.5
	State University	267	78.1
Region	Region I	16	4.7
	Region II	105	30.7
	Region III	66	19.3
	Region IVa	45	12.0
	CAR NCR	69	13.2

As gleaned in the table, out of the 342 respondents, majority or 53.5 percent were third year consisting of 183 respondents while 46.5 percent were fourth year consisting of 159 respondents. The data revealed that there were students still enrolling in the Bachelor of Secondary Education major in Physical Science.

3.3 Comparison of the Self-assessment of Pre-service Physical Science Teachers in terms of Year Level and Type of School

3.3.1 Year Level

It is revealed that, in terms of year level, there was a very significant difference with the pre-service teachers' extent of acquisition of the 21st century skills as shown by the p-values of 0.000, 0.008, 0.000, 0.000, 0.000, 0.000, and 0.000 respectively which are lower than 0.01 level of significance with the computed t-values of -4.495, -2.51, -4.466, -4.193, -4.691, -4.601, -4.290 respectively.

3.3.2 Type of School

It is revealed that p-values 0.000, 0.001, 0.000, 0.007, 0.020 for critical thinking, flexibility and adaptability, communication, collaboration, and creativity and innovation were less than 0.01 level of significance. This indicated a significant difference between type of school and the pre-service teachers' extent of acquisition of the enumerated 21st century skills. There is a significant difference between type of school and the pre-service teachers' extent of acquisition of information and communications technology skills (ICT) as shown by the p-value of 0.045 which was lower than 0.05 level of significance. In addition, there is no significant difference between type of schools and the pre-service teachers' extent of acquisition of problem solving skills as shown by the p-value of 0.055 which was higher than 0.05 level of significance.

3.3.3 Region

The study revealed that p-values 0.000, 0.000, 0.000, 0.001, 0.000, 0.000 for critical thinking, flexibility and adaptability, communication, collaboration, Information and Communication Technology, and Creativity and Innovation were less than 0.01 level of significance. This indicated a significant difference between region and the pre-service teachers' extent of acquisition of the enumerated 21st century skills. Additionally, there is a very significant difference between region and the pre-service teachers' extent of acquisition of problem solving skills as shown by the p-value of 0.039 which was lower than 0.05 level of significance. Thus, the null hypothesis was rejected. It is also shows that respondents from Region 4a had a higher acquisition of critical thinking, flexibility and adaptability, information and communication technology, creativity and innovation and problem solving skills as shown by the mean values of 3.27, 3.47, 3.50, and 3.44 respectively. This implied that pre-service Physical Science teachers from Region 4a were equipped with these skills. Moreover, respondents from Region 2 and 3 had a higher acquisition of communicative and collaborative skills as shown by the mean values of 3.98 and 3.36 respectively. These results indicated that respondents from Region 2 and 3 have demonstrated most of these skills.

4 CONCLUSION

The study was conducted to selected regions of the Philippines. The theory of Thomas L. Friedman (2007) on globalization was used as a basis for the theoretical framework of the study. Analysis of on the self-assessments of pre-service physical science teachers on their extent of acquisition of the 21st century skills when group according to year level, type of school and region were conducted. The

study shows that that there are no significant differences on the self-assessments of pre-service physical science teachers on their extent of acquisition of the 21st century skills when grouped according to year level. On the other hand, there are no significant differences on the self-assessment of pre-service physical science teachers on the extent of their acquisition of the 21st century skills when grouped according to type of school. Moreover, there are no significant differences on the self-assessment of pre-service physical science teachers on the extent of their acquisition of the 21st century skills when grouped according to region.

REFERENCES

- [1] Arum, R., & Roksa, J. (2014). *Aspiring adults adrift: Tentative transitions of college graduates.* , Chicago: University of Chicago Press.
- [2] Barber, M., Donnelly, K., & Rizvi, S. (2013). *An avalanche is coming: Higher education and the revolution ahead.* London: Institute for Public Policy Research.
- [3] Barton D. (2012). Young, gifted and slack: The skills gap must be bridged if the world is to avoid dire consequences. *The Economist*. Retrieved from <http://www.economist.com.hk/news/21566464-skills-gap-must-be-bridged-if-world-avoid-dire-consequences-argues-dominic-barton>
- [4] Jayaram, S. (2012). *Skills for Employability in Africa and Asia.* Washington, D.C.: Results for Development Institute. Washington, DC.
- [5] Lodico, M.C., Spaulding, D.T., & Voegtle, K.H. (2006). *Methods in educational research: From theory to practice.* San Francisco: Jossey-Bass.
- [6] Wright, J.D., & Marsden, P.V. *Handbook of survey research* (pp. 3-26). Bingley: Emerald Publishing Group.
- [7] Zulueta, F. M. & Costales, Jr. N. E. B. (2003). *Methods of Research: Thesis-Writing and Applied Statistics,* Navotas, Metro Manila, Philippines: Navotas Press, 75-76.