UNVEILING the Plight of the Physical Education Teachers in the Information Age: A Convergent Parallel Approach to Relate Teacher Profile and Technology INTEGRATION

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ABSTRACT

This study examined the technology integration of in-service Physical Education teachers in elementary, junior, and senior high schools in North Cotabato. This convergent parallel mixed-methods study used a descriptive-comparative design to identify significant differences in technology integration among 150 PE teachers based on their profiles. It also used phenomenological research to explore the 17 PE teachers' lived experiences with technology integration and the role of these experiences in shaping their beliefs, attitues, and commitment. The mean, standard deviation, t-test, and ANOVA were used to interpret quantitative data. Thematic analysis was used to analyze qualitative data. The overall status of the PE teachers' technology integration is high, with significant differences based on the grade level taught. The lived experiences evolved around the following themes: awareness of ICT functionality and relevance, embracing the importance of technology integration, and the challenges and deficiencies that must be addressed in technology integration. The role of participants' lived experiences in their beliefs, attitudes, and commitment to technology integration evolved into the following themes: widens beliefs about classroom technology use, inculcates a positive attitude towards technology integration, and stabilizes commitment to technology integration. This study revealed quantitative and qualitative findings with a merging nature and converging functions.

KEYWORDS: *Physical Education pedagogy, technology integration, convergent mixed methods, Philippines.*

INTRODUCTION

The National Association for Sport and Physical Education (NASPE) believes that technology can be an effective tool for supplementing instruction when used appropriately (Kavita et al., 2013). This supports Fabian's (2016) insight that Physical Education needs to be integrated with modern technology. However, the research findings of Kretschmann (2015) revealed that the 57 secondary physical education teachers that they surveyed tended not to use technology in Physical Education. Moreover, Gibbone et al. (2010) found that secondary physical education teachers in the United States make limited use of technology. In the Philippines, Itaas (2008) reported that some high school teachers in Mindanao have no background in ICT. Likewise, Rodriguez (2008) also conveyed that the integration of technology in schools is limited in Region XII. These negative study findings have prompted the researcher to conduct further investigation into the factors influencing teachers' use of technology in education, particularly in Physical Education settings.

The study primarily focused on in-service physical education teachers, as few studies exist in this field (Gibbone, et al., 2010; Ince, et al., 2006; as cited by Von & Kretschmann, 2015), because the empirical findings available were mostly focused on pre-service physical education teachers and Physical Education Teacher Education or PETE students (Adamakis & Zounhia, 2013; Von & Kretschmann, 2015). The findings of the study, which the researcher also encountered, regarding significant differences in the use and integration of technology by sex, age, teaching experience, grade level taught, educational attainment, and socio-economic status revealed contradictory results. Hence, this study aimed to further investigate the influence of the physical education teachers' profile in terms of sex, age, teaching experience, grade level taught, educational attainment, and monthly family income on their technology integration.

After teaching in a public school for a semester and a private school for a year, I found that technology support and access were better at the private school. This justifies my observation that private school teachers were more enthusiastic about integrating technology into their teaching than those in public schools. I have also observed that among the subjects in the curriculum, Physical Education has the weakest link to the field of technology. Most teachers perceive the use of technology in Physical Education as irrelevant

because the subject primarily involves physical activities that rely solely on the teacher and students as the means of instruction.

Research Questions

1. What is the status of the participants' technology integration?
2. Is there a significant difference in the technology integration of the participants when classified according to Sex, Age, Length of Service, Grade Level Taught, Educational Attainment and Monthly Family Income
3. To what extent do the qualitative results corroborate the quantitative results?

Theoretical Lens

The researcher conceptualized this study using the Pragmatic philosophical worldview. Creswell (2009) sees worldviews as a general orientation about the world and the nature of research that a researcher holds. As cited by Creswell (2009), pragmatism derives from the work of Pierce, James, Mead, and Dewey (Cherryholmes, 1992; Rorty, 1990; Murphy, 1990; Patton, 1990). He also implied that, for many, pragmatism as a worldview arises from actions, situations, and consequences rather than from antecedent conditions, as in post-positivism (Creswell, 2009). In addition, Creswell (2009), drawing on the views of Cherryholmes (1992), Morgan (2007), and his own, identified pragmatists as those who do not see the world as an absolute unity. Thus, mixed methods researchers draw on multiple approaches to collecting and analyzing data rather than subscribing to a single method.

Furthermore, this study was anchored to the Social Construction of Technology. Yousefikhah (2017) conveyed that the Social Construction of Technology argues that technology is being shaped by human action. According to Gale (2005), the Social Construction of Technology is a theory about how technological development, technological change, and the meanings associated with technology are being shaped by a variety of social factors and forces. Gale (2005) also noted that technologies are conceived and understood differently by various groups.

Ardalan (2016) also noted that the second component of this theory, interpretive flexibility, emphasizes that different social groups may associate radically different meanings with a given technological artifact. Consequently, different social groups use technology in various ways. As cited by Yousefikhah

(2017), Orlikowski (1992) noted that interpretive flexibility is an attribute of the relationship between humans and technology and is a function of the material artifact, the characteristics of human agents, and the institutional context in which technology is developed and used.

METHODS

Research Design. This research is a mixed-methods study that primarily investigates physical education teachers' technology integration. This study utilized the convergent parallel design, which was identified by Creswell and Plano Clark (2011) as a design that occurs when the researcher uses concurrent timing to implement the quantitative and qualitative strands during the same phase of the research process, equal prioritization of the methods, and keeps the strands independent during analysis and then mixes the results during the overall interpretation, as shown in figure 2. In the quantitative phase of the study, a descriptive comparative design was utilized, with a survey conducted to collect quantitative data using an adapted questionnaire. In the qualitative phase, in-depth interviews and focus-group discussions were carried out using researcher-made interview questions. Hence, the convergent parallel design was appropriate in the collection of the quantitative and qualitative data needed to describe the status of the participants' profile and technology integration, and to explore their lived experiences, and its role in their belief, attitude, and commitment to integrating technology into their teaching practices, respectively.

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Place of Study. The research study was conducted among 18 public elementary, junior, and senior high schools in North Cotabato, where in-service teachers teach Physical Education at any grade level in Basic Education. The study was chosen in North Cotabato, Region 12, due to the reported lack of technology integration in schools. The study was conducted in 8 elementary schools, particularly in Malasila Elementary School, Kisante Central Elementary School, Makilala Central Elementary School, Luna Norte Elementary School, Kawayanon Elementary School, Taluntalunan Elementary School, Matalam Central Elementary School, and Kidapawan City Pilot Elementary School. The study was also conducted in the 10 participating junior and senior high schools, specifically in Alamada High School, Aleosan National High School, Bulakanon High School, Carmen National High School, Kabacan National High School, Kidapawan City National High School, Kisante High School, Malasila National Vocational and Technological High School, Rangayen High School, and Saguing High School.

Research Participants. Participants in the study are the generalists, non-specialized, and specialized Music, Arts, PE, and Health or PE subject teachers. Different samples were selected for a survey, in-depth interviews, and focus group discussions. In the quantitative phase, 150 physical education teachers were selected through purposive sampling. In the qualitative phase, the 17 PE teachers who were not included in the quantitative survey. Seven participants were interviewed through focus groups, while the remaining ten participated in in-depth interviews.

Research Instrument. The study used a survey questionnaire and an interview guide questionnaire to collect quantitative and qualitative data. In the quantitative phase, the researcher adapted the *Teacher Technology Integration Survey* (TTIS) questionnaire by Vannatta and Banister (2009), comprising 61 Likert-scale items to measure six constructs: risk-taking behaviors and comfort with technology, perceived benefits of classroom technology use, beliefs and behaviors about classroom technology use, teacher support for technology use and access, teacher technology use, and student technology use. In the qualitative phase, a research guide was used to conduct in-depth interviews and focus group discussions. The researcher formulated the interview questions based on the qualitative research questions raised in the study.

Data Analysis. The statistical tools in the quantitative phase were analyzed using descriptive statistics (mean and standard deviation), t-tests, and ANOVA. In the qualitative phase, thematic analysis was used to identify patterns or themes.

RESULTS

Table 1
Status of the PE Teachers Technology Integration

Indicators	Mean	SD	Description
Comfort with Technology	*4.03*	*0.65*	*High*
Perceived Benefits of Technology Use	4.34	0.69	Very High
Beliefs and Behaviors about Classroom Technology Use	3.95	0.65	High
Technology Support	4.02	0.61	High
Technology Access	3.34	0.77	Average

Teacher Technology Use	3.41	0.85	High
Total Mean	**3.85**	**0.49**	**High**

Table 2

Significant Differences in PE Teachers' Technology Integration

Variables	Grouping	n	Mean	SD	t/f	P-value	Interpretation
Sex	Male	32	4.02	.47	0.05	.82	Not Significant
	Female	118	3.80	.49			
Age	Under 25	15	3.88	.59	1.52	.19	Not Significant
	25 – 29	7	4.13	.29			
	30 – 39	45	3.96	.49			
	40 – 49	39	3.77	.48			
	50 – 59	40	3.74	.45			
	60+	4	3.76	.83			
Length of Service	0	10	3.77	.64	1.34	.23	Not Significant
	1 - 5 years	25	3.94	.59			
	6 - 10 years	30	3.96	.47			
	11-15 years	20	4.01	.37			
	16-20 years	14	3.74	.36			
	21-25 years	24	3.77	.42			
	26-30 years	14	3.62	.49			
	31-35 years	11	3.84	.64			
	35 years+	2	3.38	.11			
Grade Level Taught	Elementary	122	3.85	.47	4.09	.02	Significant
	Junior High School	22	3.69	.62			
	Senior High School	6	4.33	.14			
Educational Attainment	Bachelor's Degree	105	3.82	.51	.54	.58	Not Significant
	Master's Degree	42	3.90	.42			
	Doctoral Degree	3	4.03	.86			
Monthly Family Income	Below P21,000	41	3.77	.55	.89	.49	Not Significant
	P21,000-P25,000	60	3.95	.48			
	P26,000-30,000	20	3.81	.43			
	P31,000-35,000	8	3.77	.40			
	P36,000-P40,000	10	3.83	.63			
	Above P40,000	11	3.73	.41			

**significant at p<.05*

DISCUSSION

PE Teachers' Technology Integration

The study findings indicate that PE teachers have a high level of technology integration in their teaching practices. This aligns with the findings of Tearle and Golder (2008) that physical education teachers have a high level of enthusiasm for using ICT in PE teaching and learning.

Significant Difference

The study found that only the grade level taught significantly influenced PE teachers' technology integration, supporting Gorder's (2008) finding of a significant difference in technology use and integration based on grade level. Additionally, there were no significant differences in technology integration among PE teachers based on sex, age, length of service, educational attainment, or monthly family income.

Data Integration of the Salient Quantitative and Qualitative Findings

The joint display of the salient quantitative and qualitative findings shows that the focal points or aspects addressed in the integration of data include comfort with technology, perceived benefits of technology use, beliefs and behaviors about classroom technology use, technology support and access, and teacher technology use.

Comfort with technology implies that the Physical Education teachers were comfortable learning more about technology and further integrating it. This implies that the keenness to learn and use technology is apparent when comfort prevails over anxiety. Further, the perceived benefits of technology use indicate that Physical Education teachers believe the integration of technology is beneficial to both teachers and students. This implies that perceptions of the benefits of technology use evolved based on its functionality in their teaching practices. Furthermore, beliefs and behaviors regarding classroom technology use indicate that Physical Education teachers recognize that they can teach students about the proper use of technology. This implies that the technology integration can be used to teach cyber ethics. Moreover, technology support and

access revealed that the Physical Education teachers experience inadequate internet access. This implies that the lack of internet access is a major barrier to integrating their technology. Likewise, teacher technology use conveys that the Physical Education teachers integrate technology primarily for instruction and administration, which is relevant to their teaching practices in Physical Education. It implies that constructive ways of integrating technology is employed by Physical Education teachers.

REFERENCES

Ardalan, K. (2016). On the Role of Paradigms in Finance, page 130. Retrieved November 26, 2018 from: *https://goo.gl/JQ3FVb*

Creswell, J.W. (2009). The Selection of a Research Design, *Qualitative, Quantitative and Mixed Methods Approaches,* 3rd edition, chapter 1, pages 6, 10 and 11. Retrieved August 16, 2018 from: *https://goo.gl/n6oS9t*

Creswell, J.W. and Plano Clark, V.L. (2011). Choosing a Mixed Methods Design, *Designing and Conducting Mixed Methods Research,* chapter 3. Retrieved October 25, 2018 from: *https://goo.gl/M3tHdT*

Gibbone, A., Rukavina, P. & Silverman, S. (2010). Technology Integration in Secondary Physical Education: Teachers' Attitudes and Practice, pages 27 & 35. Retrieved July 28, 2018 from: *https://goo.gl/2uP9Rp*

Gorder, L.M. (2008). A Study of Teacher Perceptions of Instructional Technology Integration in the Classroom. Retrieved October 30, 2018 from: *https://goo.gl/W9ZGfX*

Itaas, E.C. (2008). Capacity-building for Philippine Public Secondary School Teachers on the Information and Communications Technology Literacy Training Program, page 9. Retrieved November 25, 2018 from: *https://goo.gl/*fooj2X

Kavita, V., Sharma, J.P. & Tiwari, R.K. (2013). Use of Information Technology in Physical Education and Sport, *International Journal in Multidisciplinary and Academic Research,* vol. 2, no. 4, page 2. Retrieved August 14, 2018 from: *https://goo.gl/DvBGQf*

Rodriguez, C. (2008). Building Teachers' Capacity to Make Better Use of ICT in Philippines Schools, *ICT in Teacher Education,* pages 74 and 75. Retrieved August 21, 2018 from: *https://goo.gl/xZBJQq*

Tearle, P. & Golder, G. (2008). The Use of ICT in the Teaching and Learning of Physical Education in Compulsory Education: How do we prepare the

workforce of the future? – *European Journal of Teacher Education,* issue 1, pages 55-72. Retrieved August 23, 2018 from: *https://goo.gl/jiCfbm*

Vannatta, R.A. & Banister, S.I. (2009). Validating a Measure of Teacher Technology Integration. Retrieved August 29, 2018 from: *https://goo.gl/hpgnEG*

Von, V. & Kretschmann, R. (2015). Technology Integration in Physical Education, pages 28, 29, 30, 39, and 40). Retrieved July 25, 2018 from: *https://goo.gl/mYwP2o*

Yousefikhah, S. (2017). Sociology of Innovation: Social Construction of Technology Perspective, *AD-minister,* no. 30. Retrieved November 26, 2018 from: *https://goo.gl/Cm4mdP*