

Technological Needs of Physical Education Teachers in China: An Action Research



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ABSTRACT: To streamline physical education policies and guidelines, one must understand the Physical Education teachers' technology needs. Recognizing technological demands can help physical education teachers keep up with new technology that can improve their teaching. In addition, this can help teachers integrate technology into their teaching and stay current in a tech-driven world. The research aims to determine the technological needs of physical education (PE) teachers in selected sports school in Beijing, China. Quantitative-comparative research was used. Eighty (80) PE teachers at selected Chinese sports schools were assessed for technology needs. The profile was used to alter variables. The researcher created an instrument using parameters from many sources to collect quantitative study data. Results show that PE teachers prioritize skills development. Therefore, to gain confidence and skill in using technology to teach physical education, teachers must be prioritized for training programs.

KEYWORDS: Technology Integration, Technology Needs, Physical Education

I. INTRODUCTION

The use of technology has become the primary driver in the educational system. It is undeniable that it has been an essential contributor to the growth of several subfields within the educational sector. Educators have seized the opportunity presented by its sophistication by devising novel approaches on how to most effectively use the cutting-edge resources that are available to them in the classroom to teach a variety of subjects. The Physical Education department may find it more challenging to use technology than other departments due to the nature of the subject matter. More specifically, physical education involves physical activity, movement, and various performances that would require the use of wide open spaces like a gymnasium or a field. Thus, physical education classes frequently emphasize the development of physical abilities, which may be difficult to evaluate using technology.

As a result, instructors of physical education might not have the same degree of access to technological tools and assistance as other teachers, which can make it challenging for them to successfully incorporate technology into their lessons. According to Kretschmann (2015), the use of technology in teaching physical education is emphasized as an inevitable and revolving trend that can be both challenging and beneficial for physical education teachers. Knowing that PE teachers show positive attitudes towards ICT, school administrators must be able to target the technological needs of teachers to seamlessly integrate technology into their classes (Fernández-Batanero et al., (2021). In like manner, they should consider the potential benefits and drawbacks of digital device use in their classrooms and make informed decisions about how to incorporate technology into their teaching practices. Baert (2011) believes that through increasing teachers' collaboration, providing teaching technology facilities, and creating opportunities to share industry standards about educational technology.

To highlight the concerns of PE teachers, Zhao, Y., & Guo, K. (2021) determined lack of infrastructure and resources as their main concern. Lack of access to technology and digital skills training, as well as the need to balance the use of technology with traditional teaching methods, were some of the needs of PE teachers in the study of (Cordova, D. D., & Alvero 2021).

It is essential to have a full picture of the technological requirements of physical education in order to facilitate the streamlining of the policies and guidelines that are relevant to the specific requirements of the field. This information can serve as a baseline for the development of programs that would establish the required skills and knowledge for educators to successfully integrate technology into their teaching methods. In addition, recognizing technological needs can assist physical education teachers in staying abreast of emerging technological trends and advancements that can improve their teaching methods. This can help them better integrate technology into their teaching and remain relevant in an increasingly technology-driven environment.

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Statement of the Problem

The research aims to determine the technological needs of physical education (PE) teachers in Beijing, China. Specifically, it sought to answer the following questions:

1. What are the technological needs of PE teachers in terms of :
 - 1.1. Standards
 - 1.2. Integration
 - 1.3. Pedagogy
 - 1.4. Knowledge:
 - 1.5. Skills?
2. Is there a significant difference between the technological needs of PE teachers when grouped according to sex, age, and education?

II. RESEARCH METHODOLOGY

The study utilized a quantitative-comparative research approach. This type of design attempts to determine the similarities and differences between the groups being compared. The research sought to assess the technology needs of PE teachers at selected sports schools in China. The research attempted to manipulate the variables using the profile as a test factor. Thus, this paper anticipates generating new insights and perspectives on the variable under question. The research collected data from 80 purposefully selected PE teachers. In gathering the needed data for quantitative research, the researcher utilized a self-made instrument based on the parameters recommended by different sources of information. Descriptive and inferential statistics were used to comprehensively interpret the data gathered from the study.

III. RESULTS AND DISCUSSION

Table 1. Technological Needs of PE teachers

INDICATORS	N	Mean	Std. Deviation	Interpretation	Rank
Standards	80	2.304	.401	I need this to a moderate extent	5
Integration	80	3.075	.511	I need this to a moderate extent)	2
Pedagogy	80	2.983	.627	I need this to a moderate extent)	3
Knowledge	80	2.554	.514	I need this to a moderate extent)	4
Skills	80	3.154	.574	I need this to a moderate extent)	1

Legend: 3.25-4.00 (Strongly Agree - I need this to a great extent); 2.50-3.24 (Agree - I need this to a moderate extent); 1.75-2.49 (Disagree - I need this to a lesser extent); 1.00-1.74 (Strongly disagree - I do not need this at all)

Table 1 pertains to the technological needs of Physical Education teachers in terms of standards, integration, pedagogy, knowledge, and skills. Overall, it can be interpreted that teachers primarily need technological skills with a mean value of 3.154. This implies that the respondents give the development of skills as an important factor for their success in utilizing the technology in teaching. Considering that technology has the potential to promote student participation and provide more possibilities for sophisticated, personalized feedback, and foster communities of interaction among teachers, students, parents, and other interested parties (Khan, 2018), teachers are compelled to build on their skills in the use of technology. High mean value for skills could be a reflection of their difficulties they face in the integrations of technology. Findings revealed that one of the significant barriers is that teachers lack confidence with technology (Yaman, 2008). Thus, learning attitude can also be a factor in the skills building. In fact, in the utilization of technology teachers must be in a position where they have extensive knowledge of this piece of technology (Gallagher, 2020. Junui (2013) asserts that PE instructors need to know how computer systems and other similar technologies (e.g., heart rate monitors, motion sensors, pedometers, body composition analyzers, computer-based health-management systems, etc.) obtain information to improve instructional techniques, analyze sport skills, assess learning outcomes, and analyze health-related fitness levels.

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While developing skills rated highest among the other factors, it is crucial to highlight that incorporating technology into their teaching practice, enhancing pedagogical techniques, establishing standards, and acquiring knowledge were also significant to respondents. In general, teachers of physical education realize the potential value of technology in their classrooms.

Table 2. Differences in Technological Needs of Teachers in Terms of Sex

Indicator	Sex	Mean	SD	Computed t-value	df	Sig.	Decision on Ho	Interpretation
Standards	Male	2.287	.377	-.488	78	.955	Accept	Not Significant
	Female	2.333	.445	-.466	50.768			
Integration	Male	3.111	.435	.836	78	.003	Reject	Significant
	Female	3.0115	.626	.758	43.644			
Pedagogy	Male	2.961	.638	-.424	78	.859	Accept	Not Significant
	Female	3.023	.616	-.428	60.017			
Knowledge	Male	2.627	.497	1.711	78	.990	Accept	Not Significant
	Female	2.425	.526	1.685	55.624			
Skills	Male	3.157	.582	.055	78	.641	Accept	Not Significant
	Female	3.149	.568	.056	59.615			

Table 3. Differences in Technological Needs of Teachers in Terms of Educational Level

Indicator	Education	Mean	SD	F	df	Sig.	Decision on Ho	Interpretation
Standards	Bachelor	2.917	.394	.422	2	.657	Accept	Not Significant
	Master's	2.360	.480		77			
	Doctorate	2.244	.266		79			
Integration	Bachelor	3.075	.520	.427	2	.654	Accept	Not Significant
	Master's	3.133	.430		77			
	Doctorate	2.978	.623		79			
Pedagogy	Bachelor	2.983	.594	.008	2	.992	Accept	Not Significant
	Master's	2.973	.600		77			
	Doctorate	3.000	.786		79			
Knowledge	Bachelor	2.550	.504	.003	2	.997	Accept	Not Significant
	Master's	2.560	.575		77			
	Doctorate	2.556	.466		79			
Skills	Bachelor	3.208	.598	1.383	2	.257	Accept	Not Significant
	Master's	2.933	.616		77			
	Doctorate	3.154	.382		79			

Tables 2 and 3 presents differences in technological needs of teachers in terms of sex and educational level. On Table 2, standards, pedagogy, knowledge and skills indicate no significant difference in the technological needs between male and female. On the other hand, on the aspect integration, there is a significant difference in technological needs between male and female teachers ($t = .836$, $df = 78$, $p = .003$). Hence, female respondents show a level of technological needs as compared to male respondents. Moreover, it appears that there is no significant difference in the technological needs of teachers in terms of their educational level in all four indicators. Therefore, educational level has effect on their technological needs of PE teachers.

IV. CONCLUSION

The study provides a baseline information on the technological needs of Physical Education teachers. With the development of skills being the top priority among the PE teachers, the research provided valuable information on the factors to be prioritized by school administrators and governments officials. Teachers must therefore be given top priority for training programs in order for them to build their confidence and expertise in the use of technology in teaching physical educations. In a similar way, there ought to be some thought given to the factors such as incorporating technology into educational techniques, establishing standards, and acquiring knowledge. In light of these findings, subsequent studies may opt to attempt to extend the scope of their investigation to include a more extensive pool of participants and/or additional areas of expertise.

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