

The Physical Educator

(ISSN print: 0031-8981; online: 2160-1682)

(USPS 431-220)

of Phi Epsilon Kappa

THE OFFICIAL PUBLICATION OF
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THE PHYSICAL EDUCATOR (Print ISSN: 0031-8981, Ejournal ISSN: 2160-1682) is published six times a year by Sagamore-Venture, 3611 N. Staley Rd., Ste. B, Champaign, IL 61822.

POSTMASTER: Send address changes to *The Physical Educator*, Sagamore-Venture, 3611 N. Staley Rd., Ste. B, Champaign, IL 61822.

The Phi Epsilon Kappa web page is located at <http://www.phiepsilonkappa.org>

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3611 N. Staley Rd., Ste. B
Champaign, IL 61822

The Physical Educator
(TPE) Volume #82
Print ISSN: 0031-8981 | Online ISSN: 2160-1682
Print and electronic archives | 6 issues annually

	Online	Both
Ind.	\$336.00	\$369.00
Ind. (Int'l)	\$336.00	\$430.00
Inst.	\$685.00	\$799.00
Inst. (Int'l)	\$685.00	\$825.00
PHI Epsilon Kappa Member	\$172.00	



<http://bit.ly/2Jn7fgk>

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Send address correspondence concerning subscriptions and change of address to Membership/Subscription Department, *The Physical Educator*, Sagamore-Venture, 3611 N. Staley Rd., Ste. B, Champaign, IL 61822. Make check or money order payable to Sagamore-Venture, order online at www.sagamorepublishing.com, or call 800-327-5557.

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2024 Journal Impact Factor: 0.5

THE PHYSICAL EDUCATOR

2025 | Volume 82 | Number 3

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PETE

Mental Toughness of Physical Education Teachers: Validation of a New Questionnaire

Sima Zach, Noa Fishler Barhum, and Itamar Shidlov

Abstract

The purpose of the study was to develop the Teachers' Mental Toughness Questionnaire (TMTQ). The questionnaire was developed in six stages: item generation, content validity, exploratory factor analysis, reliability tests, convergent validity tests, and discriminant validity. The factor analysis indicates that it measures six factors: team, liveliness, adaptation, stress, burnout, and facing challenges and assertiveness. Reliability demonstrated acceptable to good levels of internal consistency and stability over time. Convergent validity and discriminant validity were also demonstrated. Hence, the questionnaire was found to be a psychometrically sound six-factor measure of mental toughness among teachers.

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Introduction

Over the past three decades, considerable research has been devoted to creating evidence-based knowledge regarding the empowerment of students, both as individuals and as team members (Darling-Hammond, 2000; de Boer et al., 2018). A variety of educational theories, approaches, teaching and learning styles, curricula, and programs have been developed to increase student motivation, abilities, competencies, and achievements. On the other hand, teachers—those who must convey and deliver material and lessons in an optimal manner for the benefit of their students—have received much less attention. Indeed, a recent review indicates that teachers experience high levels of stress in their profession and that there is a need for theoretical and empirical research on this topic, especially as an ongoing stressful work environment has a major impact on burnout and attrition (Hagermoser et al., 2021).

Teacher attrition is a global social phenomenon (Heikkinen et al., 2012). After reviewing 34 articles on teacher attrition, Borman and Maritza-Dowling (2008) claim that newly qualified teachers tend to leave the profession within their first five years of teaching, and some veteran teachers over the age of 50 choose to retire early. In the United States, teacher attrition five years after graduation from teacher education may be as high as 30%, and even reaching 50% in high-poverty areas (Hong, 2010; Ingersoll, 2001). Recently, Goldhaber and Theobald (2021) utilized 35 years of data on public school teachers in Washington, USA. They reported that annual rates of teacher attrition from the workforce have been 5%-8% for each of the past 35 years, and there is a strong negative relationship between unemployment rates and these rates of attrition. They claimed that teacher attrition is likely to increase moderately as the economy recovers after the COVID-19 pandemic. In the United Kingdom, reports indicate that 50% of teachers leave the teaching profession within five years of graduating from their teacher education program (Espinoza, 2015). In Australia and other economically developed countries, the dropout rate among teachers within their first five years of teaching is approximately 50% (Arnup & Bowles, 2016).

In Israel, approximately 7,000 teachers leave the teaching profession each year, with about 20% of teachers leaving within three years

(Central Bureau of Statistics, 2017). This is a global phenomenon, even though initially, most people choose to embark on the teaching profession for idealistic reasons, such as a sense of mission and a desire to impact future generations (Makela et al., 2015).

Several reviews and meta-analytic studies (Nguyen et al., 2019; Schaefer et al., 2012) have categorized the attrition-retention phenomenon among teachers, depicting a phenomenon with multifaceted dimensions. In turn, these dimensions should be addressed when initiating steps to adjust teacher education programs and the accompanying mentoring of novice teachers as a means of decreasing teacher attrition.

As such, understanding and identifying causes and factors that lead to teacher attrition could help increase professional retention while decreasing this undesirable and costly phenomenon. As such, some studies aim to investigate the reasons for leaving the profession (Madigan & Kim, 2021), while others seek to predict teaching perseverance (Renbarger & Davis, 2019). According to the self-determination theory, satisfying people's own needs for a sense of autonomy, belonging, and competence enhances their motivation and the chances of their persisting with this behavior (Ryan & Deci, 2000).

Indeed, studies on the causes of dropout among teachers indicate that the lack of a sense of belonging (Kelchtermans, 2017) and support from colleagues in the workplace, as well as inadequate socialization (Patrick et al., 2010), and an insufficiently attentive work environment are among the significant causes for leaving the teaching profession. In addition, external pressures, such as coping with student behaviors, dealing with time difficulties, and lack of support from the school staff, were found to be associated with lower job satisfaction, which in turn may increase attrition (Arnup & Bowles, 2016). Moreover, a sense of inadequate teaching skills and lack of competence for dealing with the variety of difficulties that arise in teaching work, (Kirkpatrick & Johnson, 2014), as well as low levels of teaching efficacy (Barnes et al., 2018; Skaalvik & Skaalvik, 2017) have also been mentioned as causes for dropping out of the teaching profession.

In contrast, positive aspects regarding the teaching experience that might be related to teacher retention include satisfaction, com-

mitment to teaching, managerial capabilities, and quality of work—all of which are essential to teachers' wellbeing and are positive correlates and predictors of persistence in the teaching profession (Arnup & Bowles, 2016; Granziera & Perera, 2019; Makela et al., 2015). In addition, professional autonomy and positive interactions with students and peers, experiencing success in the professional field, improving students' achievement, and working in a positive school climate (Addimando, 2019) all add to the retention of teachers in the profession over time.

Several attempts have been made to correlate teaching efficacy and persistence/attrition (Tschannen-Moran & Woolfolk Hoy, 2001; Woods & Weasmer, 2004; Zach et al., 2012). Teaching efficacy relates to the teacher's belief in their ability to affect their students' learning significantly and their set of expectations about the effect of their teaching on their students' performance (Ashton & Webb, 1982; Fullan & Hargreaves, 1996). Moreover, examination of several teaching efficacy scales indicates that these mainly include sub-scales and sub-factors such as classroom management, instructional practices, student engagement (Fives & Buehl 2009), teaching skills, managerial skills, planning skills, content knowledge, and pedagogical knowledge (eZach et al., 2012)—most of which are oriented towards the students and the class.

In this study, however, based on a range of reviews (Nguyen et al., 2019; Schaefer et al., 2012), we claim that teachers' *mental toughness* is a more holistic construct. In addition to teacher-student channels, this construct encompasses social, emotional, cognitive, moral, and physical aspects that comprise both internal and external components of behavior, both as an individual within and outside the school and as part of the school organization. In other words, mental toughness may reflect teachers' resilience and, in turn, may serve as a better predictor of teacher retention over time. Mental toughness as a psychological construct has been researched extensively and in a range of contexts that require the ability to cope with challenges, difficulties, and stress in frameworks such as the military (Fitzwater et al., 2018), the workplace, (Lin et al., 2017), and education (McGeown et al., 2017), as well as in life events and everyday stressors (Mutz et al., 2017). Yet, researchers have mainly focused

on measuring general mental toughness rather than domain-specific mental toughness, such as that in the teaching profession.

To narrow this gap in the research literature, we developed an instrument for measuring domain-specific mental toughness that can be used in the teaching profession. The tool examines specific aspects related to a teacher's work from a broader, more holistic perspective. After validating the tool, it was applied to examine differences between physical education (PE) teachers based on their gender, the age of students, and teaching experience. This instrument could assist school principals when recruiting novice teachers, enabling them to provide the latter with appropriate mentoring and guidance—as well as during the teacher training phase, where training can be refined and adjusted to suit the needs of the beginning teacher, enhance their mental toughness, and increase teacher retention.

Methods

Participants

The sample size was calculated using the G*POWER software (Faul et al., 2007) with $\alpha=0.05$, $1-\beta=0.9$, and an effect size of 0.3. Subject to these conditions, the required sample size was a total of 192 subjects. To include a representative sample of male and female, novice and experienced, and elementary school and high school teachers, at least 32 participants were needed for each of these six sub-groups. A minimum of 192 subjects in total were therefore required, yet we were able to include more than double that number of PE teachers, thereby providing a more representative sample.

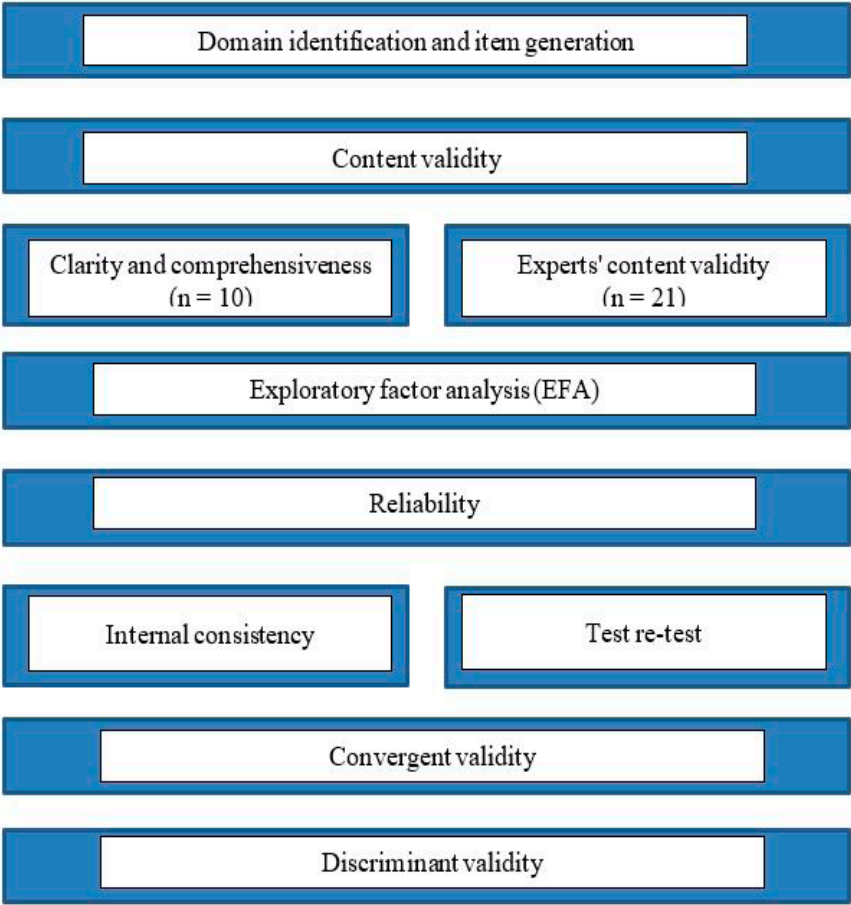
The study sample was comprised of 504 participants (282 females and 222 males), including 152 beginner teachers (one to five years' experience) and 352 experienced ones (six-plus years' experience), 232 elementary school teachers (grades 1-6) and 237 high school teachers (grades 7-12), from both state and state religious schools, and from six different districts across Israel.

Questionnaire Creation and Validation

The Teachers' Mental Toughness Questionnaire (TMTQ) was constructed in six stages (see Figure 1), in line with Boateng et al. (2018): (I) *Domain identification and item generation*; (II) *content*

validity; (III) *exploratory factor analysis* (EFA), including survey administration and factor extraction; (IV) *reliability tests*, in terms of both internal consistency of questionnaire factors and test-retest reliability conducted two weeks apart ($n=24$); (V) *convergent validity tests*, for ensuring validity using the multi-trait-multi-method approach, and examining correlations between factors in the proposed questionnaire and in the existing Self-Efficacy Questionnaire for PE Teaching (Zach et al., 2012); and (VI) *discriminant validity*, for examining the differences between novice teachers and experienced teachers. Stages I-II are presented in the Methods section, while Stages III-IV are presented in the Results chapter.

Figure 1
Stages of the TMTQ Creation and Validation



Stage I: Domain Identification and Item Generation

The questions and items included in the survey were written by the authors of this study, including two pedagogical instructors with more than 30 years of experience in teacher education and PE, and one novice PE teacher. After writing 46 items for the questionnaire based on Lahad et al.'s (2000) model, the pool of items was finally narrowed down to 23 items after deleting 23 other statements that had similar meanings or wording.

Stage II: Content Validity

This stage included two steps: (a) *clarity and comprehensiveness* pre-tests ($n = 10$), to verify that the questionnaire indeed addresses all necessary aspects of the mental toughness of PE teachers through clear and coherent wording. (2) *content validity by experts*, where external professionals were asked to examine and comment on the questionnaire, including question wording, interpretation, and relevance to the various topics (i.e., content categories). These professionals included 10 pedagogical instructors with more than 10 years' experience in PE teacher education, three junior high school principals, and eight PE teachers (three from elementary schools and five from junior high and high schools).

Questionnaire Description

The questionnaire was written in Hebrew. After answering background and demographic questions, the participants were asked to rate the 23 statements on the questionnaire on a Likert-type scale from 1 (not at all) to 10 (to a very large extent) (See Appendix). The questionnaire scores, therefore, ranged from 23 to 230. Items included statements such as, "I am able to cope with changes throughout the teaching process," "I am happy to be assisted by the school staff," and "I believe in my teaching abilities."

Procedure

After receiving permission to conduct the study from the Institutional Review Board at the Academic College at Wingate (November 25, 2019), questionnaires were sent to approximately 1,200 PE teachers via social media, such as teachers' groups on Facebook and WhatsApp, and via lists of college graduates. The re-

sponse rate was approximately 42%. Informed consent was obtained from all participants for the study.

Results

After creating the initial questionnaire, the following four additional stages were conducted.

Stage III: EFA

A principal components analysis, followed by a Varimax rotation with Kaiser Normalization, was applied to the TMTQ to determine the optimal solution. The results of this analysis are presented in Table 1.

Table 1
EFA (n=504)

Item No.	Item	1	2	3	4	5
10	I feel comfortable consulting with the school staff	0.794				
11	I feel empowered by the professional teamwork	0.779				
7	I feel strength from the positive atmosphere in the teachers' team	0.727				
13	I feel self-confident as a result of my good relationship with the school principal	0.701				
23	I enjoy going to school	0.550				
9	I am meaningful to the students	0.486				
6	I find teaching to be fresh and invigorating	0.475				
15	I aspire to develop myself professionally through school roles	0.422				
20	I have adapted myself to the reality of the school		0.702			
17	I quickly revert to routine after a crisis situation		0.696			
19	I believe in my teaching abilities		0.678			
18	I maintain self-control in difficult moments when teaching		0.669			
22	I efficient organize my workload (e.g., conduct exams, submit grades, and arrive to class in a timely manner)		0.656			
21	I exhibit flexibility for adapting to changes in the teaching process		0.629			
16	I separate between my professional life and my private one		0.615			
4	I feel stress/insecurity when my students' achievements are low			0.859		
3	I lack confidence when participating in parent-teacher meetings			0.844		
8	I lack confidence/feel stress when dealing with disciplinary issues			0.798		
5	I experience physiological changes in light of classroom situations (e.g., high blood pressure, increased heart rate, and dizziness)			0.770		
14	I cannot wait for the next school vacation				0.748	
12	I experience tiredness from dealing with students				0.680	
2	Criticism					0.815
1	I encounter educational dilemmas (such as students' contesting their grades, social issues, violence, and students' unresponsiveness)					0.813

(1) **team** [items 7, 11, 10, 13]; (2) **liveliness** [items 6, 9, 15, 23]; (3) **adaptation** [items 16, 17, 18, 19, 20, 21, 22]; (4) **stress** [items 3, 4, 5, 8]; (5) **burnout** [items 12, 14]; and (6) **facing challenges and assertiveness** [items 1, 2].

Following the EFA, we conducted inter-scale correlations (see Table 2). All items that were worded in a negative manner (such as, “I lack confidence when participating in parent-teacher meetings”) were flipped for statistical analysis (so that 1=5, 2=4, etc.). Six aspects were achieved in relation to mental toughness in the domain of PE teaching: Team, liveliness, adaptation, stress, burnout, and facing challenges and assertiveness. The findings presented a significant relationship between all six TMTQ factors, except for the relationship between stress and liveliness ($r = 0.073$). The highest correlation was observed between team and liveliness ($r = 0.773$). All factors were highly correlated with the general mental toughness score ($r > .50$).

Table 2

Inter-Scale Correlations Between the Questionnaire Factors

	Team	Adaptation	Liveliness	CCA*	Stress	Burnout	GMT*
Team	–	.434**	.773**	.346**	.098*	.220**	.697**
Adaptation	.434**	–	.517**	.428**	.201**	.186**	.720**
Liveliness	.773**	.517**	–	.351**	0.073	.287**	.699**
CCA*	.346**	.428**	.351**	–	.127**	.089*	.523**
Stress	.098*	.201**	0.073	.127**	–	.516**	.608**
Burnout	.220**	.186**	.287**	.089*	.516**	–	.592**
GMT*	.697**	.720**	.699**	.523**	.608**	.592**	–

CCA* = Facing challenges and assertiveness; GMT* = General mental toughness

We then examined a range of aspects, including item value loading, cross-loading, inter-scale correlations, and other conceptual considerations (e.g., splitting the first factor into two, whereby items 7, 10, 11, and 13 were labeled as “team”, while items 6, 9, 15, and 23 were labeled as “liveliness”).

The six factors with eigenvalues greater than 1 explained 65.30% of the total variance. Factors were labeled according to the behaviors they represented. The six mental toughness factors that emerged include: (1) *team*—feelings of relatedness and belonging to the school staff in general (including the managerial team) and to the PE teachers' team in particular (items 7, 11, 10, and 13); (2) *liveliness/vividness/vigor*—feelings of enthusiasm, a desire to grow in the school among peers and with the students (items 6, 9, 15, and 23); (3) *adaptation*—socialization and acculturation into school life (items 16, 17, 18, 19, 20, 21, and 22); (4) *stress*—experiencing stressful situations (items 3, 4, 5, and 8); (5) *burnout*—exhaustion from teaching (items 12 and 14); and (6) *facing challenges and assertiveness*—the teachers' cognitive coping skills (items 1 and 2). This sixth factor differs from the others on the TMTQ, as the items are presented after the following introduction: "As a teacher, I am able to cope with....," whereas the first five factors start with either: "As a teacher I feel....," or "How well do the following items describe you?"

Stage IV: Reliability Tests

Internal Consistency of Mental Toughness Factors

In terms of Cronbach's α for internal consistency of the TMTQ, the factors ranged from .65 to .86, which is considered acceptable to good (George & Mallery, 2003). The reliability of three of the six factors was higher than 0.80 (team, adaptation, and stress), and the reliability of two additional factors (Burnout and facing with challenges and assertiveness) was higher than 0.70. Finally, one factor (liveliness) presented a reliability of 0.65. If item 16 ("I separate between my professional life and my private one" is deleted from this factor, then the reliability increases to higher than 0.69. Nevertheless, we decided not to delete this item from the TMTQ, since it may be a strong predictor of teacher attrition (Opletka, 2015). In addition, according to DeVellis (1991), researchers who create a new scale have the discretion to decide whether to retain items, despite their moderate or borderline reliability.

Stability of the Questionnaire (Test-Retest Reliability)

Test-retest reliability was calculated using a *t*-test. The questionnaire was completed twice, two weeks apart, by 24 PE teachers, as

shown in Table 3, which presents the descriptive statistics, correlations between test and re-test scores, significance levels, and the *t*-test scores for the mental toughness factors.

Table 3

Means (Standard Deviations), Correlations, t-scores, and Significance for the Mental Toughness Factors (n = 24)

Factors	Descriptive statistics				
	<i>M</i> (<i>SD</i>) Test	<i>M</i> (<i>SD</i>) Re-test	correlation	<i>t</i> - scores	Sig. (<i>p</i>)
Team	7.08(1.86)	6.76(1.75)	0.71	1.083	0.291
Adaptation	8.17(1.3)	8.26(1.23)	0.48	-0.330	0.745
Stress	3.69(1.63)	3.98(1.65)	0.70	-1.045	0.308
Burnout	5.9(1.53)	6.2(1.99)	0.76	-1.068	0.297
CCA*	7.54(1.38)	8.23(1.16)	0.73	-3.338	0.003
Liveliness	7.2(1.31)	7.23(1.41)	0.73	-0.107	0.916

* Coping with challenges and assertiveness

A correlation was seen between the mental toughness factors in the first and second measurements. In addition, all mental toughness factors were high except for *stress* (3.69). Correlations between the measurements were also high, except for *adaptation* (0.48). In addition, no significant differences were observed between the test and re-test scores ($p > 0.05$), except for *liveliness* ($p = 0.003$). In other words, differences were seen between the first and second measurements.

Stage V: Convergent Validity Tests

Correlations were performed between the existing Self-Efficacy Questionnaire for PE Teaching and our novel TMTQ using the

multi-trait-multi-methods approach (Campbell, & Fiske, 1959). As seen in Table 4, correlations between the two scales were weak but significant, thereby indicating a low-to-moderate relationship and justifying the new questionnaire as a scale that examines the unique construct of mental toughness in teaching.

Table 4

Correlations Between Factors in the Self-Efficacy in Teaching PE Questionnaire and the TMTQ

1 = Team; 2 = Liveliness; 3 = Adaptation; 4 = Stress; 5 = Burnout; 6 = Facing

	1	2	3	4	5	6
Effective lesson management (ELM)	.360**	.472**	-.217**	.377**	-.226**	.376**
Planning, teaching and evaluation methods (PTE)	.387**	.462**	-.246**	.460**	-.263**	.406**
Pedagogical knowledge and didactical adjustments (PK & DA)	.368**	.491**	-.284**	.354**	-.213**	.389**
General physical education	.423**	.531**	-.243**	.482**	-.269**	.450**
General efficacy	.406**	.515**	-.262**	.442**	-.260**	.426**
Challenging learning encourages motivation	.407**	.492**	-.222**	.472**	-.255**	.422**
Effective teaching challenges and assertiveness	.396**	.524**	-.233**	.440**	-.255**	.440**

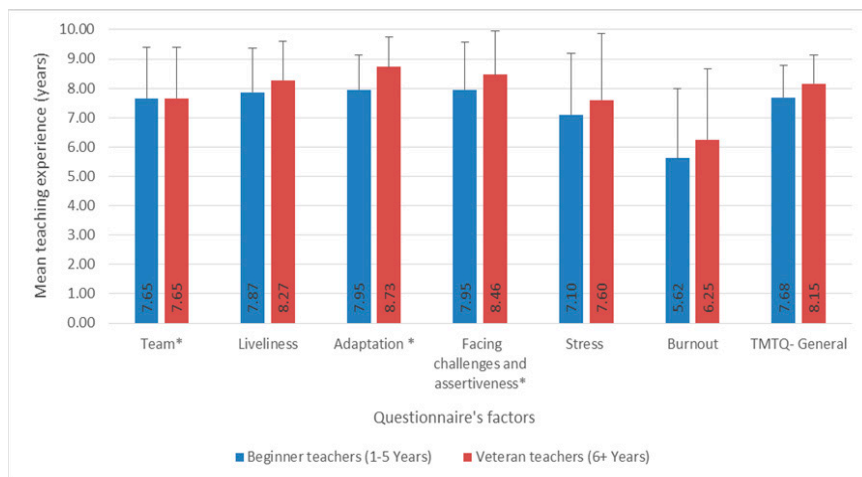
Stage VI: Discriminant Validity

When comparing beginning teachers (one to five years of teaching) and experienced teachers (at least six years of teaching), significant differences were found, as seen in Figure 2.

In summary, experienced teachers reported higher mental toughness compared to beginning teachers. The findings also showed that regarding the four positively oriented factors (i.e., team, liveliness, adaptation, and facing challenges and assertiveness), experienced teachers presented higher mental toughness compared to beginning teachers. On the other hand, regarding the two negatively oriented factors (i.e., stress and burnout), higher mental toughness was observed among beginning teachers.

Figure 2

Differences in MT factors by Teaching Frameworks (n = 504)



Discussion

Considering the extensive literature on high rates of attrition among beginner teachers, who often encounter difficulties and experience stress, helplessness, loneliness, and frustration (Arnup & Bowles, 2016), our purpose was to develop and validate an instrument that measures the mental toughness of physical education beginner teachers. Since mental toughness can be developed through appropriate training and in a supportive environment (Biswas-Diener et al., 2011), we believe that this instrument can help identify difficulties in a timely manner, allowing for relevant guidance and support to be offered. Moreover, the sub-themes of the instrument can be elaborated and integrated into teacher training programs to better prepare teachers for preventing such difficulties and for addressing their future professional realities.

The tool was developed based on indications whereby teachers with higher rates of mental toughness, teaching efficacy, coping resources, and satisfaction from the teaching profession are more likely to stay in the profession (Arnup & Bowles, 2016; Zach et al., 2012), while teachers who lack support, do not experience feelings of relatedness to the school, and exhibit low rates of teaching efficacy, tend leave the teaching profession (Barnes et al., 2018; Kirkpatrick & Johnson, 2014; Skaalvik & Skaalvik, 2017). Moreover, by following Boateng et al. (2018), we created and validated a new scale.

The results suggest that this TMTQ presents sufficient validity and reliability to support its use in research and in assessing perceptions among teachers.

Domain identification and item generation involved several initial steps to verbalize the scale. At this phase, beginner teachers, experienced teachers, pedagogical instructors, school principals, and researchers in sport pedagogy assisted in designing the instrument and its content. Next, content validity was checked and approved by other pedagogical instructors, experienced teachers, and school principals to verify its clarity, relevancy, and comprehensiveness (Barnett et al., 2020; Zach et al., 2012). This phase was followed by EFA that yielded construct structure that is comprised of six factors, indicating that the scale is multi-faceted, representing concepts of the self-determination theory (Ryan & Deci, 2000), with the *team* factor addressing the relatedness need, the *liveliness* factor representing intrinsic motivation, and the *adaptation* and *facing challenges and assertiveness* factors relating to the need for feelings of competence. At the other end of the continuum, negative feelings regarding competence (or lack thereof) are expressed through the *stress* and *burnout* factors.

Alternatively, these factors can be seen as the bright and dark sides of the teaching experience, with an understanding that mental toughness also relates to the ability to brighten up the dark (Papageorgiou et al., 2019), or to be sufficiency flexible in the presence of dilemmas, obstacles, and challenging situations to be able to overcome these difficulties in a nurturing and positive manner, rather than in a discouraging and frustrating one (Hollingsworth, 2019).

Finally, the TMTQ instrument was correlated with the similar, previously validated Self-Efficacy Questionnaire for PE Teaching (Zach et al., 2012) as a means for verifying its convergent validity. The results justify the uniqueness of the new instrument. Lastly, discriminant validity was established, as experienced teachers reported higher levels of mental toughness compared to novice teachers, demonstrating the validity of the new instrument.

Practical Implications

Two main goals can be achieved with this tool. First, it maps the difficulties of beginning teachers while offering them relevant

guidance and support that are suited to their specific professional needs. In this way, it will also be possible to develop unique individual and/or group intervention programs for beginning teachers. Such programs should be related not only to content knowledge and pedagogical content knowledge acquired during teacher preparation, but primarily to the challenging school reality manifested in relationships with peers, parents, management, and students, as well as to working conditions that require mental flexibility and thinking outside the box. Second, the dimensions of the tool can be utilized to update teacher training programs, ensuring that the actual needs of beginning teachers are also addressed.

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Appendix

The Questionnaire

Item No.	Item	Not at all				To a very large extent
		1	2	3	4	5
10	I feel comfortable consulting with the school staff					
11	I feel empowered by the professional teamwork					
7	I feel strength from the positive atmosphere in the teachers' team					
13	I feel self-confident as a result of my good relationship with the school principal					
23	I enjoy going to school					
9	I am meaningful to the students					
6	I find teaching to be fresh and invigorating					
15	I aspire to develop myself professionally through school roles					
20	I have adapted myself to the reality of the school					
17	I quickly revert to routine after a crisis situation					
19	I believe in my teaching abilities					
18	I maintain self-control in difficult moments when teaching					
22	I efficiently organize my workload (e.g., conduct exams, submit grades, and arrive to class in a timely manner)					
21	I exhibit flexibility for adapting to changes in the teaching process					
16	I separate between my professional life and my private one					
4	I feel stress/insecurity when my students' achievements are low					
3	I lack confidence when participating in parent-teacher meetings					
8	I lack confidence/feel stress when dealing with disciplinary issues					
5	I experience physiological changes in light of classroom situations (e.g., high blood pressure, increased heart rate, and dizziness)					
14	I cannot wait for the next school vacation					
12	I experience tiredness from dealing with students					
2	Criticism					
1	I encounter educational dilemmas (such as students' contesting their grades, social issues, violence, and students' unresponsiveness)					

PEDAGOGY

Physical Education Teacher Motivation, Self-Efficacy, and Burnout in a Successful, District-Wide Program

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Abstract

This study is the final piece in a line of research examining the functioning of a successful district-wide elementary physical education (PE) program. Previous papers in this line examined the district and school structures and functioning, history, and student and parent perceptions of this program, collectively providing valuable insights into systemic success in PE. The present study uses a mixed methods design to examine the motivation, self-efficacy, and burnout of district elementary PE teachers. Survey results indicate that the teachers in this district experience (a) high levels of job-related motivation, (b) self-efficacy toward classroom tasks and student needs, and (c) low levels of burnout. Qualitative analysis provides a more detailed understanding of sources of burnout and of various coping mechanisms they use to

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deal with it. Additional insights and implications that could provide useful for other programs seeking systemic success are discussed.

Introduction

In 1997, Siedentop and Locke boldly argued that the physical education profession has a “*systemic failure (emphasis added)*—one that involves the *relationship* of physical education programs in public schools with teacher preparation in higher education” (p. 26). Further, they asserted that it may be impossible to recover unless physical education teacher education (PETE) and practitioners came together soon (p. 27). Amid this era of uncertainty, a group of doctoral students between the years 1997 through 2004 found themselves in a puzzling situation. Despite the desperate national physical education (PE) zeitgeist, these students were exposed to a group of teachers thriving in a largely barrier-free environment. Since then, we have made a concerted effort to study this enclave of teachers, what they were doing, what made them successful, and how it affected the students and parents.

This paper represents the concluding piece in a line of research that explores the multifaceted workings of a large-scale, long-lasting achievement of quality physical education. Previous studies in this line of research—described in brief detail herein—provide background and context for the present study. In order, these studies have described (a) the structures and functioning of a district-wide approach—*what they do* (Prusak et al., 2010), (b) the journey through four decades viewed through a business organizational lens—*the key moments, decisions, and actions when success or failure hung in the balance* (Pennington et al., 2014; Prusak et al., 2014) (c) the impact on student perceptions and outcomes—*doing what is best for kids* (Prusak et al., 2010), (d) parental perceptions of the program to which their children are subjected—*a study in effective advocacy* (Griffiths, 2017) and now, finally, in the present study, (e) the teachers who are at the center of it all—*a story of dedicated service*. We encourage readers to familiarize themselves with each of these studies to gain a more holistic understanding of systemic success in PE (SSPE).

Our examination of the teachers used three complementary theoretical lenses: self-determined (SDT) motivation, self-efficacy

(SE), and teacher burnout (TBO) to provide a more holistic teacher motivational profile. We thereby explored our assumptions about apparent teacher volition and professional vitality and, secondly, made inferences about how district-embedded structures and practices in our earlier work facilitated these conditions.

This examination using two complementary motivational theories (SDT and SE) and a third opposing theory (TBO) could allow a more nuanced understanding of teacher psychological profiles regarding working as teachers in the SSPE structures.

Teacher Motivation, Self-Efficacy, and Burnout

Motivation

In comparison with other professions, K-12 teacher motivation is distressingly low (Jesus & Lens, 2004) leading to lower levels of job-related engagement and satisfaction (Levesque et al., 2004). In brief, Self-determination theory (SDT; Deci & Ryan, 1985; Deci & Ryan, 1987) has provided a useful framework for examining the nuanced regulations for motivated behavior: namely (a) intrinsic motivation (IM, engagement for the inherent appeal, pleasure, or satisfaction of the behavior), (b) extrinsic motivation (EM, activities are performed as a means to an end; some by choice others, not), and (c) amotivation (AM, lack of intentional or volitional participation in given behaviors). Further, individual motivational profiles are fluid, allowing for movement along a continuum spanning from low self-determination (i.e., amotivation) through increasing levels of autonomous behaviors (i.e., external regulation, introjected regulation, identified regulation, and integrated regulation) then to the highest form of self-determination (i.e., intrinsic motivation).

In the workplace, higher levels of self-determination (autonomous) are associated with positive work outcomes such as *job satisfaction* (Blais et al., 1993) and *less burnout* (Fernet et al., 2004). Low levels of self-determined behaviors (controlled) are associated with negative ones (e.g., turnover intentions; Richer et al., 2002). Because of SDT's sensitivity to the nuances of motivated behaviors across the entire continuum, it is particularly well suited to this study. In other words, SDT allows us to discriminate against reasons for job performance, whether from external (e.g., district/school administration,

controlling) expectations or internal (e.g., personal or intrinsic values and goals) sources.

To become more self-determined (moving toward intrinsic motivation and away from amotivation), it is necessary for one to have three intrinsic needs fulfilled: (a) autonomy (choice or volition in one's tasks), (b) competence (capability of succeeding within a given task), and (c) relatedness (respected and understood by others). PE teachers who feel satisfied with their work report higher levels of autonomy-, competence-, and relatedness-support than those who feel dissatisfied with their work (Makela et al., 2014; Whipp & Salin, 2018). Simply stated, when PE teachers are valued and treated as professionals, they display higher levels of intrinsic motivation and satisfaction (Richards et al., 2017).

Self-Efficacy

Another often-used framework for examining healthy teacher perspectives is self-efficacy. Self-efficacy refers to the degree to which a person feels confident (most often expressed as a percentage, e.g., "I feel 80% confident that I can...") in their abilities to achieve a successful outcome. Self-efficacy is highly contextually dependent and correlates positively with one's motivational profile relative to a given task. According to research conducted by Whipp and Salin (2018), PE teachers in Australia obtained work-related motivation through the acquisition of personal expertise, engaging collaboratively with others, and experiencing a sense of efficacy in controlling their pedagogy and student learning outcomes. Moreover, the PE teachers were found to have higher levels of career fulfillment, e.g., less burnout and higher professional vitality when supportive policies and actions were in place (rather than simply the absence of negative policies). Per previous research, teachers in the SSPE district examined in this study enjoyed high levels of supportive district policies and actions (Prusak et al., 2010; Pennington et al., 2014).

Friedman and Kass (2002) conceptualized teacher self-efficacy specific to one's confidence in the (a) classroom and (b) school organization. They propose that classroom efficacy consists of three constructs, namely (a) instruction, (b) discipline and control, and (c) consideration (showing empathy, attention, and care for students). Organizational efficacy consists of (a) influence (being influential, persuasive, and assertive in interpersonal relations at school) and

(b) inclusion (playing a pivotal role in contributing to the school). Because both of these contexts (classroom and the district/school organization) are pertinent to this line of research, the Friedman Kass instrument becomes of key importance to this study.

Burnout

Teacher burnout (TBO) is a state of unmediated stress, overload, lacking of support buffers or coping mechanisms, resulting in feelings of physical, mental, and emotional exhaustion, depersonalization, negativity, and a deep sense of unaccomplishment (Maslach & Jackson, 1981). Whereas one's self-efficacy for a given task contributes positively to one's motivation and self-efficacy, teacher burnout has the opposite effect.

Physical education teacher burnout is often typified by indifference or learned helplessness, that nothing one does makes a difference—a disconnect between effort and outcome. This barren emotional state is often the result of having too many barriers stacked against a PE teacher (Barroso et al., 2005; Rovengno & Bandhauer, 1997). For example, traditional barriers to physical activity and PE in schools include: (a) the deprioritization of physical activity/education, (b) lack of time and resources, (c) perceived negative parent/guardian and student values toward physical activity/education, (d) competing district policies (Nathan et al., 2018). Extensive research with the SSPE teachers suggests that each of the aforementioned barriers has been systematically and largely removed via district policy and actions, helping the teachers to focus on one central task—educating children.

Therefore, this study aims to examine teacher motivational profiles via SDT, self-efficacy, and burnout due to perceptions of working conditions, expectations, and barriers in the SSPE school district.

Methods

Participants and Setting

Study participants included elementary PE teachers ($n = 70$, 39 males and 31 females), four elementary school principals, and one district PE coordinator in a large metropolitan school district in the desert southwest of the United States. From the 52 elementary schools in this district, 70 of the 82 teachers ($r_{\text{response}} = 85\%$) consent-

ed to participate in this study. Grouped age ranges reveal that 24.3% of teachers were aged 20-30 years, 17.2% were aged 31-40 years, and 59% of the teachers were 41 years or older. Commensurately, teaching-experience groupings indicated that 37.2% were in years 1-10, 27.2% in years 11-20, and 36% had more than 26 years of experience. Ethnic identities included: Caucasian = 70%, Hispanic = 21.4%, Asian = 4.3%, African American = 1.4 %, Pacific Islanders = 1.4%, and other = 1.43%. Education level in terms of degree attained are as follows: bachelor = 40%, master = 58.6%, and doctorate = 1.43%. Further, 89% of the teachers reported having attended the partnership university. Professional organization membership rates were state (24%) and national (31%).

The school district oversees 52 elementary schools with some 42,000 K-6 students. Overall, 46% are Hispanic, 41% are Caucasian, 5% are Native American, 4% are African American, 2% have a multi-ethnicity, and less than 1% are Asian. Fifty-nine percent of students live in a single-family home, while 22% live in a one-parent family. Seventy-two percent speak English as their primary language, and 67% qualify for free or reduced lunch. Most schools ($n = 42$, 81.4%) report between 501 and 1,000 students. The remaining ($n = 10$, 18.6%) have fewer than 500 students (Griffiths, 2017).

Procedures

University IRB and district permission were attained before this study. Participants received, signed, and returned letters of consent electronically. This was a mixed-methods study in which participants first took an online survey via Qualtrics® two weeks before onsite visits. The survey comprised 11 demographic questions, 15 teacher-motivation questions, 30 teacher-self-efficacy questions, 12 teacher-burnout questions, and 25 barriers to PE questions. District approval for the survey was granted only on an anonymous basis, which placed some limitations on our representative sampling procedures for follow-up interviews.

A sampling procedure that (a) assured equal representation across district SES demographics and gender and (b) informed by the results of the surveys was used to invite 24 teachers ($n = 12$ males) from across the school district to participate in formal 30-minute, onsite interviews. The district coordinator and four principals were also interviewed for triangulation purposes.

Data Collection and Analysis

Survey Instruments and Analysis

Four validated and reliable scales were used in this study. The 15-item, six-subscale Work Tasks Motivation Scale for Teachers (WTMST, Fernet et al., 2008), the 30-item, five-subscale Teacher Efficacy scale (Fernet et al., 2008), and the Teacher Burnout scale (Friedman, 1999) were used to measure pertinent variables. Lastly, a 25-item Barriers to PE scale (Rodriguez-Ayala, 2014) was used to assess how teachers perceive barriers to their teaching ability. All response options used a 5-point Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, and 5 = strongly agree). All items were entered into a single survey. Participants accessed and completed the survey using the Qualtrics® online service. Responses were downloaded into SPSS (version 25) for statistical analyses. Means and standard deviations were examined for all demographic variables. Subscale and composite means for each of the four instruments were formed and used for all subsequent analyses. Cronbach's alphas were calculated for each subscale. A self-determination index (SDI) score was calculated using $SDI = (2 \times IM + IDR - ER - 2 \times AM)$. Pearson, bi-variate correlations were calculated for selected subscale means.

Qualitative Data Sources and Analysis

Data was collected from two sources: (a) audiotaped interviews with teachers ($n = 24$), school principals ($n = 4$), and the district coordinator ($n = 1$), and (b) field notes from 60 hours of observation and daily debriefing sessions. Researchers also observed the teachers as they taught several lessons and kept notes of teacher confidence, approachability, interest in individuals, motivation, and evidence of burnout.

A semi-structured interview (Patton, 1980) procedure, consisting of questions was used to access deeper levels of meaning and personal experiences with our selected constructs of interest (motivation, self-efficacy, burnout, and barriers). Examples of questions include, "How has your enthusiasm for doing your job changed over the years?" Or "Do you feel the district is supportive or controlling?" And "Are you confident in your ability to teach as you are expected to?" Follow-up questions were used to further explore teacher re-

sponses. Participant identifiers were removed, and all qualitative data were transcribed and typed into a single Word document.

Data were content analyzed using the constant comparative method (Lincoln & Guba, 1985) to identify emerging themes. The initial analysis was conducted in a group discussion format. Next, a fourth member assumed the peripheral member role to provide an independent assessment of the data presented by the three active-member researchers.

Establishing Trustworthiness

Trustworthiness measures included varied researcher roles, addressing research bias, member checking, triangulation, peer debriefing, and an inquiry audit. Members of the research team were designated specific analytical roles before data collection, primary analysis in active-member roles (Adler & Adler, 1994). Personal biases existed due to their respective histories as physical educators and PETE professors. Two members had no prior experience with the district. All members were involved in a procedural meeting one week prior to the onsite visits. Each member was assigned readings detailing the SSPE model, its history, and student- and parent-perceptions. To validate initial conclusions, a fifth outside researcher (peer-debriefer) was engaged for independent analysis, tasked with challenging biases, discussing field notes, clarifying interpretations, and playing devil's advocate (Hanson & Newburg, 1992). Lastly, an inquiry audit, similar to a fiscal audit, allows an outside researcher to examine the audit trail, data reduction and reconstruction, analysis and synthesis products, process notes, and instrument development information (Lincoln & Guba, 1985).

Triangulation methods (Denzin & Lincoln, 2000) included (a) data triangulation (use of data from a variety of sources), (b) investigator triangulation (using several different researchers and backgrounds), (c) theory triangulation (multiple theoretical perspectives in the examination; herein self-determination, self-efficacy, and burnout), and (d) methodological triangulation (using multiple methods to examine a single problem).

Results and Discussion

The entire SSPE line of research would not be complete without the present examination of the perspective of those at the center of

it all: the teachers. This mixed-methods study was conducted using three related theoretical constructs, namely, self-determination, self-efficacy, and teacher burnout to examine elementary PE teacher perceptions of a district-wide PE program.

Motivation

Quantitative

Survey results indicate that the SSPE teachers reported high levels of self-determination toward their job (see Table 1). Intrinsic motivation ($M_{IM} = 4.38$) and identified regulation ($M_{IDR} = 4.44$) scores reveal that internalized motivational processes strongly regulated their motivation to do their jobs. Conversely, Introjected- and external-regulation scores indicate low levels of externally derived motives. Amotivation scores were very low ($M_{AM} = 1.51$)—i.e., a strong disagreement about disinterest in their jobs. The SDI scores (SDI, $M = 7.62$, $SD = 2.84$) further reflect a decidedly autonomous orientation in their motivational profiles toward their job. In other words, the reasons they do their job are largely internalized or are completely under their control. There was a small measure of perceptions of external controls evident in the scores for introjected- ($M_{IJR} = 2.27$) and external regulation ($M_{ER} = 2.52$). Reliability scores (Cronbach's α) were generally above the acceptable level ($> .7$) for all subscales (the exception was the ER subscale [$\alpha = .50$]; see Table 1).

Correlation analysis shows support for the simplex pattern (subscale scores lie in an adjacent, ordered sequence) in the WTMST and evidence of expected relationships among variables from the three theoretical frameworks. For example, teachers demonstrating high SDI scores also had moderate-to-high self-efficacy scores and low levels of burnout. In other words, motivational indices generally had a positive relationship with self-efficacy and a negative relationship with burnout indices.

The positive nature of the responses is noteworthy and likely has much to do with the longevity pattern among the teachers. This group of veteran teachers expresses a healthy sense of self-efficacy in their classroom and their ability to engage in and influence the district PE program. Also noteworthy are the low levels of burnout and the reasons revealed in the interviews as to the sources of the burnout. A multi-theoretical examination has provided construct

Table 1

Motivation, Self-efficacy, and Teacher Burnout for Teaching Physical Education Means, Standard Deviations, and Alphas

Subscale	Mean	SD	α
IM	4.38	.66	.81
IDR	4.44	.63	.81
IIR	2.27	.84	.80
ER	2.52	.76	.50
AM	1.51	.63	.76
SD Index	7.62	2.84	--
SE Class Instruction	4.17 (83%)	.57	.82
SE Class Discipline	4.16 (83%)	.69	.82
SE Class Consideration	4.12 (82%)	.54	.89
SE Class Index	4.15(83%)	.54	--
SE Org. Influence	3.81 (76%)	.47	.79
SE Org. Inclusion	3.94 (78%)	.57	.83
SE Organization Index	3.88 (78%)	.48	--
SETPE Index	4.01	.46	--
TBO Exhaustion	2.91	1.01	.93
TBO Unaccomplished	2.11	.69	.80
TBO Depression	2.10	.78	.89
TBO Index	2.37	.66	.66
Barriers Index	3.92	.37	--

Note: SD Index score was calculated using $SDI = (2*IM+IDR-ER-2*AM)$; Self-efficacy is depicted as raw scores (confidence percentages)

validity across complementary theoretical perspectives. These results support the conclusion of Prusak et al. (2014) that a systemic approach (common curriculum, district coordinator/gatekeeper, monthly in-service, and university partnership and mutual accountability) to remove traditional barriers has direct effects that increase motivation and lower burnout.

Qualitative.

High levels of motivation similarly emerged from the qualitative analysis labeled as motivation, which is made up of three themes: (a) passion for physical education, (b) love for kids, and (c) sustainability of motivation. To preserve space within this paper, one or two quotes are selected to be *representative* of the findings included in each of the broader themes.

Passion for Physical Education

This often-mentioned notion may have been best expressed by Tyler, a 25-year veteran PE teacher, “You have to find something you love to do... and this is it, my passion, I found my niche... what I was born to do.”

Love for the ‘Kiddos’

One of the most cited reasons these teachers entered the profession is because they enjoy working with children and youth. Indeed, Pennington et al. (2014) discovered that a love for working with children was a key reason these teachers were recruited to this district. Notably, even in the more experienced group (59% were 41+ years of age; 36% with 26+ years of experience) it was clear they still have a genuine love for kids. It “gets them up in the morning” and sustains them on the days when they are tired or have less to give. To this point, one teacher stated,

If it is one word in regard to motivation it is ‘kids’...you see them light up when they get to come to PE. When class is over you hear them, ‘Oh man, do we have to go back to class now?’...and you know the kids just love it.

Another said, “When it comes down to it, it is seeing the kids’ faces when they’re having fun...it makes it so easy to get up for work.”

The SSPE teachers’ satisfaction with teaching originated from an inner desire to impact the lives of their students. The interview responses did not indicate that these PE teachers felt obligated, externally controlled, or driven by internal or external pressures. Nor were any of the teachers motivated or lacking in volitional participation.

Table 2

Correlation Matrix Across All Composite Scores for Motivation, Self-efficacy, and Teacher Burnout, and Alpha Scores

Subscales	IM	IDR	IJR	ER	AM	SE Instruction	SE Discipline	SE Consideration	SE Org. Influence	SE Org. Inclusion	BO Exhaustion	BO Unaccomplished	BO Depression	SD Index	SE Classroom Index	SE Organization Index	SE Teaching PE Index	BO Index	Barriers Index
Motivation																			
IM	[.81]	.70**	.15	.08	-.44**	.81**	.46**	.68**	.55**	.36**	-.47**	-.55**	-.46**	.80**	.65**	.50**	.65**	-.61**	.57**
IDR		[.81]	.04	.00	-.33**	.60**	.50**	.70**	.40**	.40**	-.30	-.35**	-.31**	.70**	.70**	.44**	.62**	-.35**	.51**
IJR			[.80]	.41**	.40**	-.01	.06	.09	.06	-.04	-.07	-.04	.19	-.23	.00	.03	.01	.05	-.12
ER				[.50]	.39**	.00	.15	-.23	.03	.04	.10	.20	.25*	-.40**	.05	.04	.05	.22	-.16
AM					[.76]	-.36**	-.12	-.25*	-.32**	-.23	.36**	.47**	.49**	-.83**	-.26*	-.30*	-.31**	.52**	-.31**
Self-Efficacy																			
SE Instruction						[.82]	.66**	.77**	.56**	.46**	-.32**	-.44**	-.44**	.58**	.80**	.60**	.82**	.40**	.44**
SE Discipline							[.82]	.71**	.48**	.48**	-.33**	-.42**	-.37**	.36**	.90**	.52**	.81**	-.46**	.30*
SE Consideration								[.82]	.56**	.47**	-.38**	-.39**	-.39**	.59**	.91**	.55**	.83**	-.48**	.47**
SE Org. Influence									[.89]	.68**	-.34**	-.41**	-.48**	.48**	.58**	.90**	.82**	-.51**	.51**
SE Org. Inclusion										[.79]	-.34**	-.41**	-.48**	.36**	.52**	.93**	.80**	-.37**	.31**
Burnout																			
BO Exhaustion											[.83]	.45**	.36**	-.45**	-.38**	-.27*	-.37**	.81**	-.36**
BO Unaccomplished												[.83]	.59**	-.58**	-.47**	-.45**	-.52**	.81**	-.47**
BO Depression													[.80]	-.55**	-.44**	-.44**	-.46**	.78**	-.20**
Index Scores																			
SD Index														--	.55**	.45**	.56**	-.65**	.57**
SE Classroom															--	.60**	.91**	-.53**	.44**
SE Organization																--	.88**	-.47**	.43**
SE Teaching PE Index																	--	.56**	.49**
BO Index																		--	-.50**
Barriers Index																			--

Note: * = $p < .05$, ** = $p < .01$. Cronbach's α scores are located along the diagonal, .70 or above are acceptable.

Sustainability of Motivation

Given the high physical demands of this district's elementary PE curriculum and its delivery expectations, teachers expend a great deal of energy and enthusiasm while teaching. It is physically, mentally, and emotionally demanding. Researchers noted how hard these teachers worked in this and the previous studies. They are fully engaged, moving constantly, tending to the needs of the students, etc.; not at all the "roll-out-the-ball" teachers sitting on the sidelines.

Such dedication has been maintained faithfully throughout the district, and after four decades, it certainly appears sustainable. One researcher noted after observing classes at five different schools, "One thing that stands out is the energy level of the PE teachers even though they seem to have different personalities." One teacher remarked,

I love coming to work every day. I get to play...I'm exhausted at the end of the day, but I go home with a smile on my face. I will continue till my body cannot move anymore which is wonderful.

This is no small notion considering that there are a mandated curriculum, methodologies, and advocacy activities, all with district oversight. One might think these teachers would feel more controlled than teachers elsewhere with more "autonomy."

Self-Efficacy

Self-efficacy subscale composite scores are shown as both raw scores and confidence percentages (see Table 1). Classroom self-efficacy is high ($r_{SE} = 82\%-83\%$). Interpreting percentages is straightforward. In this case, teachers are 83% confident in their abilities to achieve desirable learner outcomes in discipline scenarios and to demonstrate considerate care for their students. They are slightly less confident in their abilities to exert organizational influence (76%) and to play pivotal roles (78%). Alpha scores indicated robust scale reliability ($r_{\alpha} = .79 - .89$). Overall, SE across all classroom activities was also high (80%), as was overall organizational SE (77%). The composite or overall SE for teaching PE was strong (80%).

The vast majority of these SSPE teachers are held to a high, common-standard curriculum and methodological expectations and ap-

pear to be realistically attuned to confidence in their own abilities in a very demanding job. Yet, their perceptions of self-efficacy seem to provide a healthy assessment in a system that holds them accountable for activities both in the classroom ($M_{\text{classroom self-efficacy}} = 83\%$) and within the district organization ($M_{\text{district self-efficacy}} = 77\%$).

Teachers are notably more self-efficacious in classroom duties than in the district structures. Considering the district-level expectations and oversight in SSPE, lower self-efficacy for district influence and inclusion is likely understandable. This is not to say that this is a heavy-handed district leadership model. Instead, the mutual accountability measures (Prusak et al., 2010) likely contribute to these healthy levels of district self-efficacy. For example, the district administration systematically removes traditional barriers and expects, in return, that teachers perform and adhere to district curriculum and methodologies; to teach and teach well.

If the district were to cease such support, teachers may feel justified in abandoning district mandates. If the district hopes to have a willing workforce, it recognizes the necessary priority of tending to the needs of the teachers.

Significant, positive, and moderate-large correlations were noted among the context-specific SE scores (see Table 4). The most substantial relationships are found between the three classroom SE constructs (instruction, discipline, and consideration), with the largest between instruction-consideration ($r = .77$), discipline-consideration ($r = .71$), and organization influence-inclusion ($r = .68$).

These strong levels of self-efficacy may be further explained through the qualitative analysis in the category titled *curriculum and district support* made up of two themes, (a) common curriculum and (b) in-services.

Common Curriculum

Teachers viewed the mandated curriculum and instructional methods as strengths of the district PE program, allowing them to focus their time and energy on its delivery. This may have been best expressed by one teacher who shared,

When teachers from other districts come to observe, they all say the same thing to me. You are so lucky that you don't have

to create the curriculum and spend all of your time preparing lessons and finding activities.

Despite the overwhelming support for the common curriculum, one teacher expressed a desire to have more personal control over curricular decisions.

Further, collaboration via professional development activities may be more focused and intentional because of the shared curriculum, contributing to the high levels of self-efficacy among the teachers both in the classroom and district.

In-Services

The common curriculum also provides the foundation of monthly district in-service in which teachers are all on the same page, speaking the same language, and sharing best practices. One teacher explained,

The in-services allow us to all come together and work as a group and they are great...our curriculum is so structured but just to hear, "oh, he does it a different way and that is a cool idea." I get set [in my ways] from so many years of doing it the same way and its neat when you see it done differently and I think, I'm going to do it that way now...

One of the benefits of teacher participation in the in-services is the feeling of camaraderie and community, as well as a stronger sense of confidence in their ability to deliver the curriculum.

Teacher Burnout

Teacher responses indicate that they experience (a) slightly less burnout than neutral ($M = 2.91$), (b) low-level burnout due to feelings of lack of accomplishment ($M = 2.11$), or (c) low-level burnout due to feelings of depression ($M = 2.10$, see Table 5). Although teachers experience low levels of burnout, the reality is they are experiencing some; the highest associated with feelings of exhaustion and the lowest with feelings of lack of accomplishment or depression.

Correlations among sources of burnout are significant, positive, and moderate in size, particularly when TBO is included due to feelings of lack of accomplishment.

Although fluid and not restricted to traditional sources cited earlier in this paper, feelings of burnout in this district are relatively low. However, the subtle nuances of burnout and its contributing factors emerged from the qualitative data in three themes: (a) physical demands, (b) barriers, and (c) the social-emotional needs of students.

Physical Demands

Teachers identified feelings of burnout with (a) constantly having to move PE equipment associated with the equipment-intensive curriculum, (b) exposure to the sun, and (c) the physical wear and tear of being on your feet teaching physical activities all day. Often expressed as feelings of exhaustion was the most frequent contributor to feelings of burnout. A veteran teacher described it this way,

It is tiring and it's real physical fatigue. You have to pace yourself ... manage yourself ... to make sure that you can make it through the day... you don't realize the physical demand of being on your feet all day, moving, playing ... and the toll it can take year after year.

Barriers

The barriers that teachers described as contributing to feelings of burnout varied depending on whether the PE teacher was a school-based or a district-based (traveling) teacher. School-based teachers (teaching at the same school and classes each day) experienced barriers related to (a) extra responsibilities, (b) feelings of isolation within the school, (c) being overworked, and (d) feelings of marginalization from other faculty within the school. A school-based teacher spoke of these barriers, saying:

You get this attitude from some of the classroom teachers when they drop off their kids for PE ... I think, look ... I am teaching your kids and it's frustrating not to feel valued by them.

District-based (traveling) teachers rotate between several schools during the week and reported a large variation in support. One district-based teacher shared, "I think from the district we feel very supported, but I think each individual school is different. It is hard

... [its] different over there ... a completely different atmosphere... not as supportive.”

Thankfully, a lack of collegial respect seems to be isolated to those schools where administrative support may be lacking. On the other hand, one principal’s assessment recognizes the value of the PE teachers while also acknowledging the feeling of being overworked:

They are the hardest working teachers and staff by far because of the amount of work they put in... I rely heavily on [them] because they see so many kids and their influence ... than it is with like a sixth-grade teacher.

Social-Emotional Learning Issues

This theme seems to be part of a larger challenge across the educational landscape as teachers are faced with working with students with a variety of social and emotional issues ranging from anxiety and depression to gender identity (Zins et al., 2004). Teachers do not feel prepared with the knowledge and skills to help students with such challenges. A teacher expressed his concerns with this relatively new challenge:

[It] has been super frustrating over the last two years ... kids ... can’t self-regulate ... I don’t understand what to do ... we need ... more resources on how to deal with ... kids emotionally shutting down.

Additionally, a wide range of parental support is often associated with familial status. One teacher reported:

With the emotional stuff, it really depends on whether or not the parent will come and meet with the teachers and principal. Some [children] have parental support and resources [but] others are afraid because they may not be legal [residents].

Conclusion

This study’s findings provide the SSPE teachers with essential perspectives and contributing elements to their healthy motivational profiles. SSPE teachers displayed high levels of motivation and self-efficacy and relatively low levels of teacher burnout.

The demands of teaching PE within a district with rigorous expectations appear to be motivating and exhausting. Teachers are confident and have high competence, relatedness, and self-efficacy. Yet, they experience some frustration and lower self-efficacy relative to teaching children how to regulate their emotions. This is not necessarily uncommon or unexpected considering teacher concerns about the rise of mental health issues in schools and among children and youth generally (Reinke et al., 2011). Further and future emphasis by the district leaders could be (and is currently) placed on preparing teachers, through in-services, with the skills and knowledge to incorporate relevant aspects of social and emotional learning (SEL) within the curriculum.

Looking Back

This paper represents a conclusory piece for this study and all that preceded it. It is a story of success on a large scale with a long history. Our examination over the past 20 years or more has taught us much about how systemic success might be accomplished. We have learned how a university and school district partnership can operate synergistically. We have learned who the key players were and what their positions were, and we have learned about critical moments and decisions when a wrong move would have been disastrous. We have learned how a large organization functions, from its leadership down to the students and parents it serves. We have discovered a template—a comprehensive structure for others who might wish to replicate the SSPE model. Quoting from the original paper in this line of inquiry, “Some teachers and administrators may say that if they had all these things in place in their school district, they too could succeed—that is exactly the point of this [these] article[s].” (Prusak et al., 2010, p. 105). Upon this premise, we offer several principles for creating systemic success in other PE/district/university contexts.

First, the role of the district coordinator must be underscored in the recruiting and retention of the teachers. “She has our back!” is a common theme when teachers are asked to comment on her contribution to their success. Since little is known about how the DC/Professional development coordinator ought to function in their position, we recommend that as new district coordinators are hired, *the* key component of the job description should be “Take care

of your teachers!” Give them what they need to succeed. Establish high standards and hold everyone to them. Let them know you are as accountable to them as they are to you. When new challenges arise, seek solutions that first take care of your teachers. Make decisions with their input and with their best interests at heart.

Next, monthly in-servicing provides oversight, quality control, and fidelity across the district and creates a community of support among the teachers. Times of personal crisis often are addressed by fellow teachers. Strategies for self-care are developed and shared to help alleviate burnout resulting from the physical nature of the job or even age-related issues. SSPE effectively minimizes or mitigates burnout for teachers, especially given the job’s high expectations and physical and emotional demands. In an era of high attrition rates, it is particularly noteworthy that 59% of the teachers have 20+ years in this district and still report themselves as self-efficacious and motivated.

Lastly, nimble and reactive, the SSPE structures can move with practiced efficiency to meet new challenges and trends. Rather than being organizationally stagnant, it maintains its *dynamic stability*. (Cuban, 1992; Prusak et al., 2010). This allows the district to examine, change, adopt, or ignore changes in the educational landscape to remain true to its core values. Further, it reduces the theory-to-practice lag time. For example, the subject district is currently developing and training its teachers with a uniform framework to effectively address the increasing numbers of students experiencing social and emotional learning challenges (Zins et al., 2004). SSPE structures and mechanisms ensure appropriate responses are employed with expedience and consistency.

Now, more than 40 years from the conception of SSPE, here is a brief description of what we see. When the SSPE structures have been put into play, mutual accountability binds key players in a common purpose—their hedgehog concept: *doing what is best for kids*. Leadership doggedly pursues the core mission of the organization. The district and PE coordinator strive daily to remove devastating barriers to protect and support its teachers. Quality PE lessons in a common curriculum are delivered with fidelity and a sense of duty and pride. The focus is on serving the needs of the students and parents’ wishes for their children. With all of this, at the heart of

it all is the *centrality* of the dedicated teacher. Teachers who have professional disposition, humility, and dedication to subsume some personal preferences and perhaps ambitions to do the job they were hired to do. We find teachers who aspired to climb aboard *this* particular bus because of an intense desire to be a part of something larger than self. These are special things, and teachers were willing to accept the additional work that is not necessarily expected or required elsewhere. But, in doing so, they knew they would not be alone. They knew of and expected the faithful support of the administration, classroom colleagues, and fellow PE teachers if they, each one, added their strength to that of many others over decades of dedicated service to pushing the flywheel—many pushers, most of them teachers. In the end, this is a *people* story. At its heart is the vigilant district coordinator(s) who takes care of their dedicated teachers who, in turn, *do what is best for ... the “kiddos.”*

Limitations

We recognize that no study is without its shortcomings and this paper is no exception. Access to district administration, school administration, teachers, and students has required greater levels of anonymity; something increasingly common. Thus, the survey respondents were impossible to identify, so we might explore contrary opinions in follow-up interviews. However, we were pleased to have a high response rate, making it likely that at least some negative examples were interviewed. The value of the surveys was to (a) provide an efficient cross-sectional understanding of the teachers with respect to motivation, self-efficacy, and burnout, and (b) provide theoretical parameters to guide the interview questions. Interviewees were selected to ensure that we had a representative sampling of nearly one-third of the teachers in consideration of age, demographics, school SES status, gender, and experience.

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PEDAGOGY

Evaluating Citizen Perceptions and Financial Feasibility of a Multimillion-Dollar Sports Complex in a Small Rural Community in the United States

John Miller, Sungsoo Kim, and Chris Croft

Abstract

Sport complexes in the United States are needed to help youths and adults be involved in physical activities to battle being overweight or obese, especially in rural communities. Additionally, conducting youth sports contest tournaments may potentially increase economic impact to the community by drawing spectators from outside of the community. However, care must be taken to prevent them from becoming “white elephants” that may negatively affect the community from both feasibility and sustainable viewpoints. A mixed methods approach was used to determine the desires of the community population to construct a multimillion-dollar sports complex as well as the financial feasibility of such an endeavor. The results of the quantitative survey-based research revealed that the small, rural community in the southern United States was strongly in favor of creating a sports complex. However, using the triangulation qualitative analysis indicated that fulfilling the financial obligations for building the sports complex was not feasible. In particular, the community unemployment rate, future job growth, annual household income, and housing value were significantly below

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the national average. As a result of these findings, it would not have been financially feasible to construct the sports complex in a sustainable manner. Thus, the city is deprived of physical activities because it cannot afford a sports complex.

Introduction

Sports and community development are intrinsically linked in several ways that can improve the lives of citizens and advocate for a healthy culture. While community development may appear to be distinct from sports, participation in sports and recreational activities provides opportunities for residents, especially those at risk, to advance their health status (Vail, 2007). Socioeconomic status (SES), often assessed by household income, educational achievement, or occupation, is a significant source of health inequalities (Mills et al., 2018). Decreased SES has been related to an increased likelihood of individuals, especially children, being overweight and obese, thereby increasing their morbidity rates (Kishawi et al., 2020; Llewellyn et al., 2016; Miller et al., 2020). To counteract childhood obesity, leisure-time physical activity (also referred to as physical activity or activity) has been identified as an important health behavior (Llewellyn et al., 2016).

Although there are many positive aspects to creating a sports complex in a rural community, several concerns must be addressed. While often associated with developing sports stadiums and arenas for much larger competitions (e.g., mega-sports events), the concept of constructing a “white elephant” sports complex for a rural community must also be considered. Davis (2020) defined the term “white elephant” as “a burdensome or costly objective, enterprise, or possession, esp. one that appears magnificent; a financial liability” (p. 828).

In the sports context, white elephants are usually viewed as failing to manage the potentially increased costs associated with constructing a sports complex. Additionally, a white elephant situation occurs when a long-term practical value is not secured, thereby not being able to pay for long-term maintenance costs with the anticipated revenues (Davis, 2020). As a result, the complex may become obsolete in its use and become a financial burden on the community.

Furthermore, previous research has indicated that financial arguments to build sports facilities, especially in smaller cities, have become less prominent and more intangible (Delaney & Eckstein, 2008; Sapotichne, 2012). Thus, the purpose of this study was to employ a mixed-methods approach to determine whether a small rural community in the southern United States would support and afford the construction of a brand-new, state-of-the-art sports complex.

Review of Literature

Sports Complex Economic Issues

Sports complexes are usually designed to host events, and teams can raise money through fundraising. Hosting sports events can have a positive impact on a community's economic and sociocultural issues (Preuss & Solberg, 2006). Sports and community development are also economically linked when the funds raised from sporting events are reinvested in the local community. For example, hosting sports tournaments often requires ticket sales and concession sales.

Increased funding for community programs and improvements may also result if a portion of the ticket and concession sales is allocated to the city. Additionally, sports tournaments can be held at sports complexes that can often attract teams and fans from neighboring communities and states. These visitors can help bring more revenue into a city a few times a year. Attracting visitors from outside the community, despite the presence of competition at the local sports complex, may be viewed as a crucial strategy for economic uplift and community development (Binns & Nel, 2002; Kim, 2021).

According to Binns and Nel (2002), the key features of local economic development (LED) are that it seeks to encourage economic growth and diversify the local economic base into sectors that typically differ from the traditional sectors. Therefore, hosting sports events at sports complexes is a vital component of LED. However, a concern exists as to whether a rural community can afford to build a top-notch sports complex to attract enough sports activities from outside sources (i.e., teams from other cities) both presently and in the future. In other words, will the sports complex become a "white elephant" in the future?

“White Elephant” Facilities

Although a considerable amount of research has focused on revenue production, facility expenditures have also garnered attention. Andreff (2012) indicated that cost overruns at mega-events (i.e., the Olympics) have been the norm in the construction of sports facilities. Flyvbjerg et al. (2014) reported that cities have persistently justified spending money on creating sports venues predicated on the potential future benefits despite the strong possibilities of cost overruns and lasting issues of economic viability.

A white elephant designation occurs when there is an obvious inconsistency between the impractical and exceedingly grand intentions involved in building large facilities and the failure to afford or manage the facility sustainably (Papanikolaou, 2013). Furthermore, if excessive bids are accepted with large construction costs the facility becomes a liability. While facility projects should incorporate sustainable development using renewable energy sources, white elephants often represent unwarranted public expenditure, as well as the underutilization of the facility (Erten & Ozliz, 2006). Beginning with a regional scale, the location of the sport complex venues in relation to those located urban areas and/or the existence of successful complexes nearby has been shown to have an important bearing on the financial success of the venue (Davis, 2020). Additionally, designing for reusability will help prevent the creation of a white elephant. Reusability is generally thought of as the flexibility or adaptability of the facility to accommodate different sports competitions (Davis, 2020). If improbable expectations substitute common sense, a venue may end up as a white elephant instead of profiting from the host city (Alm et al., 2016). In other words, to prevent a complex from becoming a white elephant, city councils must consider whether the sports complex is affordable for city taxpayers, whether the location of metropolitan cities has a history of successfully hosting competitions, and whether multiple competitions can be hosted at the sports complex.

However, Solberg et al. (2015) stated that “... events are often supported financially by the public sector, and if politicians are guided wrongly by incorrect cost budgets, they may support events that they would otherwise have rejected if the information had been correct” (p. 349). As a result, despite the need to provide activities

to the community, cities may be too optimistic in their desire to construct a sports complex without satisfactory financial support. Thus, the community risks the possibility of the facility becoming a “white elephant” in the future due to incorrect budget estimates and potential use.

Purpose of the Study

A small city in the southern part of the United States proposed building an indoor and outdoor recreation facility at a multimillion-dollar sports complex. The construction of the new facility would take place in two phases. Phase I identified key perceived requisites for outdoor sports activities. This would include a total of 12 baseball/softball fields and five soccer fields (multi-use fields that could be used for football plus track and field). Phase II emphasized the need for indoor sports activities, such as indoor track, bowling, fitness and training area, courts for basketball and volleyball, and a natatorium.

The reason for the proposal was to improve the residents' physical activities (especially for the youth) and quality of life and generate economic impact for the community by building an estimated six-million-dollar sports complex that would attract consumers from outside of the city. The city council requested that the researchers conduct a feasibility study to determine whether community members were in favor of building a new sports complex and to assess its future financial sustainability. Based on communications with city council members as well as individuals from local sports organizations, the proposed complex would include 1) sports requiring indoor/outdoor fields (soccer, rugby, lacrosse, softball, baseball, flag and touch football, and tennis), 2) sports requiring an indoor court play area (basketball, volleyball, cheerleading, gymnastics, wrestling, cheerleading), and 3) individual sports (aerobics, cross-training, running/jogging, and martial arts). Additionally, the financial viability of building a state-of-the-art sports complex was brought into question. As a result, the purpose of this study was to employ a mixed-methods approach to determine if it would be feasible for a small rural community in the southern United States to afford to build a brand new, state-of-the-art sports complex.

The information on health-related issues, as well as the potential impacts (participation, economic, and social), can lead to unaccept-

able results when moving into a community sports complex project without conducting feasibility research (Lyberger et al., 2020). Conducting a feasibility study is an essential step prior to undertaking the design and construction of a project, as it will directly impact the success of the project (Shen et al., 2010). Furthermore, feasibility studies often provide increased comprehension regarding the project's sustainability (Meseguer-Sanchez et al., 2021). Moreover, Hansen and Winther (2013) reported that while smaller communities tend to invest substantially in upgrading present facilities to attract outside visitors, it may present a "costly and poor path to go down" (p. 37). Additionally, public debt can be relatively excessive compared to larger cities (Mason et al., 2007). Thus, the decision to fund a sports complex may be more significant for smaller cities than larger cities that have more resources and can attract more people (Lorentzen & Van Heur, 2013).

Methods

Mixed-Methods Triangulation

Triangulation is a form of mixed methods in research (Heal & Forbes, 2013). Mixed methods provide an added value to the research by increasing the validity of the findings and informing the collection from additional sources (Hurmerinta-Peltomaki & Nummela, 2006). Triangulation was used as a mixed method of both qualitative and quantitative approaches (Creswell, 2009; Jick, 1979) in this study. The concept of triangulation comprises many possibilities for the integration of qualitative and quantitative methods, and the contrasting functions of methodological integration in the research process are even better.

After conducting an interview, the researcher reviews the documents that support the information gathered from reliable online sources, as well as the results of the completed surveys. In other words, the qualitative analysis (i.e., review of documents) may be conducted to affirm or disaffirm the findings of the quantitative analysis (i.e., survey completion). This is supported by Patton (1980), who writes: "The point of triangulation is to study and understand when and why there are differences" (pp. 330–331).

Procedures

The procedures of this mixed-methods study were separated into qualitative and quantitative analyses. The qualitative analysis was divided into two phases. First, the researchers reviewed documents to determine a) the demographic trends of the city, b) popular indoor and outdoor sporting activities, and c) potential competitors. As such, Phase I of the study emphasized understanding the context of the study. To accomplish Phase I, the researcher analyzed the demographic trends of the city's constituency such as city population information, socioeconomic status (SES) of the citizens, accessibility to the city, and area hotel accommodations by scouring information from four sources: the city hall archives, the United States Census Bureau, World Population Review, and the Bureau of Labor Statistics. The reviewed files were extensive and offered an abundance of information, which allowed the researchers to gain substantial insights to assist in the decision-making process.

Phase II involved observing the use of the existing sports complex. This part included the researchers' review of accessibility issues in the city and the proposed sports complex. Additionally, the researchers reviewed schedules for city league teams and regional tournaments, as well as the timing of these activities (i.e., weekdays, weekends, and the time of day). Finally, the researchers identified potential direct and indirect competitors that could draw teams and spectators away from the city in this study.

Phase III included the researchers meeting with city council members to verify the findings of Phase I and Phase II. Because the city council members were included in checking the data, a participatory approach was used to substantiate the quality of the data. Additionally, by employing a participatory approach, the findings of the first phases were demystified.

Due to the openness of this study, city council members were invited into the world of a researcher. For example, among the questions asked by the council members were the following: Did the researchers understand the context of the situation? What did the researcher write down? Did the researchers exclude anything? If so, why? Where did the researchers find the information? How did the researcher understand what I tried to convey? By communicating the information and requesting that council members read, ques-

tion, and potentially amend it, the researchers offered the council members an opportunity to engage in the process. As a result, a relationship of trust was developed and reinforced.

Qualitative Analysis

The qualitative analysis included several items. First, the researchers reviewed reliable Internet sites such as the Center on Poverty and Social Policy, Homefacts, the United States Census Bureau, and the World Population Review independently to ensure peer pressure would not be applied. The areas the researchers analyzed included the city population trends, the ethnicity and ages of the citizens, and the population trends of surrounding cities. Second, socioeconomic trends such as poverty rates, homeownership, housing values, unemployment, and job growth rates were identified by the researchers.

Population Information

According to the World Population Review (2024a), the city's population was slightly more than 55% Black or African American and 44.3% Caucasian. More females (54.5%) than males (45.5%) live in the city. Residents of the city have a typical age of approximately 37 years, with 23.7% being under the age of 18 and 18.1% being 65 years or older. Additionally, the World Population Review (2024a) reported that the city's population was 12,224, while the county's population was 21,906. This figure represented a decline of the city and county population of 3.1% over the past seven years and was projected to continue to shrink by 3.1% through 2027. However, retirement communities in the city were projected to increase by about 9.5% by 2027.

The population trends of neighboring counties and larger cities, such as Memphis, TN; Jackson, MS; and New Orleans, LA, are critical to consider, as they may attract residents to attend or participate in events staged at the proposed sports complexes. The surrounding counties experienced an average population decrease of 5.2% between 2010 and 2019 (United States Census Bureau, 2024a-d), while the population of Memphis decreased from 631,200 in 2020 to 610,900 in the most recent US census (World Population, 2024c). The population of Jackson, MS, has decreased from 150,000 to 138,998 in the most recent United States census (World Population, 2024b).

Finally, New Orleans is presently at 356,280, a declining rate from 391,200 in 2020 (World Population Review, 2024d).

Socioeconomic Status (SES) Issues

The investigators visited the United States Census Bureau website to determine socioeconomic information representing the city in this study. Socioeconomic status (SES) is often assessed by poverty rate, household income, and employment status (Shavers, 2007). Additionally, lower SES has been shown to escalate the frequency of overweight, obese individuals and associated sicknesses (Townsend & Scriven, 2014). The overall poverty rate for the city is 30.51%, which is higher than the state average (21.9%) and nearly double the national poverty rate (16.7%). However, 55.8% of the residents own their homes (United States Census Bureau, 2024a).

The city's median household income was \$33,026, and the median housing value was \$81,400, both of which are lower than the US (\$61,937) and state (\$40,528) averages (United States Census Bureau, 2024a). Moreover, 49% of the households in the city had an income of \$25,000 or less, with 22% making between \$50,000 and \$100,000. Additionally, nearby metropolitan areas such as Memphis, Tennessee, and Jackson, Mississippi, had typical family incomes of \$56,595 and \$37,563, respectively. These median annual family incomes are lower than the national median family annual income of \$61,937 (United States Census Bureau, 2024a).

Investigation revealed that the city and county had an unemployment rate of 11.3% in 2021 (United States Census Bureau, 2024a), which was three times greater than the national average of 3.61% (O'Neill, 2024). Moreover, the job growth was reported to be -6.9%, with future job growth of 14.1% (Homefacts, 2020). This information highlights issues that will impact the city council's decisions, as the city's population and surrounding counties are declining, and the incomes of residents may not be sufficient to support the construction and maintenance of the sports complexes. However, income figures from metropolitan areas such as Memphis and New Orleans offer the potential promotion as a regional sports complex to attract youth and adult travel teams, parents of athletes, and spectators from beyond the city.

Accessibility Issues

Competitions at the proposed sports complex included a range of indoor and outdoor team as well as individual activities. Among these competitions could be youth and adult leagues and tournaments, as well as an occasional rental of one or more complex areas on an as-needed basis. Potential tournament and league teams from outside the city limits may be attracted to participate at the sports complex and will often be less interested in the local demographics and income characteristics. Instead, it is reasonable to assume they would be more concerned with the accessibility of the sports complex, the quality of restaurants and hotels, and other local attractions in the hosting city.

The city in this study is relatively accessible for visitors via rail and highways but not by air. For example, Interstate 55 is a major interstate north-south highway connecting the Gulf of Mexico to the Great Lakes. It runs through the heart of the county, connecting the region from Memphis to New Orleans. Moreover, Amtrak offers a daily railway passenger service. While a 7,000-foot lighted runway is nearby, the closest commercial airport is more than eighty miles away. The proposed sports complex is located in a city approximately one hundred miles north of the state capital. Furthermore, the city is approximately 300 miles from two major metropolitan cities: New Orleans, Louisiana, and Memphis, Tennessee. Thus, the city's location is within a four- to five-hour driving distance from well-populated cities that can draw participants for youth and adult competitions.

Hotel Accommodations

The hotels in the city, such as Hampton Inn & Suites, Comfort Inn & Suites, and Holiday Inn Express, were geared toward middle-class, economically conscious visitors. For example, the room prices at these hotels range from \$71 to \$123 per night. However, there were no high-end, five-star hotel chains (e.g., Hilton) in the city. Despite the lack of five-star hotels, the prices for hotel rooms fit well within the income of most of the targeted population (e.g., youth and adult individual and team sports competitions). Local attractions include recreational and sporting activities such as boating, fishing, and hiking in a state park or lake that is accessible to the public. Yet, there

was a lack of entertainment or historical events in or nearby the city. Thus, the city does not project an elevated level of sporting tourists.

Direct Competitors

Direct competitors serve the same target market with related products and services (Kotler et al., 2014). In this study, direct competitors for a new sports complex include the city park and recreation department facilities. The park and recreation department manages public facilities that include seven baseball and softball fields, a swimming pool, a playground, a pavilion area, three concession areas, restrooms, an office area, and a maintenance building. Historically, the park and recreation department has hosted a number of youth and adult baseball and softball leagues and tournaments.

Another potential direct competitor is a city youth league. The youth league is a privately owned and operated (nonprofit) league that provides baseball and softball opportunities for children aged five to 16. The league has approximately 900 members, comprising 650 baseball players and 250 soccer players. The youth league receives its operating capital from registration, sponsors, donations, and post-season tournaments. The city youth league currently offers softball and baseball to roughly eight hundred children divided into sixty teams. The local youth athletic league has previously hosted the State World Series and All-Star State Tournament. Annually, the local youth athletic league sponsored regular baseball and soccer league competitions for youths in the neighborhood.

An additional direct competitor is a private golf and racquet club that offers golf, tennis, and swimming. Bermuda grass is used on the greens and fairways, and the facility also features a driving range, a pro shop, two tennis courts, and a swimming pool. The facility hosts approximately five local golf tournaments each year, has over 100 members, and offers two levels of membership. The first option is a social membership that includes access to the tennis courts, pool, and restaurant, while the second option is a golf membership that includes full access to all the facility amenities.

The Boys & Girls Club in the city offers services to area boys and girls aged 6 to 18, with approximately 30 current members. The club's primary focus was on weekday events in the late afternoon and evenings and weekend events throughout the summer. Their main service is recreation, which they provide through outdoor areas and

playgrounds. Their organization does not sponsor organized sports or leagues.

Indirect Competitors

Indirect competitors serve the same target market with a range of products and services, or a different target market with comparable products and services (Downing et al., 2019; Lyberger et al., 2020). The communities that represent indirect competitors are over 65 miles away. The first indirect competitor features innovative fields capable of accommodating city, county, and tournament participants. The facility includes 10 baseball fields and 16 soccer fields. Additionally, the facility can be utilized for four youth-size flag football fields for children ages 7 to 12. The facility also hosts more than 25 baseball and soccer tournaments annually and is home to the Oxford Park Commission youth and adult outdoor sports. The second indirect competitor operates a complex with a total park acreage of 200 acres across all seven parks, including the Sportsplex, which spans approximately 20 acres. It is a multipurpose facility featuring four lighted youth softball fields with 250-foot fences, four lighted adult softball fields, and seven lighted soccer fields.

A third indirect competitor is located less than 10 miles from the Gulf Coast beaches. The facilities are spread across two distinct areas, encompassing more than 100 acres in total. The sportsplex is comprised of ten baseball/softball fields as well as a public playground. This facility hosts city league baseball and softball games, as well as other tournaments, including the USSSA Global World Series. Another facility in the area features five lighted soccer fields and a concession building used by the city league and high school sports teams. Additionally, the Sportsplex features two overflow parking lots, batting cages, concession pavilions, a children's playground, and a scenic reflection pond. The facility's event center is approximately 90,000 square feet.

Quantitative Analysis

Instrument Development

A quantitative analysis was conducted to determine the needs or desires of the community (Hassan, 2000). Organizations should conduct surveys to understand the demand for their product

(Hildebrand, 2014). To determine the perceptions of building a state-of-the-art sports complex among the city constituency, the researchers developed a 32-item Likert-scale questionnaire (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neutral, 5 = somewhat agree, 6 = agree, and 7 = strongly agree). The development of the questionnaire was guided by a combination of existing literature (Davis, 2020; Lyberger et al., 2020; Miller et al., 2020; Pierce et al., 2020; Taks et al., 2015).

A pilot test was also conducted to establish question sensitivity, understanding, and appropriateness (Patten & Newhart, 2018). The input from the pilot study was gathered from four sport management graduate students and four faculty members at a large state university in the southern United States. Each of the eight individuals were selected due to their experience in survey analysis. All items were measured, revealing a good internal consistency and reliability with a Cronbach's alpha coefficient of 0.78, which was deemed acceptable (Nunnally & Bernstein, 1994). The data were analyzed using percentages and means as descriptive statistics. Additionally, a Pearson's r was selected because it reveals whether a correlation exists and also the precise degree of the correlation. Moreover, a Pearson's r can indicate the direction (i.e., positive or negative) of the correlation (Creswell, 2014). The level of significance was set at .05.

Population and Procedures

A total of 187 questionnaires were distributed to residents in a face-to-face manner by a mixture of undergraduate and graduate students. An advantage of using a face-to-face interview is the ability to have any question further answered or explained. A strength of this study was the use of extensive face-to-face interviews, with interpretation provided as needed (Bains et al., 2021). As a result, there was a low chance of selection bias and missing data or information bias due to misinterpretation of questions.

The students volunteered to distribute the study as a way to fulfill the university's service component requirement. Prior to distributing the questionnaires, the students were required to attend two one-hour training sessions that included introducing themselves, explaining the purpose of the study, and how to inform the potential respondent that participation was completely voluntary and confi-

dential. The students were placed in groups of two (generally one female and one male, for safety concerns).

The distribution of the questionnaires took place over three spring Saturdays, each generally lasting two hours. Since the researchers assigned students to different neighborhoods of the city for each weekend, there was little concern regarding duplication among the respondents. As a result, of the 187 returned questionnaires, 24 were incomplete, resulting in 163 fully completed questionnaires.

Demographics

Of the 163 respondents, 96 (58.9%) were female, while 67 (41.1%) were male. Concerning ethnicity, 97 respondents (60.6%) identified as African American, followed by 51 Caucasian (white, non-Hispanic) respondents (31.9%). Educationally, 66 (40.7%) completed high school, 52 (32.1%) finished a two-year college, and 24 (14.8%) received a diploma from a four-year college or university. Sixty-one (44.2%) reported an annual family income of less than \$30,000, while 37 (26.8%) reported an annual family income of more than \$60,000. Finally, 140 (86%) believed that the proposed sports complex should be built to increase the physical activities for adults and youth in the community.

Space Availability

Of the 163 respondents, 147 (90%) believed that the city needed more outdoor youth sports facilities. In particular, 73 (45%) respondents disagreed that there was sufficient space to host regional or state youth soccer, baseball, or softball tournaments. Moreover, 71 (44%) of the respondents did not believe that there was enough space to host indoor youth sports tournaments such as basketball or volleyball. Interestingly, 10 (29%) viewed the new facility as a competitor to the existing indoor facility (e.g., YMCA). Thus, the respondents believed that the proposed sports complex was justified due to a lack of available space.

Rental Charges

To increase the amount of “new” money being brought into the community, teams from outside of the city must be invited to play in tournaments. When asked how often the new sports complex tournaments should be used per year, 129 (79%) of the 163 respondents felt that 20 weeks, mainly during the spring and summer when

youths are on vacation from school, would be sufficient. When asked how many tournaments could be held concurrently (i.e., softball and soccer tournaments held on the same dates) at the new sports complex, 91 (56%) respondents indicated that two tournaments could be held simultaneously.

Correlation Analysis

The results of the Pearson's r test indicated that significantly positive relationships existed between gender and constructing the new sports complex ($r(159) = .353, p < .05$). Interestingly, Pearson's r revealed a negative significant relationship between the ethnicity of the respondents and the construction of the new sports complex ($r(159) = -.482, p = .001$). A final correlation was revealed, with another negative correlation between the respondents' income and the construction of the sports complex ($r(159) = -.545, p < .001$). No other relationships were identified.

Discussion

Research can assist policymakers and community members in evaluating whether community members desire a new sports complex and whether the community can financially support such an endeavor (Lyberger, 2020). The need for sports complexes in rural settings is important for several reasons, including increased physical fitness and a decrease in obesity. Ensuring success, as well as the long-term financial viability of the project, is paramount. However, by highlighting the health benefits of the sport facility projects, proponents may use value-based contentions to legitimize the decision to build the facility (i.e., influence legitimacy) (Sant & Mason, 2019). Such value-based claims often cause emotional or moral reactions (Green, 2004), which serves to offer the project as a way to influence the public to "buy in" to the need. As a result, proponents argue that the need for the facility to be built serves the "greater good" of the city (Sant & Mason, 2019).

Lawson (2005) indicated that sports, exercise, and physical activity professionals must acquire empowerment and community development capabilities to supply sustainable social and economic development. However, many communities, particularly in rural areas, lack adequate sports complexes to offer their constituents areas for physical activity (Edwards et al., 2014; Hansen et al., 2015; Majee et

al., 2020). Thus, the “greater good” could be represented by the levels of obesity of community members, especially childhood obesity and leisure-time physical activity. However, by perceiving that building a sports facility is for the emotional “greater good,” the community may end up with a “white elephant” if financial aspects are not thoroughly studied (Lyberger et al., 2020).

A quantitative analysis revealed that the proposed sports complex had significant support and a clear need from the community. The findings of this research support the contentions by Soebbing et al. (2016), who reported that citizens appeared to be committed to the belief that new sports facilities would bring significant economic benefits, despite the dearth of corroborating research. Furthermore, previous research has indicated that facilities are being constructed without any acknowledgment of fiscal responsibility for their funding (Delaney & Eckstein, 2008).

Additionally, the types of events that may be hosted at the sports complex are currently popular, which may assist in attracting teams from neighboring communities to participate in tournaments. However, the hypothetical amount of \$16,000 generated per year by tournaments is relatively negligible for the upkeep and maintenance of the complex. Although this sports complex would cater to the local community, it would not be sufficient to host regional tournaments, thereby attracting visitors to the local area. On the other hand, if tournament-based indoor sports facilities are constructed, these complexes normally limit the amount of local community use, thus neutralizing the day-to-day operations being efficient financially. Additionally, this facility may attract local tournaments due to the scarcity of facilities of this nature in the nearby surrounding areas. However, significantly larger start-up and operational costs will exist. Thus, the quantitative analysis indicated positive perceptions for building a sports complex to provide sports activities for community youths, as well as to entice teams from outside the community to compete in tournaments. However, the amount of revenue being brought into the community is by entrant fees.

The correlation analysis offered two interesting results. First, gender was found to be correlated to the construction of the proposed sports complex. As a result, the females in this study believed that the new sports complex should be built. The next correlation

reported a negative correlation between the respondent's ethnicity and the construction of the new sports complex. While the majority of respondents identified as African Americans, the results indicated that the minority population of Caucasian (white) respondents was correlated with the construction of the sports complex. Finally, a negative correlation was found between higher annual family income (i.e., greater than \$60,000) and the construction of the new complex.

The qualitative analysis presented a different picture from the survey research for several reasons. First, the overall poverty rate for the city was slightly more than 30% or nearly double the national unemployment rate, while the community's job growth was reported to be negative in 2020, with the trend continuing in the future. Moreover, the median household income was significantly lower than the state and national averages. Furthermore, the city's population had decreased by 3.1% over the previous seven years, while retirement communities were expected to increase by almost 10% over the next five years. Thus, the ability of city members to pay for the sports complex, both now and in the future, may be characterized as bleak.

Accessibility and hotel accommodation issues were also reviewed. The results indicated that youth and adult teams from the nearest metropolitan cities would need to travel four to five hours by car, van, or bus since an airport does not exist nearby (i.e., more than 80 miles away) in the area of the city in this study. However, the city does have a daily Amtrak railway passenger service, which could take between four to five hours from Memphis or New Orleans to the city in this study. This may present an obstacle, as many weekend tournaments are conducted on Saturdays and Sundays. As a result, unless there is a limit on the number of participating teams, players would need to leave their homes on Friday evening, play on Saturday, and be able to leave on Sunday afternoon to return home at a reasonable hour.

Although the number of youth sports contests has decreased recently because of the COVID-19 pandemic, Pierce et al. (2020) reported that participation in youth sports was improving in 2020. However, the same study revealed that more than 40% of the parents believed the COVID-19 pandemic would significantly impact their

sports travel budget in the near future. Thus, while the COVID-19 pandemic vaccines take effect and precautions continue, it remains to be seen whether the number of youth sports events will return to previous levels soon.

Research has shown that people travel primarily for entertainment options (Hu & Ritchie, 1993). Although the primary reason for the participants to be attracted is the city conducting the tournament, another reason the team selects to participate is outside entertainment. However, while potential tournament participants and their families were offered affordable hotel accommodations, there were no entertainment or historical events available in the city. Such a finding may negatively impact teams' willingness to participate in tournaments at the sports complex, especially if the tournaments are conducted over several days.

Conclusion

Several reasons have been identified for the construction of community sports complexes. The presence of the sports complex encourages adult and youth participation in physical activity, which may help decrease obesity and diabetes that afflict many citizens in the community. Moreover, hosting sports events can also enhance the community's brand. Furthermore, hosting regional and state tournaments regularly would attract fans and relatives from outside the community for several days, resulting in a substantial economic impact. However, since the city demographics revealed a poverty, household income, and unemployment rate that are higher than the state national averages, coupled with decreased job growth, the city council members should seriously contemplate whether making a significant investment in a sports complex is worthwhile.

However, if the proposed sports complex were used for 20 weeks during the year for three-day tournaments held concurrently, the amount generated by event registration would be an estimated \$16,000 per year (\$400 event registration x 20 weeks x 2). Of course, more revenue would be generated by the number of nights the team members, coaches, and parents would stay in hotel accommodations. However, due to the discrepancy of the available hotels in the city and the numbers of players, coaches, and parents, as well as the number of rooms they would occupy, a good estimation would be difficult to approximate.

The construction of a sports complex in a relatively poor rural community may provide community residents opportunities to be physically active through individual programs and team leagues or tournaments, thereby potentially increasing health, lifespan, and quality of life for citizens. Additionally, tournaments held on the sports complexes could generate additional revenue for the community. However, based on the results of this study, the proposed sports complex would need to attract considerably more potential users from outside of the city to be viable. As a result, should idealistic expectations and dreams substitute common financial sense, a sports complex may become a white elephant rather than profiting and promoting the region or host city.

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PEDAGOGY

Adapted Physical Education Teachers' Sources of Stress and Coping Strategies

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Abstract

Grounded in role stress theory, this study aimed to examine the sources of stress and coping strategies among adapted physical education (APE) teachers. A total of 15 (10 female, five male) APE teachers with six to 31 years of teaching experience participated in this study. Data were collected by conducting semi-structured interviews and collecting personal narratives. As a result of data analysis, the following five themes emerged: (a) highly demanding workloads, (b) meeting the needs of students with disabilities, (c) the shortage of paraprofessionals, (d) a lack of understanding and recognition of APE, and (e) supportive colleagues. Implications for minimizing APE teachers' stressors and future research directions are also discussed.

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Introduction

Teachers leaving the profession is a growing global concern (Sutcher et al., 2016). It is estimated that in the United States alone, 8% of teachers leave the profession each year, which is the primary contributor to national teacher shortages (Carver-Thomas & Darling-Hammond, 2019). The administrative costs, the time required for hiring and training new teachers, and the costs associated with investing in teachers who eventually leave the field are alarming. According to Sutcher et al. (2019), the estimated financial cost of teachers leaving the profession in the United States is approximately \$8 billion annually.

One motivating factor for teachers to leave the teaching profession is the high levels of work-related stress (Agyapong et al., 2022). Teacher stress has been defined in different ways. Kyriacou (2001, p.28) conceptualized stress as the “experience by a teacher of unpleasant, negative emotions, such as anger, anxiety, tension, frustration or depression, resulting from some aspect of their work as a teacher.” Maslach et al. (2001) defined stress as when a teacher perceives an external demand as exceeding their capability to deal with it. A considerable amount of literature has been published on sources of teacher stress. Skaalvik and Skaalvik (2015) interviewed 30 Norwegian teachers at different stages in their careers, focusing on school-related sources of stress and found that workload, time pressure, lack of time to meet students’ needs, student misbehavior and discipline problems, lack of status of the teaching profession, conflicting teachers’ values with school educational goals, lack of autonomy, and conflicts in teacher teams were significant sources of teacher stress. In another study, Ryan et al. (2017) surveyed 1,886 teachers in the United States to examine the relationship between test-based accountability policy at the state level, teacher test stress, teacher burnout, and teacher turnover intentions. The findings of this study showed that high-stakes testing accountability policies significantly predicted teacher stress, attrition, and burnout.

Bottiani et al. (2019) examined the association between job demands, teacher stress and burnout, and effective classroom practices in a sample of 255 teachers from low-income urban middle schools. They found that teachers in schools with primarily low-income student enrollment experienced elevated levels of stress, and female

teachers showed significantly higher levels of stress than male teachers. The COVID-19 pandemic worsened the problem of teacher work-related stress (Klapporth et al., 2020). The drastic and rapid changes and demands brought about by the COVID-19 pandemic in K-12 schools added additional stress and anxiety to the teachers. Recently, Pressley et al. (2021) examined how returning to teaching during the COVID-19 pandemic impacted teachers' levels of stress and anxiety. They found that providing students with 100% virtual instruction and communication (e.g., communication with parents) within the school environment were significant predictors of teacher stress.

Over the last 30 years, research has focused on teacher work-related stress, which may result in poor job performance, low motivation, dissatisfaction, disengagement, absenteeism, emotional exhaustion, and burnout (Goddard et al., 2019). In addition, teacher stress has been found to be associated with mental health and physical problems, including depression, anxiety, muscle pain, chronic fatigue, colds, and headaches (Klusmann et al., 2016). These factors can influence teachers' decisions to leave the teaching profession. Therefore, in efforts to retain qualified teachers, schools, school districts, policymakers, and other education stakeholders are challenged with mitigating sources of teacher work-related stress and implementing strategies to improve teachers' well-being. These efforts are particularly critical for teachers working in the "non-core" subjects (e.g., special education, adapted physical education) who are at higher risk of leaving the profession compared to other groups of teachers (Hester et al., 2020).

The working conditions of adapted physical education (APE) teachers have been found to be unique as they travel between multiple schools, develop individualized education plans (IEP), and work with general physical educators (Obrusnikova & Kelly, 2009). Ješinová et al. (2014) reported that 39% of adapted physical education (APE) teachers in the United States were seriously considering another job outside of special education, and 26% were actively searching for a job outside of special education. Inappropriate working conditions, including inadequate equipment, large class sizes, and traveling time, contributed to the most dissatisfying factors in APE teachers' jobs (Ješinová et al., 2014). They also often face additional stressors, such as marginalization (McNamara et al., 2022).

Role Stress Theory

The role stress theory developed by Khan and Quinn (1970) is a theoretical framework, focusing on understanding workplace stress sources. The role stress encompasses strain and tension while individuals attempt to fulfill their roles in the workplace. The aim of role stress theory is to examine how individuals experience stress in the workplace due to organizational roles, job demands, and job characteristics (Matteson & Ivancevich, 1987). The theory emphasizes three dimensions of role stress: role ambiguity, role conflict, and role overload. Role ambiguity occurs when individuals are unsure about their goals, responsibilities, and performance for their assigned jobs (Leigh et al., 1988). Research suggests that there is a strong relationship between role ambiguity and emotional exhaustion and burn out on teachers (Ryan et al., 2017).

Role conflict is when individuals perform multiple roles and conflict demands and expectations from different roles (Kahn et al., 1964). Given that APE teachers experience increased roles and responsibilities (Wilson et al., 2020), it may result in role conflict. Role overload arises when an individual receives an overwhelming amount of role responsibilities, and expectations (Khan & Quinn, 1970). It also involves both the quality and quantity of tasks to be performed. The role stress theory proposes that the dimensions of role stress can lead to feelings of job dissatisfaction, exhaustion, and low self-esteem.

Furthermore, role stress can reduce individuals' productivity and overall well-being and increase their employment turnover rate. While there are growing efforts to investigate the role of stress in APE teachers, limited research has been conducted to determine the sources of stress and coping strategies of APE teachers within schools. This study aimed to examine the sources of stress and coping strategies for APE teachers framed in role stress theory. The following research questions guided this study: How APE teachers perceive their roles, expectations, or responsibilities, (b) how APE teachers feel about their work assignments, and (c) the strategies APE teachers employ to cope with their stress.

Method

Participants

The participants were 15 APE teachers (10 female, five male) from different regions (West = 5, South = 5, Midwest = 3, and

Northeast = 2) in the United States. The participants' ages ranged from 33 to 56 years ($M = 47$, $SD = 1.4$). Fourteen participants self-identified as Caucasian/white and one as Black/African American. The years of teaching experience of the participants range from six to 31 years ($M = 16.5$, $SD = 6.3$). Of the 15 participants, 11 were certified to teach APE, and eight had a master's degree. The caseload of students among participants ranged from 23 to 67 ($M = 51$, $SD = 22.6$). For confidentiality, the authors assigned a pseudonym to each participant.

Following institutional review board (IRB) approval to conduct this study, 80 APE teachers were invited via email to participate. The email included the purpose of the study, research methods, and participation agreement. The information of APE teachers, such as name and email, was collected by searching the websites of randomly selected school districts. Of the 80 APE teachers, 15 (18.7%) agreed to participate in this study. Therefore, participants agreed to participate in the study based on their interest, availability, and willingness, representing a convenience sample.

Data Collection

The primary data source was semi-structured interviews conducted via Zoom between March 2022 and April 2022. Consent was obtained before conducting interviews. The interviews ranged from 38 to 74 minutes in length. All of the interviews were audio recorded and transcribed verbatim. Demographic information such as gender, age, ethnicity, and years of teaching experience was collected at the beginning of the interview. The interview focused on the sources of participants' stress and coping strategies. The semi-structured interview guide consisted of 13 open-ended questions: "Could you please describe the working conditions that make you feel stressed?" "Could you please describe what types of job responsibilities make you feel stressed?" "Could you please share your strategies to help you cope with the stress at work?" Additionally, personal narratives were collected to expand information regarding stress further. Specifically, the participants were asked to provide specific situations or examples that made them feel stressed while working as an APE teacher and the strategies employed to reduce stress.

Data Analysis and Trustworthiness

Thematic analysis was employed to identify, describe, and organize the themes (Nowell et al., 2017). Marks and Yardley (2004) suggested that thematic analysis allows researchers to understand diverse perspectives, interpret behaviors and thoughts, and discover in-depth insights. Two of the authors of this study reviewed and analyzed the interview and personal narrative data independently to develop themes (Braun & Clarke, 2006). This involved conducting line-by-line coding, scrutinizing categorization, noting patterns, and finding similarities and differences in the codes. In the next stage, we identified various precise codes and grouped similar codes. Finally, we discussed and identified a reasonable and logical chain to verify the themes. As a result of the data analysis, five themes related to participants' sources of stress and coping strategies were constructed.

Trustworthiness and credibility were ensured by employing peer debriefing. Regarding member checking, the participants of this study were asked to review the interview transcription and ensure information accuracy (Lincoln & Guba, 1985). Nine participants confirmed that the results accurately described their sources of stress and coping strategies. Peer debriefing was conducted at the end of the analysis stage by inviting a qualitative research expert who was not involved in this study (Denzin & Lincoln, 1994). The peer debriefer reviewed and evaluated the data, analysis techniques, findings, and interpretations.

Results and Discussion

The following five themes emerged from the data analysis regarding participants' sources of stress and coping strategies as APE teachers. The first four themes describe the sources of stress, and the last theme is associated with the participants' coping strategies. The themes included (a) highly demanding workloads, (b) meeting the needs of students with disabilities, (c) the shortage of paraprofessionals, (d) a lack of understanding and recognition of APE, and (e) supportive colleagues.

Highly Demanding Workloads

All participants in this study expressed that the primary source of stress was the highly demanding workload. For instance, Shelby commented,

One situation that made me feel stressed as an APE teacher is trying to find a way to balance all my things like schedule, travel time, IEP meetings, and evaluations. It is often stressful to find a good balance to cover all the job criteria (Narrative).

A substantial amount of literature highlighted the significant impact of the high workload on teachers' stress and burnout (Chang, 2013; Shernoff et al., 2011). The exceeding workload of teachers may reduce their teaching quality, job commitment, and accomplishment (Bettini et al., 2017). According to Wilson et al. (2021), APE teachers face a series of heavy workloads as the number of students with disabilities has steadily increased over the last decade. The APE teachers in this study expressed that high caseloads were a source of stress. Joseph also stated:

I have a caseload of 60-65 students in grades K-8. I started the school year with about 45 students. There are constant evaluations needing to be completed for possible new students for APE services as well as new students to the district that adds to my caseload. With the new students come more planning, instruction time, and schedules that need to be figured out. The new students, caseload, and the extra logistics that accompany them make it stressful. I just can't operate that same way with my caseload and the type of work we do (Narrative).

Previous research suggests that APE teachers are concerned with high caseloads mainly because their quality of instruction, performance, and student services are affected (Obrusnikova & Kelly, 2009). As a result of the increased caseloads, the participants of this study were required to take on additional responsibilities, such as attending more IEP meetings. Sarah acknowledged,

I would say that the biggest stressor with the caseload comes with a lot of IEP meetings, you know? Like, sometimes you'll have no IEP meetings for a few weeks or even close to a month, and then suddenly you have IEP meetings slammed into one week, five of them (Interview).

Given the high caseloads and work schedule, the participants claimed that it was inevitable for them to face scheduling conflicts, resulting in a stressful situation. Lauren explained,

You will have an IEP meeting that you must attend, but it may fall during a session for a student. So, what do you do, right? You need to make up some of those sessions or use another time. So, it all just piles on to one another” (Interview).

Additionally, the participants reported that the amount of paperwork was strongly related to their stress levels. For example, Simon noted, “Paperwork, yes, it’s always an ever going. You constantly have a new flow of evaluation and reports to do. So, it’s kind of never-ending and stressful” (Interview). The participants also indicated that the tasks associated with paperwork were bearable; however, they were stressful because of the quantity of paperwork and time pressure. Kelly commented,

Once you learn how to write the paperwork, you can go through it. It’s just the magnitude has increased. It’s just always difficult to keep up with because it is time-consuming. I don’t have enough time to do it (Interview).

Previous literature suggests that excessive paperwork is a major source of stress among special education teachers (Hester et al., 2020). Paperwork is particularly stressful as it involves a series of requirements mandated by the Individuals with Disabilities Education Act (IDEA) and the No Child Left Behind Act (Billingsley, 2004). According to Vannest et al. (2011), special education teachers spent more time completing paperwork than any other job responsibilities, including lesson planning, grading, and meetings.

The participants expressed feelings of stress as they are responsible for various extracurricular events and activities such as the Special Olympics and after-school programs. Organizing and supervising extracurricular activities can be time-consuming and create an additional workload. Sydney explained a series of events in which she was involved. As she noted:

We have big events, such as the Special Olympics bowling and basketball. We also do a huge secondary tournament,

and then there's regional and then there's state competition. It's just yeah, any special event is a big stressor. We also do something here in our district called "APE Showcase" And, you still have to continue teaching but don't forget to get all those. So, it's about once a month that there is a stressful event that is tied to increasing our stress" (Interview).

Meeting the Needs of Students With Disabilities

The participants indicated that it was stressful to meet the needs of students with disabilities. Mark described, "Our job is super fun. You get to make connections with the students, and you get to really change lives. So it's a fantastic job. But, it is more about being able to meet the needs of all the children. That's the biggest stress" (Interview). Sydney provided a similar experience, "Yeah, I think it can be stressful definitely when we have varying disabilities. You could have a student who is severely impaired and using a wheelchair. And, you could have a high functioning student. So, it's kind of stressful to plan instruction to teach them at the same time" (Interview). Literature suggests that teachers serving students with disabilities tend to be at risk of experiencing high levels of stress and burnout (Nichols & Sosnowsky, 2002).

According to Park and Shin (2020), teaching students with disabilities has become increasingly demanding because there are highly diverse students with a wide range of disabilities, characteristics, and severities. Some participants indicated that addressing the needs of various students with disabilities was a source of stress as it required a substantial amount of planning, preparation, resources, and knowledge. For example, Trevor stated, "Some kids are so specific, and you're trying to make sure that you are getting to find the right professionals or resources or looking on the right websites to find things that work for them. That can be a little bit stressful" (Interview).

In this study, participants indicated that managing students with severe disabilities was a prominent source of stress. Michelle illustrated, "I have individual plans for all our students, but teaching students with severe disabilities needs additional time and support. That's gonna pull away from the other students and how I am going to make sure they're getting the service. That is a major

source of stress for me” (Interview). Moreover, the participants expressed stress when they managed students with severe disabilities who exhibited profound behavioral disturbances. Macey explained, “Managing student behavioral problems that’s a big deal for me. That’s not my strong suit and oftentimes the aides will come to the student in the gym and they take care of the behavior problems” (Interview). Simon also stated:

It’s the students with very severe disabilities that show unpredictable behaviors. That is probably my one source of stress during my 10th year of teaching. I’ve been dealing with extreme and aggressive behaviors toward my peers and me. I could say that the greatest source of stress is the increased number of students that I’m seeing with very severe disabilities (Interview).

It has been shown that teaching students with severe disabilities involves a significant intensity of emotional exhaustion (Chang, 2013). The risk of stress and burnout is even higher when teachers instruct students with severe emotional and behavioral disabilities because they tend to display unpredictable, violent, and disruptive behaviors (Billingsley et al., 2004).

The Shortage of Paraprofessionals

The APE teachers in this study acknowledged that paraprofessionals played a vital role in assisting them with their classes. However, they all felt stressed due to the current critical shortage of paraprofessionals. Emma explained, “The thing that gives me the most stress is that there are not enough paraprofessionals. I definitely need more paraprofessionals in my classes. But it’s one of those things where I just don’t feel like there’s enough of them” (Interview).

The participants also discussed that the lack of paraprofessionals resulted in less support during their instruction, which was stressful and impacted student learning. Lauren commented, “When you don’t have paraprofessionals, you have more behavior problems in the class. More trouble with transitioning the students. My duties have changed; I’ve had to change things that I normally do. I’ve had to give up some lesson planning. It affects how I service the kids” (Interview). Given that teaching students with disabilities involves

a series of difficulties and challenges, IDEA requires schools to hire paraprofessionals to assist special education teachers (Shyman, 2010). The benefits of paraprofessionals assisting teachers in special education settings have been well documented (Jones et al., 2014). For example, paraprofessionals help enhance the quality of instruction by providing one-to-one or small-group instruction, modifying materials, and working with the most challenging and intensive student behaviors (Fisher & Pleasants, 2012). The participants in this study also described that it was stressful to work with paraprofessionals who were unfamiliar with APE and lacked professionalism. Michelle commented, “I’m dealing with paraprofessionals who don’t know APE and what to do with the children and don’t know how to handle them. They don’t know how to modify anything for individual children, no matter what I’m doing in the class. And that can be stressful” (Interview). Concomitant with a shortage of paraprofessionals, paraprofessionals receive limited training and professional development to identify their roles and learn the necessary knowledge and skills (e.g., behavioral management) (Mason et al., 2019). Although minimum qualifications for hiring paraprofessionals have been established by federal policies, such as acquiring a high school diploma and having at least two years of working experience at schools, these guidelines are not always enforced or followed in school settings (Brock et al., 2017). In other words, paraprofessionals may not have the recommended knowledge, skills, and experiences that could prevent them from properly assisting teachers (Maggin et al., 2012).

A Lack of Understanding and Recognition of APE

All participants in this study indicated that their stress was strongly associated with a lack of understanding and recognition of APE by school administrators, teachers, and staff members. Kelly explained, “Probably the most source of stress is how colleagues and administrators don’t understand my job. My colleagues think I’m going home when I’m going to another school. Some IEP members don’t think I’m a service provider and have to do formal assessments. It is stressful” (Narrative). This was also echoed by Amy,

The perception is that APE teachers don’t work hard and it is so easy. The contrary is that it is challenging and takes a lot

of effort, foresight, critical thinking, and creativity in order to develop a sound lesson plan that creates student success (Narrative).

Over the last few years, studies have examined the notion of marginalization in the context of APE as it is viewed as a “low-status or unvalued subject” in schools (Richards et al., 2020; Richards & Wilson, 2020). Such marginalization is most manifested when there is a lack of understanding of what APE entails, how it contributes to students with disabilities, and the overall mission of the school (Park & Curtner-Smith, 2018).

In particular, participants in this study were stressed due to marginalization by school administrators. Michelle commented,

The lack of administrative support comes from when the principal doesn't know about what goes on in the APE world on their campus. Your world is just more stressful and there isn't any real support. I just think that we're the last priority (Interview).

Amy further elaborated,

We do feel like we're on our own. I'd say there is little support. We are just like other teachers spending time in the classroom. Getting a good understanding of what we do so that they can support us better, getting curious instead of judgmental (Interview).

Research suggests that school administrators are essential to the effective functioning of a school (Woods, 2004). For instance, school administrators are responsible for distributing resources, guiding teachers, and developing school culture (Beisser et al., 2014). Richards et al. (2020) identified that school administrators are a critical factor related to the socialization experiences of APE teachers. Unfortunately, it has been found that school administrators marginalize and undervalue APE, stemming from the negative impression of general physical education (McNamara et al., 2022). As a result, APE teachers tend to confront inadequate support, unfavorable working conditions, isolation, and negative perceptions (Wilson et al., 2021). According to McNamara et al. (2022), marginalization is exacerbated when school administrators focus on the basic require-

ment of compliance with educational policies, resulting in reduced quality of service and practice of APE. The participants in this study reported a lack of involvement of school administrators in APE unless there was an immediate problem or issue. Macey explained,

Oftentimes, school administrators don't get involved or want to know about our world until there's an emergency or a parent is very upset or whatever. And we're not a source of stress to the administrator until something goes wrong (Interview).

In this study, the participants were stressed when they had little input in the IEP. Amy commented:

I've been attending a lot of IEP meetings for students moving from Pre-K to high school and it's a little bit scary because they don't take my input. They ask me questions sometimes. They don't seek me out too often, though; they just kind of do what they do. Yeah. So, I just, I stress about that (Interview).

This is consistent with the findings of Wilson et al. (2020), in which APE teachers' voices were merely heard to make decisions in educational policies such as IEP and the Least Restrictive Environment. Participants also discussed that they experienced high stress levels when school administrators did not include them in important school communication. APE teachers expressed frustrations as the lack of communication prevented them from obtaining critical information about schedules, meetings, and announcements. Trevor commented:

I would definitely say communication. And just trying to make sure I get all the information from anything that the superintendent sends out to my program supervisor, to these principals, and even to the case manager. I feel like a lot of time I get left out of communication logs, and that stresses me. I look pretty bad because you didn't tell me that this was coming. Just to include us (Interview).

Supportive Colleagues

All participants in this study emphasized that supportive colleagues whom they can reach out to "when in need" positively impact alleviating and coping with their stress. Amy noted:

Well, I think if you all share your stress, then I'm able to call you because I've established that relationship with you, and I'm able to vent. I think I've set a good example for my team that there's a difference between complaining and venting. Venting means you just need to listen to me for a few minutes. I have a problem and I really need another brain to help me figure it out and talk through it. It really does help me cope with stress. We need other humans to help us (Interview).

Research has identified various coping strategies teachers utilize to reduce work-related stress, such as exercise, meditation, and rest (Richards, 2012). According to Tomfohr et al. (2015), one of the well-accepted coping mechanisms is having a social support system. Specifically, supportive colleagues provide positive feelings, emotional relaxation and support, and sympathy (Johnson et al., 2014). Le Cornu (2013) suggested that teachers who receive positive social support from their colleagues are less vulnerable to stress and burn-out. The study participants discussed that their colleagues and other professionals serve as critical resources of support to cope with their stress and find solutions to problems. Joseph described:

I have a good support group such as OTs, PTs, and speech therapists. I always have someone to deal with my stress and frustrations. It helps with the stress level. Oftentimes talking with my close colleagues about the stress help vent my frustrations. I also talk with my special education team about my concerns and how we can find solutions. They all have been a great help this school year (Narrative).

Supportive colleagues in schools can also provide mentorship, instructional strategies, and professional resources (Jones et al., 2013). According to Kim et al. (2021), APE teachers perceived that their APE colleagues are the most valuable resource for building a positive attitude, influencing their professionalism, and providing guidance. Park and Curtner-Smith (2018) also found that receiving support from APE colleagues provides feelings of belonging and allows them to stay connected. Such connections increase APE teachers' job satisfaction and help them combat negative emotions, unfavorable working conditions, and attrition (Kim et al., 2021). Participants recognized the value of socializing with APE teachers and supportive colleagues to relieve stress. Macey highlighted:

Personally, with my APE team, we just communicate with each other all day. It might be lighthearted stuff. It might be something funny. And, then we're a small enough team. We can still get together and have lunch. That's vital to me is just our team, the five, just being cohesive like that. So, that's probably my biggest stress reliever. Just to tell somebody hey, this happened. And, then they commiserate with me or whatever (Interview).

Amy further elaborated,

Yeah, definitely talking with my APE teams helps because we're talking about the same things. So, it's that camaraderie with the other APE teachers, and it's really great. I think definitely talking with them has helped a lot and that has been my stress coping strategy at work" (Interview).

Windle (2011) pointed out that colleagues who share common work experiences are more likely to understand a peer's situation, reduce feelings of isolation, and mitigate the sources of stress.

There are several limitations in the present study. First, convenience sampling was employed in this study. Despite the efforts of recruiting participants from a wide range of regions in the U.S., the participants' responses did not represent all APE teachers. Second, no novice APE teachers were recruited in this study. According to Kim and Roth (2011), a novice teacher is defined as a teacher with less than five years of experience. As previous research examined, the intensity level and sources of stress may differ between novice and experienced teachers (Brouwers & Tomic, 2000). Specifically, novice teachers tend to report high stress levels (Embich, 2001). Therefore, future research should examine the sources of stress and coping strategies among novice APE teachers. Despite the limitations, this study makes an important contribution to understanding the working experiences and conditions that lead to stress in APE teachers and the mechanisms they employ to cope with such stress.

Conclusion and Implications

Framed in role stress theory, this study examined the sources of stress and coping strategies among APE teachers. The findings

of this study indicated that all participants felt stressed while working as APE teachers, and multiple factors influenced their stress. A heavy workload, including caseload, IEP meetings, and paperwork, was found to be related to the stress of APE teachers. Despite the feeling of exhilaration in working with students with disabilities, APE teachers expressed that addressing the needs of various characteristics of students with disabilities caused stress. A major source of stress was the shortage of paraprofessionals, as APE teachers relied heavily on them. Additionally, APE teachers were stressed and frustrated when school administrators, colleagues, and staff demonstrated a lack of understanding and recognition of APE. While the participants described a series of sources of stress, this study found that supportive colleagues played a critical role in coping with stress. Supportive colleagues allowed APE teachers to feel empathy, humility, and belonging.

There are several implications based on the findings of the current study. School districts and school administrators are responsible for promoting their teachers' well-being. Therefore, they should be more proactive in providing helpful information or strategies about emotional wellness, self-management, and coping strategies to reduce stress related to job dissatisfaction, burnout, or other negative feelings. Furthermore, the participants in this study discussed a series of difficulties in teaching and managing students with severe disabilities (e.g., autism spectrum disorder). It is recommended that professional development be provided to help APE teachers acquire information about behavior intervention programs, differentiated instructional strategies, and appropriate curricula targeting students with severe disabilities. While paraprofessionals assisted and supported APE teachers significantly, this study found that APE teachers were stressed due to insufficient paraprofessionals. Therefore, school administrators should consider allocating more paraprofessionals to APE classes. More importantly, proper training in the context of APE is necessary for paraprofessionals to understand their roles, responsibilities, and professional dispositions.

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PHYSICAL ACTIVITY

Comparing the Effect of Classical and Popular Music During Physical Activities Among Junior High School Students

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Abstract

Music is a big part of life. It is heard at home, work, and even in the schools. Music is a tool used in the physical education setting. It is used in all grades and in multiple activities with success. Music types played in physical education classes also vary. One type of music that has not been given much chance in physical education is classical music. For this study, popular and classical music was played in junior high school physical education classes during basketball play. Students wore pedometers to measure the steps taken and the time spent in the activity. In this study, 458 junior high school students in grades seventh, eighth, and ninth participated (230 males and 228 females). The junior high school students took more steps and spent more time in activities when popular music was being played. Interestingly, when classical music was played during the basketball gameplay, students had slightly lower step counts and activity time than popular music.

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Introduction

Music can be viewed as ubiquitous in our lives. Yet, people prefer many different types of music, such as rock, country, jazz, blues, hip/hop, classical, and many others. Our listening choices are also applicable while participating in physical activity. Barney et al. (2012) studied the use of personal music players (PMPs) during exercise, how they affect exercise, and what types of music are most commonly listened to during exercise. This study surveyed college-aged students who used their college wellness centers at two Midwestern universities. Hip-hop (27.7%), rock (24%), pop (20.3%), and country (12.7%) were reported to be the most popular music types listened to during exercise. A positive finding from this study was that the participants exercised for longer periods of time at a higher intensity when their preferred music choice was playing. Another study investigating music effects in a physical activity setting examined exercise intensity and music tempo (Karageorghis et. al., 2006). College-aged undergraduate students ($N = 128$, M age = 20.0 years, $SD = 0.9$) selected their top three artists for this study. The top three artists were Christina Aguilera, The Stereophonics, and Michael Jackson, which are classified as pop and rock music. It was found that these types of music (medium and fast tempo music) resulted in increased workload intensity.

When investigating the effects of music in a physical activity setting, Priest et al. (2004) established a conceptual framework. This conceptual framework consisted of four topics. They were: 1) rhythm response, 2) musicality, 3) cultural impact, and 4) association. Rhythm response refers to musical rhythm, most notably tempo. Tempo refers to the speed of music as measured in beats per minute (BPM). Musicality refers to the responses to pitch-related elements such as harmony and melody. Cultural impact refers to the pervasiveness of music within society. Finally, association refers to extramusical associations, such as emotions that a piece of music may evoke (Karageorghis et al., 2006).

Because of the potential positive effects of music in a physical activity setting, the K-12 physical education context also bodes well for the same positive effects for students who participate when music is present during class activities. Barney et al. (2016) examined the effects of music on fourth-grade students' enjoyment of two activities

(tossing/catching and hula hoops) during physical education class. For this study, the music utilized consisted of popular, upbeat music with a fast tempo. The tempo of the music was between 120 to 160 beats per minute (bpm). Students compiled a list of 10 popular songs, with investigators reducing the number to six. A portion of the data collected for this study was interviews with study participants. From the interviews, three themes became prominent: 1) music made the physical education (PE) lesson more enjoyable, 2) perceptions of effort during class with music were greater, and 3) the types of songs played during class made the student's PE experience more enjoyable. This last theme from the interview data highlights popular music's effects on fourth graders' PE experience. Brewer et al. (2016) examined the use of music in a junior high school physical education setting. More specifically, this study investigated music's effect on students' physical activity during class activities while music played. Junior high school students participated in two activities (basketball and volleyball). Two lessons for each activity were used to collect data. Both activities had one lesson with music, and the other lesson had no music; for both lessons in both activities, students wore pedometers to measure their movement. Data analyses indicated a significant gender effect in steps taken ($F(1,1059) = 68.687, p < .001$), time in activity ($F(1,1059) = 61.234, p < .001$), and level of enjoyment ($F(2,1059) = 12.205, p < .001$). Follow-up ANOVAs showed a significant activity type effect in steps taken ($F(3,1059) = 7.291, p < .001$), time in activity ($F(3,11059) = 5.234, p < .001$), and level of enjoyment ($F(3,1059) = 4.543, p < .001$). These results help to add to the body of knowledge to support music being played during physical education class, and activities may benefit both physical educators and students.

The previously mentioned investigation has discussed popular music as a tool used in physical activity settings. Another genre of music that has had limited research conducted is classical music. Classical music spans a length from the 1600s up to the present. This time frame includes the Renaissance, Baroque, Classical, Romantic, and Contemporary periods (Sharma & Trikha, 2016). Cheng and Grove (2017) studied the effects of classical music (at a tempo of 140 bpm or greater) and no music on cardiovascular disease patients' rehabilitation. As part of their rehabilitation, participants listened to

classical music at a tempo of 140 bpm or faster and no music playing. Study results indicated a modest increase on average of 7 beats per minute in peak heart rate due to exercising with classical music compared to exercising without music. From a rehabilitation perspective, classical music did not negatively impact patients during exercise, suggesting that classical music may be a safe genre to use in this type of setting. Furthermore, Sharam and Trikha (2016), in a multilevel meta-analysis of 139 studies, investigated the effects of classical and jazz music in sports. From 3,599 study participants, a total of 598 effect sizes from four categories of potential benefits (i.e., psychological responses, physiological responses, psychophysical responses, and performance outcomes) were calculated. Significant beneficial effects of music were associated with affective valence ($g = 0.48$, CI [0.39, 0.56]), physical performance ($g = 0.31$, CI [0.25, 0.36]), perceived exertion ($g = 0.22$, CI [0.14, 0.30]), and oxygen consumption ($g = 0.15$, CI [0.02, 0.27]). Performance effects were conducted by study domain (exercise > sport) and music tempo (fast > slow-to-medium), with results supporting the use of music across a range of physical activities to promote more positive affective valence, enhance physical performance (i.e., ergogenic effect), reduce perceived exertion, and improve physiological efficiency. Overall results indicated that classical music decreased distractions, enhanced performers' moods, increased arousal, and released stress, but not to the extent of jazz music. Because of the paucity of research associated with classical music in a physical activity setting, this presented an opportunity to study classical music's effects on physical activity in the PE setting. Thus, the purpose of this study was to investigate classical music and popular music's effect on physical activity rates via pedometric measurements and a scaler measure of enjoyment in junior high school physical education classes.

Methods

For this study, 458 junior high school students (230 males and 228 females) from eight intact seventh-, eighth-, and ninth-grade classes (ages 11-15), separated by grade and gender, participated. The school's classes ran on a block schedule, A-day/B-day, from bell to bell. The participants were of middle-class socioeconomic status, with 73.4% of the students being Caucasian (USA School Info, 2019).

The two teachers (one male and one female) who participated in this study averaged 17 years teaching junior high school PE.

Procedures

The university institutional review board (IRB) and the school district approved of the study. Parental and student consent was also secured. The lead researcher attended the school for one day and instructed the students on how to wear, use, and read a pedometer properly to ensure reliable data collection. Students were instructed that upon entering class they were to get a pedometer and secure it to the waistband of their shorts. Students were further instructed that after class announcements and warm-up activities, they were to reset their pedometers to 0 for correct data collection. Then, after the class activity (basketball), the students were to record their number of steps, time in activity for classical, popular, and no music, and level of enjoyment during the lesson on the student record sheet. A student record sheet was created for each student. Students had a place to record a number of steps, time in activity, and level of enjoyment during the basketball activity on a scale of 1 to 5 (*1=not enjoyable, 2=somewhat enjoyable, 3=neutral, 4=enjoyable, 5= very enjoyable*) (Brewer et al., 2016). The music selection used for this study consisted of popular, upbeat, fast tempo, 120-160 beats per minute (bpm) songs suggested by junior high-aged students. Also, classical music for this study also consisted of music that was upbeat with a fast tempo, 120-160 bpm. Both popular and classical music were played over a loud sound system.

Before data collection, the classroom teachers who participated in this study were briefed by the lead researcher on the basketball activity for the study. For this study, the students participated in a class tournament. The lessons were restricted to 50 minutes of actual gym time. Using this amount of class time, the teachers had a buffer at the beginning and end of the class periods for regular class procedures and data collection. Before data collection, the PE teachers taught their basketball unit, which consisted of skill and other basketball activities. At the beginning of data collection, the students began their basketball tournament. The basketball tournament consisted of two days of no music, two days of popular music, and two days of classical music.

Pedometer Instrument

The Yamax Digi-Walker LS 2525 was the pedometer used to collect student step counts and time in activity. The pedometer model records step counts, distance covered, calories burned, and time a student is in movement and stops when the student is not moving (standing). Time in activity is recorded in hours, minutes, and seconds. This pedometer was found reliable from previous research (Barney et al., 2008).

Data Analysis

For summary statistics, repeated measures ANOVA for a continuous variable and Mantel-Haenszel Chi-Square for an ordinal variable are used to assess the effect of the types of music played on pedometer measures (step counts and time in activity) and level of enjoyment during basketball games. Also, a mixed linear model was developed to assess the effect of the types of music played on pedometer measures adjusted for demographic characteristics. All data analyses were conducted using SAS software, Version 9.4 of the SAS System for Windows (SAS Institute Inc.).

Results

From the pedometer measures during all the games, on average, the participants had a greater number of steps and time in activity when popular music was played, followed by classical music, compared to when no music was played during the basketball games. Participants had lower pedometer measures during period 2 compared to period 1 for all types of music played. During period 1, the participants had, on average, 360.1 more steps, 2 more minutes with popular music played compared to when no music played, and 270.2 more steps and 1.5 more minutes when classical music played compared to when no music played. Similar results were observed during period 2. The repeated ANOVA analysis indicated that the differences were statistically significant for both the number of steps and time in activity, the $P\text{-Value} < 0.0001$, Table 1 and Figure 1.

Similar results were observed from the mixed linear model analysis after adjusting for gender and grade. On average, the pedometer measures (number of steps and time in activity) during all the games were the highest for males, eighth-grade participants, and when

Table 1
Average Pedometer Measures by Types of Music Played

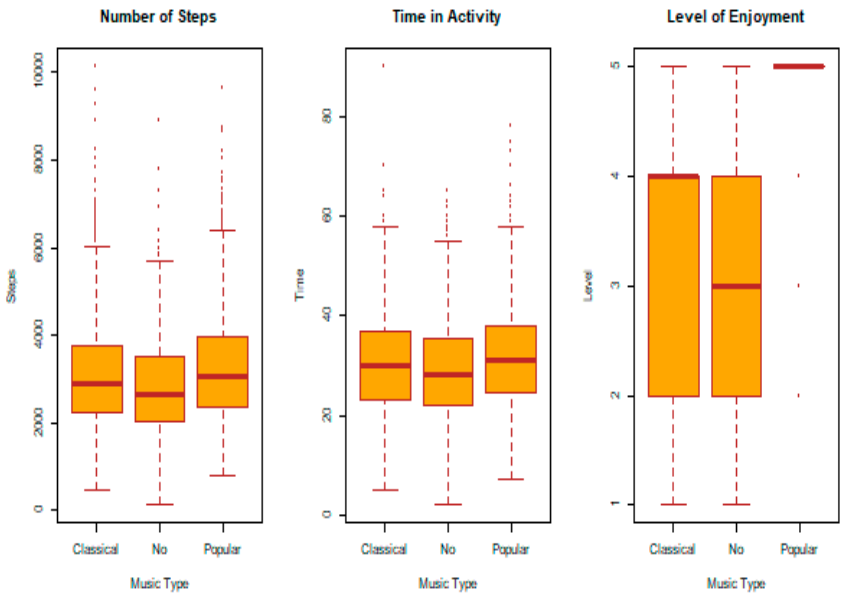
Pedometer Measures	No Music [2]	Classical Music [2]	Popular Music [2]	P-Value [3]
Number of steps [1]				<.0001
First Recording	2874.5 (49.95)	3144.7 (59.52)	3234.6 (56.90)	<.0001
Second Recording	2763.9 (51.32)	3091.8 (65.60)	3350.0 (66.26)	<.0001
Time in activity [1]				<.0001
First Recording	30.3 (0.52)	31.8 (0.52)	32.3 (0.50)	0.0014
Second Recording	28.9 (0.52)	30.6 (0.55)	32.0 (0.56)	<.0001

[1] Overall P-value from repeated measures ANOVA after adjusting for gender and grade.

[2] Mean (Standard Error)

[3] P-value from repeated measures ANOVA after adjusting for gender and grade.

Figure 1
Average Pedometer Measures by Types of Music Played



popular music played compared to other groups, and the differences were all statistically significant (P-Values < 0.0001). On average the participants had 473.1 more steps and 2.5 more minutes in activity when popular music played and 299.1 more steps and 1.6 more minutes in activity when classical music played compared to when no music played (P-Values < 0.0001), Table 2.

When comparing the participants by the level of enjoyment during the basketball games, 96.9% of the participants responded to

Table 2

Effect of Types of Music Played During Activities on Pedometer Measures Adjusted for Demographic Characteristics

Characteristics	Estimate	P-Value [1]
Number of Steps		
Gender (ref = Female)		<.0001
Male	486.6	<.0001
Grade (ref = 9th Grade)		<.0001
7th Grade	487.7	<.0001
8th Grade	510.7	<.0001
Type of Music (ref = No Music)		<.0001
Classical Music	299.1	<.0001
Popular Music	473.1	<.0001
Time in Activity		
Gender (ref = Female)		<.0001
Male	5.9	<.0001
Grade (ref = 9th Grade)		<.0001
7th Grade	3.1	0.0005
8th Grade	5.0	<.0001
Type of Music (ref = No Music)		<.0001
Classical Music	1.6	<.0001
Popular Music	2.5	<.0001

[1] P-value from Mixed Linear Model adjusted for gender, grade and Types of Music.

enjoyable or very enjoyable when popular music was played, while the percentage is only 52.6% for classical music and 48% when no music was played (P-Value < 0.0001). Stratifying further, the level of enjoyment by gender and grade showed a statistically significant difference when no music played. However, no statistically significant difference was observed when classical or popular music was played. When no music was played, 51.3% of males responded the physical activity was enjoyable or very enjoyable, while the percentage for female participants was only 44.7% (P-Value = 0.0033); comparing by grade when no music was played, 61.3% seventh-grade participants responded the physical activity was enjoyable or very enjoyable while the percentage for eighth- and ninth-grade participants were respectively only 49% and 26.9% (P-Value < 0.0001), Table 3.

Discussion

This study aimed to investigate classical music and popular music's effect on physical activity rates via pedometric measurement and a scalar measure of enjoyment in junior high school PE. The results revealed that junior high school students, not surprisingly, took more

Table 3*Level of Enjoyment by Types of Music Played, Gender, and Grade*

Characteristics	Not Enjoyable [1]	Somewhat Enjoyable [1]	Neutral [1]	Enjoyable [1]	Very Enjoyable [1]	P-Value [2]
Type of Music						
No Music	36 (7.9)	122 (26.6)	80 (17.5)	142 (31.0)	78 (17.0)	
Classical Music	24 (5.2)	92 (20.1)	101 (22.1)	171 (37.3)	70 (15.3)	<.0001
Popular Music	0 (0.0)	3 (0.7)	11 (2.4)	95 (20.7)	349 (76.2)	
No Music						
Gender						
Male	5 (2.2)	68 (29.6)	39 (17.0)	67 (29.1)	51 (22.2)	0.0033
Female	31 (13.6)	54 (23.7)	41 (18.0)	75 (32.9)	27 (11.8)	
Grade						
7th Grade	8 (4.5)	38 (21.3)	23 (12.9)	58 (32.6)	51 (28.7)	
8th Grade	11 (6.8)	43 (26.7)	28 (17.4)	53 (32.9)	26 (16.1)	<.0001
9th Grade	17 (14.3)	41 (34.5)	29 (24.4)	31 (26.1)	1 (0.8)	
Classical Music						
Gender						
Male	7 (3.0)	49 (21.3)	54 (23.5)	75 (32.6)	45 (19.6)	0.1791
Female	17 (7.5)	43 (18.9)	47 (20.6)	96 (42.1)	25 (11.0)	
Grade						
7th Grade	9 (5.1)	35 (19.7)	31 (17.4)	69 (38.8)	34 (19.1)	
8th Grade	13 (8.1)	28 (17.4)	39 (24.2)	57 (35.4)	24 (14.9)	0.1736
9th Grade	2 (1.7)	29 (24.4)	31 (26.1)	45 (37.8)	12 (10.1)	
Popular Music						
Gender						
Male		3 (1.3)	4 (1.7)	42 (18.3)	181 (78.7)	0.4561
Female		0 (0.0)	7 (3.1)	53 (23.2)	168 (73.7)	
Grade						
7th Grade		1 (0.6)	5 (2.8)	30 (16.9)	142 (79.8)	
8th Grade		2 (1.2)	3 (1.9)	35 (21.7)	121 (75.2)	0.3114
9th Grade		0 (0.0)	3 (2.5)	30 (25.2)	86 (72.3)	

[1] Frequency (percent).

[2] P-value from Mantel-Haenszel Chi-Square.

steps and had higher times in activity when popular music played during the class basketball tournament. Yet, the researchers were pleasantly surprised to learn that when classical music was playing, junior high school students recorded higher step counts and time in activity. This could be attributed to the students finding classical music either enjoyable or very enjoyable while playing basketball. The findings from this current study concur with popular music in a junior high school PE setting. Brewer et al. (2016) examined popular music's effect on junior high school students playing volleyball and basketball. High-tempo popular music was played during gameplay

in both volleyball and basketball. Junior high school students took over 300 more steps compared to when no music was played. Both volleyball and basketball are different activities requiring different amounts of physical activity. Yet, music positively affected the student's physical activity in both sports. The result from this study once again reinforces music's positive effect on student physical activity during class activities. PE teachers should look to plan activities that will allow the implementation of music to maximize students' physical activity in class. Also, when using music, it would be wise to play music the students are familiar with (Barney et al., 2016). Students' familiarity with songs they hear while participating in an activity motivates them to participate when learning a new skill (Barney & Pleban, 2018).

Another study component was classical music and its effects on junior high school students' physical activity. The literature is quite limited in regard to classical music in a PE setting. Yet, Sharma and Trikha (2016) investigated classical and jazz music in sports. This study revealed that classical music helped decrease distractions, enhance a positive mood, and release stress for these participants. This current study has established that junior high school students took more steps when popular music was played during basketball. When looking closer at the data, on average, the junior high students had 299 more steps when the classical music was played compared to when no music was played. These results show that classical music can potentially assist students' physical activity in PE class.

One final finding of this study was student enjoyment during class participation when classical and popular music were played. Generally, both the male and female students felt that both types of music made their PE experience enjoyable while participating in class activities. Digelidis et al. (2014) studied the effects of music on lesson satisfaction and four types of motivation of high school students. It was discovered that high school students had lower satisfaction with the lessons when music was not played. The researchers concluded that music during the lessons creates a pleasant atmosphere and thus is likely to motivate students to engage in a given task with greater intensity. Once again, popular music can serve as a tool to make a student's PE experience positive and productive. Overall, classical

music did not make the junior high school students' PE experience unpleasant or less enjoyable; it also served as a motivational tool.

Conclusions

The findings from this study once again strengthen the notion that music can increase a student's physical activity while participating in class activities. The results from this study concur with the conceptual framework of Karageorghis et al. (2006). As mentioned, this conceptual framework includes (a) rhythm response, (b) musicality, (c) cultural impact, and (d) association. The popular and classical music played (rhythm response) in this study, most notably the tempo or speed of music, positively affected junior high school students' step counts and time inactivity.

Study findings may encourage K-12 physical educators that students may become more physically active while music is being played. Music can be a tool to assist physical educators in meeting the objective of having students stay physically active for the majority of class time. Chen (1985) said, "Just play some music with a definite beat and watch as little ones respond with the joy of moving in space" (p. 19). Chen was pointing out small children; the same can be said for all ages. Music can move us, which can also apply to classical music played while participating in physical activities.

Study Limitations

The researchers have noted a couple of limitations to the study. For this study, the participants came from two junior high schools. Because the participants came from one school, it may not allow a representative sampling of junior high school students in other junior high schools or in other geographic regions, thus limiting the generalization of the findings. In addition, the participants came from segregated classes, all male and all female classes, as compared to nonsegregated classes.

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HEALTH EDUCATION

Physical Education Teachers' Technology Self-Efficacy and Integration

Alex Adams and Don Belcher

Abstract

Technology in education strives to parallel the high-tech world we live in. When students' learning environment reflects the ways in which they engage the world, they will excel in their education (Christen, 2009). Physical education teachers (PETs) have reported many barriers to using and integrating educational technology (e.g., Hill & Valdez-Garcia, 2020). PETs' perceived self-efficacy (SE) may play an important role in their ability to integrate technology. The purpose of this study was to explore in-service PETs' self-efficacy to integrate technology into their teaching. Method: Eighty-three in-service PETs (Male=31.3%, Female=68.7%), from around the United States, completed an online version of the previously validated Computer Technology Integration Survey for Physical Education (Krause, 2017). Analysis focused on relationships of participant's SE and technology use. Results indicate a relationship with the level of mastery experiences ($r=.48$, $p<.001$), technology training ($r=.45$, $p<.001$), social persuasion experiences ($r=.28$, $p<.001$), and (vicarious experiences ($r=.28$, $p<.01$), to participants' technology SE ($M=3.70$, $SD=.94$; 1-5 scale). Participants' specific technology training and use are presented, with corresponding correlations to indicate how well SE relates to use. Participants' SE was lower than physical education student teachers

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(Krause, 2017) but similar to PET education faculty (O'Neil & Krause, 2019). PETs may be well equipped to use educational technology after student teaching but may need more training to keep up with the ever-changing world of technology. Professional development opportunities for PETs should focus on providing mastery experiences over vicarious and social persuasion experiences. Furthermore, some educational tools (i.e., Plickers) are valued and used more when PETs have an adequate level of specific educational technology training. Future research should focus on measuring the effects of a professional development workshop on PETs' SE.

Introduction

Technology in education strives to parallel the high-tech world. When students' learning environment reflects the ways in which they engage the world, they will excel in their education (Christen, 2009). Research has noted the positive effects for both students and teachers of technology integration (Costley, 2014), which has led to national organizations and governing bodies, associated with teacher education, to establish a consistent revision of educational technology standards (International Society of Technology in Education 2018; National Board for Professional Teaching Standards, 2014; Society of Health and Physical Educators [SHAPE] 2017; U.S. Department of Education National Educational Technology Plan, 2017). SHAPE, the national organization for physical education (PE) teachers (PETs), has identified the need for technology standards for PET education (PETE) programs. PETE accreditation has included standards related to technology integration since 2001. Furthermore, the national physical education grade-level outcomes for PK-12 students require PETs to have some level of technology ability to help their students meet all the standards (SHAPE, 2013).

Even with an increased focus on quality technology standards for pre and in-service teachers, many have reported that they are not well prepared nor proficient (Gibbone et al., 2010; Hill & Valdez-Garcia, 2020; Juniu et al., 2013; Kretschmann, 2015). For teachers to utilize technology they must first be proficient with using them. Teachers' perceived self-efficacy (SE) plays an important role in a teacher's ability to integrate technology.

Bandura (1997) defines perceived SE as, “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). In other words, SE is an individual’s belief in their ability to engage in a specific behavior. According to SE theory, when individuals have a higher SE toward a particular behavior, they are more likely to engage in that behavior. Therefore, PE teachers who have a higher SE toward technology integration are more likely to use technology to enhance their PE instruction. Bandura (1997) further explains that there are three sources of SE: mastery experiences, vicarious experiences, and social persuasion. These sources of SE provide avenues for individuals to develop their SE. For example, a mastery experience in PE includes a teacher successfully incorporating new technology into their instruction. A vicarious experience includes a teacher observing a colleague incorporating technology. Lastly, social persuasion includes feedback from others about using technology in PE. An individual can increase their SE through any combination of mastery, vicarious, or social persuasion experiences (Bandura, 1997).

Technology integration SE has been explored in PE pre-service (Krause, 2017) and with PET education (PETE) faculty (O’Neil & Krause, 2019). O’Neil and Krause (2019) showed that PETE faculty had moderate levels of technology integration SE. Krause (2017) found that pre-service PETs increased their SE to integrate technology during student teaching, with mastery experience having the greatest influence in overall SE. Although PETs can increase their SE using several sources, research to show which source produces the most significant increase in SE to integrate technology for in-service PETs is lacking. As to date, no peer-reviewed research on in-service PETs can be found.

O’Neil and Krause (2019) found that PETE faculty had the highest self-efficacy toward specific educational technology for LCD projectors and pedometers; Interactive whiteboards and classroom management software were the lowest. Kretschmann (2015) found secondary PETs were most proficient at using the internet and Word processing software. Krause (2017) found that PETE pre-service teachers had the highest access to specific educational technology for computers for teacher use, computers for student use, pedometers, and video cameras; computers had the highest daily use with 66.7%,

followed by pedometers with 13.3% and computers for students use 10.7%. Conversely, the least accessible and used educational technology tools were personal digital assistants, electronic fitness equipment, and heart rate monitors. Additionally, specific technology training levels were highest for the internet and computer applications and the lowest training levels were personal digital assistant and global positioning system. Hill and Garcia (2020) found at least 70% of PETs ($N=201$) had access to: laptop(s) for personal use; digital projector(s); computer (s) connected to the internet (in a designated classroom); iPods; computer(s) connected to the Internet(outside of PE classroom); pedometers. Gibbone et al. (2010) identified that secondary PETs' most used technology equipment was Word processing. Wagner (2020) identified that PETs had some level of training with activity trackers (70.2%) and iPads (64.9%); Coaches Eye (mobile apps) had the lowest reported level of training with 31.6%.

While many studies have indicated specific educational technologies PETs have access to and use the most, it is not clear what role SE has played toward specific educational technology use. Therefore, the purpose of this study was to explore current PE teachers' SE toward technology integration. This research can assist school districts with adapting professional development opportunities to meet the need of their PE teachers. Research can also provide PETE programs feedback on how to structure their curriculum to effectively prepare their students. In addition, this study aimed to look at the relationship of in-service PETs' use of specific tech tools and their perceived competence to better inform professional development providers and PETE programs what in-service teachers are valuing.

Method

Participants

Ninety-three participants (Male 32.3%, Female 64.6%, some declined to answer; Age=42.71 years, $SD=9.91$; Caucasian 91.4%, African American 1.1%, Hispanic 6.5%, Asian 1.1%; years teaching=16.41 years $SD=9.541$) completed the survey. All participants were currently teaching PE at either the Elementary (64.5%), Middle School (26.9%), High School (18.3%), and/or Higher Ed (10.8%) level; participants could select multiple areas of where they teach. Due

to the low response rate of higher-ed, their survey responses were eliminated from the analysis ($n=10$). Participants were recruited to complete the survey using social media (Facebook & Twitter) and e-mail. Researchers could not identify participants. All participants provided informed consent in compliance with the universities review board.

Instrumentation

The survey instrument used by participants was the Computer Technology Integration Survey for PE (CTIS-PE), which was identical from Krause (2017). Permission was granted by Krause to use and revise the CTIS-PE instrument for online data collection. The CTIS-PE consisted of items related to (a) SE to integrate technology in PE, (b) participant demographic information, (c) technology tool competency, and (d) technology tool use. CTIS-PE was originally intended for pre-service PE teachers and only minor changes were made. Revisions helped to ensure the language of the instrument was appropriate for in-service PE teachers. No changes were made to the SE portion; technology tools were updated to include more modern tools (i.e., Plickers, iPads, Chromebooks). After all modifications were made a small group ($n=10$) of inservice PE teachers completed the survey to ensure readability and usability. No further alterations were recommended.

The SE portion used a 16-item, five-response Likert scale survey to measure participants SE beliefs for technology integration. Participants rated their current level of confidence with statements regarding technology use on a scale from 1 to 5, with 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. The CTIS-PE instrument SE measure developed by Krause (2017) has a Cronbach alpha reliability of .952. Participants then rated their level of success with integrating technology based on their own experiences (Mastery), experiences they observed from others (Vicarious), and feedback they have received from others to integrate technology (Social Persuasion). Participants responding using a five-response Likert scale ranging from very unsuccessful to very successful (not applicable was also an option). The last question in this section asked what technology integration requirements and/or expectations were expected of them from their school or district.

Responses were coded either as none, encouraged but not required, required.

The demographic section included age, gender, race, current grade level teaching, and teaching experience. CTIS-PE also asked participants to self-assess their level of technology competency for the following tools: aerobic equipment (treadmills, stair, climbers, bikes), activity monitors (pedometers, accelerometers), iPads, Chromebooks, or other personal devices for students to use, basic computer applications (e.g., MS Word, Excel, PowerPoint), educational website creation, digital video camera, exergames (e.g., Dance Dance Revolution, etc.), global positioning system, heart rate monitors, cell phone apps (e.g., Team Shake, Sworkit, etc.), music apps (Apple Music, Amazon Music, FIT Radio, Spotify, etc.), projector, overhead projector, Plickers, graphics editing software (Adobe, Canva, Gifs, etc.), video editing software (i.e., Coaches eye, iMovie), Installing Hardware, and Installation of Software. Participants rated their level of competence on a scale of 1 to 4, with 1 = untrained, untrained (little or no experience learning the tool), 2 = trained (have been taught or learned on own), 3 = highly trained (consider self to be highly competent in the tool), or 4 = expert (have successfully used the tool in teaching PE). The final question in the technology tool competencies asked participants where or how they felt they learned how to implement these technologies. Selections included: (a) College/University general technology course, (b) PE-specific technology course, (c) Post-graduate technology course, (d) Professional conference or other workshop, (e) Colleague, and (f) Other. The final section asked participants questions related to their technology tool use. Participants rated their use on a 5-point Likert scale from very often to never (5-1).

Data Collection and Analysis

All procedures were approved by the researcher's university review boards. Participants completed the survey instrument using Google Forms. The survey was sent out on social media (i.e., Facebook and Twitter) and the researcher's e-mail list of PETs during the winter of 2019. Researchers had no ability to identify participants. All participants provided informed consent in compliance with the universities review board. Participants were encouraged to forward the survey link to other PETs. At the end of the two-month

collection period data was analyzed using SPSS version 27 (IBM, 2020). Descriptive statistics, paired *t*-test, and one-way analysis of variance (ANOVA) were used to analyze demographic and individual response item data on the CTIS-PE instrument. All levels of significance were set with an alpha level at .05.

Inferential statistical analyses drew upon Pearson correlations to identify associations between the level of individual educational tools and the extent to which that educational tool was used. Additional post-hoc correlations were conducted between participants' learning environment and overall SE, the three elements of SE, overall technology training, overall technology use, and other demographic characteristics (age, experience, etc.).

Results

Descriptive Information on Participants

Participant ($N=83$) demographic data was collected for age, gender years teaching, race, and school placement. Age and number of years of teaching were normally distributed variables, with normal ranges of skew and kurtosis in normal ranges (George & Mallery, 2010, suggested a range -2 to 2 for both skew and kurtosis for normal ranges). See Table 1 for a full list of descriptive statistics.

The environment where participants learned to integrate technology varied, with professional development workshop and a colleague being the highest (see Table 1). Participants reported levels of training ($M=2.44$, $SD=0.65$) with technology as Untrained 19.5%, Trained 33%, Highly Trained 25.5%, and Expert 22.0%. Overall, participants fell between trained and highly trained with technology. Additionally, total technology training was a normally distributed variable, with skew of -0.02 and kurtosis of -1.03.

Participants' SE ($M=3.70$, $SD=0.94$) was a normally distributed variable, with a skewness value of -1.24 and a kurtosis value of 1.85. Participants' mastery experience ($M=4.06$, $SD=0.96$) was a slightly abnormal distributed variable, with skewness value of -1.50 and a kurtosis value of 2.60. Participants' vicarious experience ($M=3.87$, $SD=1.21$) was a slightly abnormal distributed variable, with skewness value of -1.81 and a kurtosis value of 3.52. Participants' social persuasion experience ($M=3.85$, $SD=1.33$) was a slightly abnormal

Table 1
Descriptive Characteristics of the Sample

Variable	<i>N</i>	Mean	<i>SD</i>
Age	83	42.94	10.21
Years teaching	83	16.48	9.90
Overall tech use	83	2.49	0.67
Gender			
Male	26	31.3%	
Female	57	68.7%	
Race			
Caucasian/White	75	90.4%	
Black/African American	1	1.2%	
Hispanic	6	7.2%	
Asian	1	1.2%	
Placement			
Elementary school	60	72.3%	
Middle school	25	30.1%	
High school	17	20.5%	
Tech Requirements (n=77)			
No requirements	52	62.7%	
Not required but encouraged	14	16.9%	
Required to use	11	13.3%	
Environment learned tech			
Professional development workshop	52	62.7%	
Colleague	36	43.4%	
College PE tech course	24	28.9%	
College tech course	21	25.3%	
Self-taught	22	26.5%	
Post-grad tech course	12	14.5%	
Social media/Twitter	6	7.2%	

distributed variable, with skewness value of -1.56 and a kurtosis value of 2.30.

Educational Technology Tools Perceived Levels of Training and Reported Use

Table 2 overviews descriptive statistics and bivariate correlations related to perceived levels of training and reported use of educational technology tools. Based on a 4-point, Likert-type response scale, results indicate that the educational technology tools participants

Table 2
Self-Efficacy Means & Standard Deviation for School Placement

	<u>Training</u>			<u>How Often Used</u>			<u>Correlation</u>	
	N	M	SD	N	M	SD	N	R
Educational Technology								
Fitness Equipment (treadmills, climbers, bikes)	83	2.31	0.84	83	1.54	0.96	83	.39*
Pedometers, accelerometers, etc.	83	2.51	0.84	83	2.46	1.25	83	.46*
iPads & Chromebooks	83	2.72	0.97	83	2.96	1.29	83	.61*
Computer applications (MS Word, PP, etc.)	81	3.11	0.85	83	3.36	1.33	81	.25**
GPS	83	2.07	0.89	83	1.48	0.79	83	.42*
Digital Video Camera	82	2.54	0.95	83	2.46	1.24	82	.45*
Exergames	83	2.20	0.91	83	2.11	1.02	83	.51*
HR Monitors	83	2.30	0.88	82	1.82	1.15	83	.43*
Phone Apps (e.g., Team Shake, Sworkit)	82	2.83	1.02	83	3.31	1.30	82	.60*
Music apps & services (Amazon Music, Spotify)	83	2.96	0.99	83	3.94	1.36	83	.57*
Projector	83	3.11	0.91	82	3.65	1.35	82	.34**
Overhead Projector	83	2.78	1.00	83	2.29	1.61	83	.36*
Plickers	83	2.27	1.12	83	2.14	1.34	83	.72*
Image editing apps (Adobe, Canva, Gifs)	82	2.03	0.99	82	2.12	1.18	82	.74*
Video Editing Apps (Coaches Eye, iMovie)	83	2.14	1.03	83	2.06	1.15	83	.59*

* $p < .001$

** $p < .05$

are the most trained on include “computer applications” ($M=3.11$, $SD=0.85$); “projector” ($M=3.11$, $SD=0.91$); and “music apps and services” ($M=2.96$, $SD=0.85$). Educational tools with the least perceived level of training are “image editing apps” ($M=2.03$, $SD=0.99$); “GPS” ($M=2.07$, $SD=0.89$); and “video editing apps” ($M=2.14$, $SD=1.03$). Based on a 5-point, Likert-type response (1-5), results indicate that the educational tools used the most include “music apps and services” ($M=3.94$, $SD=1.36$); “projector” ($M=3.65$, $SD=1.35$); and “computer applications” ($M=3.36$, $SD=1.33$). The tools used the least are GPS ($M=1.48$, $SD=0.79$), fitness equipment ($M=1.54$, $SD=0.96$), and heart rate monitors ($M=1.82$, $SD=1.15$).

The correlations in Table 2 indicate the degree to which PETs use of an educational technology tool aligns with that tool’s level of perceived training; each tool’s level of training and its overall use is statically significantly correlated to each other and most have a

Pearson-R value greater than .40. The largest correlations were for the level of training and reported use where “image editing apps” $r=.74, p<.001$; “Plickers” $r=.72, p<.001$; and “iPads & Chromebooks” $r=.61, p<.001$. The smallest correlations were found for the perceived level of training and reported use were “computer applications” $r=.25, p=.03$; “projector” $r=.34, p<.01$; and “overhead projector” $r=.36, p<.001$.

Relationships Among Sources of Self-Efficacy

Females and males were compared with independent samples *t*-test across SE, mastery experience, vicarious experiences, and social persuasion experiences with independent samples *t*-test. SE was the only variable with significant results ($t(81) = 1.97, p=.05$), with male’s SE ($n=26, M=3.99, SD=0.86$) higher than females’ SE ($n=57, M=3.56, SD=0.95$) by a magnitude of 0.43; equal variances could be assumed because Levene’s Test of variance was not significant ($p=.64$). No other demographics variables (e.g., age, school placement) produced significant correlations with SE or one another.

A one-way ANOVA with planned contrast was conducted to see the differences between SE and the level of technology integration that was required by their school or district (none, encouraged but not required, required). The omnibus ANOVA indicated no statically significant difference among the groups [$F_{(2,74)} = 2.23, p = .14$]. Equal variances could be assumed because Levene’s Test of variance was not significant ($p=.26$). Planned contrast revealed that participant SE who are not required to integrate technology ($M=3.57, SD=1.08$) were not statically significantly different from those who are encouraged ($M=3.95, SD=0.69$) and those who are required ($M=3.96, SD=0.64$) to use technology in their instruction ($t=1.60, p=.11, d=0.78$). One-way ANOVA was run to see if any statistically significant group differences in SE existed between placement (elementary, middle, high). The omnibus ANOVA indicated no statically significant difference among the groups [$F_{(2,80)} = 1.34, p = .26$].

Correlations were computed to identify the relationships between demographic factors, technology training, placement, and technology use with SE scores. Pearson correlations between SE and mastery experiences have a moderate positive relationship ($r=.48, p<.001$), which indicates that as participant’s mastery experiences go up their overall SE increases. SE and vicarious experiences have a small posi-

Table 3

Means, Standard Deviations, and Intercorrelations for Self-Efficacy, Sources, and Training

Measure	M	SD	1	2	3	4	5
1. SE	3.70	0.94	—				
2. Mastery	4.06	0.96	.48*	—			
3. Vicarious	3.87	1.21	.28**	.29**	—		
4. Social Persuasion	3.85	1.33	.28*	.57*	.32*	—	
5. Tech Training	2.44	0.65	.45*	.39*	.24*	.36**	—

* $p < .001$

** $p < .05$

tive relationship ($r = .28, p < .01$), which indicates that as participant's vicarious experiences go up their overall SE increases. SE and social persuasion experiences have a small positive relationship ($r = .28, p < .001$), which indicates that as social persuasion experiences go up their overall SE increases. SE and overall technology training have a moderate positive relationship ($r = .45, p < .001$). A non-significant relationship was found between SE and age ($r = -.16, p = .16$) and SE and number of years teaching ($r = -.12, p = .27$). Additionally, no significant relationship between SE and the environments that learned to use educational tools was found. Significant correlations to SE are presented in Table 3.

Discussion

Self-Efficacy and Sources

This study examined PETs self-efficacy in integrating educational technology ($M = 3.70$). This result is consistent with results from previous studies with in-service and PETE Faculty. Both Werner (2020) and O'Neil and Krause (2019) found identical levels of SE ($M = 3.7$) to integrate educational technology for in-service PETs. To note, O'Neil and Krause (2019) had five different self-efficacy subscales and the reported average represents all five items.

Interestingly, and similar to Krause (2017), in-service PETs in this study had lower levels of SE compared to pre-service teachers

at the beginning and after student teaching. This finding could indicate that PETE programs may be providing enough technology integration for their students. However, in-service teachers may be overwhelmed to keep up with learning new technologies, which is a similar finding in PETE faculty (O'Neil & Krause, 2019) and PETs (Hill & Garcia, 2020). Furthermore, pre-service PETs might have higher SE levels because PETE programs are required to include technology integration as part of their accreditation (SHAPE, 2017), whereas inservice PETs may have other perceived priorities. This is evident in the fact that only 11 participants in this study (out of 73) indicated that their school or district required them to use technology. While a non-significant difference of participants' SE whose district encourages or require technology integration was found, it did have a large effect size ($D=0.78$). Increasing sample size in future studies may help better identify how important it is for districts and schools to encourage technology integration. Besides increasing the sample size, future studies should examine what level of educational training is provided to PETs by their schools and districts. It could be that districts that encourage or require technology integration also provide more training for their teachers, which increases their SE and their likelihood to use educational technology.

Besides gender, no other demographic variables (age, years teaching, school placement) were significantly different or correlated to overall SE. The gender discrepancy should be taken lightly since females outnumbered men in this study more than two to one. Additionally, other studies that have had a more evenly representation of gender have not found this gender difference (Krause, 2017; O'Neil & Krause, 2019). With this in mind, Kretschmann (2015) did find some gender differences in PETs' attitude and beliefs in using and integrating educational technology. These differences may explain the gender difference in SE that was found in this study. Mastery experience was the highest correlated source of SE, which is also similar to other studies examining pre-service (Krause, 2017) and in-service PETs (Werner, 2020).

No specific ways of learning about technology produced significant differences. This result could indicate that PETs require some level of technology training during their PETE program, but it does not matter whether it is in a technology-specific course or integrated

throughout their program. This finding is similar to Woods et al. (2008) who found that in-service PETs learn to use educational technology in a variety of environments, with professional development workshops and conferences being the most prominent. Consequently, professional development workshops were not a significant factor of SE in this study. This finding could indicate that professional development workshops focusing on educational technology need to be of better quality.

Educational Technologies

The educational technologies that PETs' use will be influenced by their availability (Krause, 2017). Additionally, a teacher being highly competent in using an educational technology tool does not predict its use (Woods et al., 2008). It is not surprising that having positive attitudes and beliefs towards specific educational tools does not increase a PETs use of that tool (Gibbone et al., 2008; Kretschmann, 2015). This could help explain why in this study, the most competent and the most used technology (i.e., computer applications) had one of the lowest correlations ($r=.24$). Surprisingly, image editing apps and Plickers had a relatively low training and use level but the highest correlation (respectively, $r=.74$, $.72$). This indicates that participants who have higher levels of training use Plickers and image editing apps more often. It appears that in-service PETs in this study were able to incorporate these technologies into their teaching that they find meaningful in a way that doesn't take away from their goals. Additionally, these tools can indicate a focus for professional development as a high value to PETs. Conversely, lower correlations can indicate a need to provide better access to educational technology and provide more training. For instance, projectors were one of the most used and most trained educational tools but had one of the lowest correlations ($r=.34$). This could be because those that are highly trained with this tool just don't have access to a projector. Furthermore, because of the lower correlation, it can indicate that those who have access value its use regardless of their level of training. For this reason, future studies examining SE should include what level of access teachers have to each educational technology tool. Additionally, this is important to include because this study found varied results in what educational tools are used most often

when compared to past research on PETs (Krause, 2017; Werner, 2020).

Conclusion

This study highlights that in-service PETs need professional development provided on a continual basis to integrate educational technology. In-service PETs may graduate with a high level of SE but need professional development to continue staying up to date with new educational technologies. Furthermore, professional development efforts should focus on technology tools that PETs value and use the most. With this in mind, these sessions should try to maximize participants' hands-on mastery-type experiences. In this study, mastery experiences were almost two times higher in explaining overall technology SE than vicarious and social persuasion experiences. Professional development workshops in this study did not correlate to overall self-efficacy, which could indicate they were more sit-n-get type experiences (vicarious). While vicarious experiences do have some value in improving technology SE, this type of training may not be the best use of time and resources, especially considering that hands-on experiences are what PETs typically want the most (Baek et al., 2018).

Another option to provide more mastery-type experiences is schools and districts staffing a technology coach or specialist who is responsible for training and assisting technology integration. This trend was captured recently by Hill and Garcia (2020). Recently, these edtech coaches were identified as a positive influence in helping teachers transition to remote instruction during the COVID-19 pandemic (Bakhshaei et al., 2020). Future research could look at the role an EdTech coach has on PETs' SE.

Another area to examine is conducting this study with a larger sample that represents diverse geographical areas. Unfortunately, this study did not capture the actual educational technology use rates. Future studies should consider the integration of fieldwork and observations to more completely document the extent to which participants' educational technology integration SE aligns to their actual use. With this in mind, it could be helpful to examine the effects of professional development sessions focused on technology integration has on influencing PETs' SE and use.

This study has many limitations. The participants that completed the survey may have been more willing because they are more confident and interested in technology. Second, this study had a small sample size from unknown geographic areas, which makes the generalizability of the results difficult. Lastly, this study used self-reporting measures, which come with their own sets of concerns; participants might have been answering the more socially acceptable answer than being truthful; participants may not be able to assess themselves accurately.

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YOU AND THE LAW

Negligent Supervision in Sport

Tippecanoe School Corporation v. Reynolds & Reynolds

Court of Appeals of Indiana Case No. 21A-CT-1482

187 N.E. 3d 213 (2022)

Thomas H. Sawyer and Tonya L. Sawyer

Introduction

According to the court record, Isabella Reynolds (Plaintiff), a cheerleader, was injured when she struck the gymnasium's hardwood floor while the high-school cheerleading team was practicing a routine. The plaintiff brought a negligence action against the county school corporation, alleging that the corporation carelessly and negligently failed to inspect and discover a dangerous/hazardous condition and/or activity (*Tippecanoe School Corporation v. Reynolds & Reynolds*, 2022).

Complaint

The Court documents indicate Plaintiff fell while performing a cheerleading routine for William Henry Harrison High School (Harrison High School) in early 2019. As a result of the fall, the Plaintiff suffered extensive injuries to her face and mouth. Harrison High School is part of the Tippecanoe School Corporation. In the

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fall of 2019, Plaintiff filed a negligence claim against Tippecanoe School Corporation, “claiming that the corporation carelessly and negligently failed to (a) inspect and discover a dangerous/hazardous condition and/or activity that existed, (b) warn the Plaintiff of the dangerous condition and/or activity that existed, (c) provide proper supervision, and (d) correct the dangerous condition and/or activity hazard that existed”(Id. at 214).

Background

Plaintiff was a “flyer” on the Harrison High School junior varsity cheerleading squad at the time of her accident. A flyer is considered a cheerleader lift or a cheerleader being thrown into the air during a cheerleading routine. “The trial record further indicates Reynolds, who had been a flyer since seventh grade, knew the skills required of the position and understood that being accidentally dropped by her fellow cheerleaders was one of the risks associated with being a flyer in the sport of cheerleading” (Id. at 216).

The trial record shows that in January 2019, Harrison High School’s head varsity cheerleading coach, Roberta Patton, asked Plaintiff to cheer with the varsity squad at an upcoming basketball game because the normal flyer was unavailable (Id.). Reynolds replied that she would “love to” and attended the varsity practice the night before the game (Id. at 217). During practice the night before the game, the Plaintiff performed the routine several times while using protective mats to cover the floor. “Protective mats are utilized to practice and learn new skills, but once a routine is game-ready, the mats are not used for warm-ups or games. Plaintiff had also performed the routine multiple times prior to her practice with the varsity team and completed the routine at the varsity’s practice flawlessly and perfectly several times. As a result, Patton determined that the squad, including Plaintiff, was game ready” (Id. at 218).

The court record describes that a specific part of the routine requires Reynolds to be hoisted in the air and lowered back to the ground. When the team was completing its run-through of the routine, Reynolds’ teammates failed to lower her to the ground, and she was dropped onto the gymnasium’s bare hardwood floor. “As a result of the fall, Reynolds broke most of her teeth and her jaw. She required emergency surgery and extensive follow-up and rehabilitation” (Id. at 220).

Two cheerleading coaches from other teams explained that they would have conducted the warm-up differently. Plaintiffs' teammates made mistakes, and Patton made coaching errors regarding technique, the use of additional safety mechanisms, and the extent to which she supervised Reynolds specifically.

However, neither coach indicated that the type of routine performed was out of the ordinary for the sport of cheerleading. Although the extent of the injury was not expected, falls and head injuries are a common concern. Patton indicated that head injuries due to falls are always a fear in cheerleading and said that in the previous year, multiple cheerleaders suffered concussions due to falling during either a practice or game. Further, Reynolds testified that the biggest danger associated with being a flyer is "concussions mostly because people drop other girls" (Id. at 220).

Negligent Supervision in Sport

The Pfenning Rule

According to the Pfenning Rule, "to prevail on a claim of negligence a plaintiff must show: (1) the defendant owed a duty to the plaintiff, (2) the defendant breached that duty, and (3) the defendant's breach proximately caused a compensable injury" (*Matter of C.G.*, 157 N.E.3d 543, 546, Ind. Ct. App. 2020). Under the doctrine of respondeat superior, an employer is liable for a coach's negligent acts where those acts occurred within the scope of employment (Id.). Here, they agreed in their dismissal stipulation that Patton acted in the course and scope of her employment as head varsity cheerleading coach at the time of the Plaintiffs' injury (*Tippecanoe*, 2022).

Whether a defendant breached a duty is typically a question of fact for the jury. However, in *Pfenning v. Lineman*, 947 N.E.2d 392 (Ind. 2011), the Indiana Supreme Court established a limited new rule regarding negligence claims "arising from ordinary sports activity" (Id. at 403). "As a matter of law, when a sports participant injures someone while engaging in conduct ordinary in the sport—and without intent or recklessness—the participant does not breach

a duty” (Id. at 404). “Under *Pfenning* ordinary conduct in the sport turns on the sport generally—not the specific activity” (Id. at 405).

In this case, the issue is whether Patton’s cheerleading routine, which Patton had the Plaintiff and her teammates perform, was ordinary for the sport of cheerleading. Whether negligent supervision is a separate cause of action capable of escaping a *Pfenning* analysis is also an issue.

Holding

The Court of Appeals held that: “a cheer routine that led to the cheerleader’s injuries was ordinary in the sport of cheerleading, and thus corporation did not breach a duty of care, and negligent supervision is not a separate cause of action capable of eluding rule that a sports participant who injures someone while engaged in conduct ordinary in the sport, and without intent or recklessness, does not breach a duty of care. Reversed and remanded” (*Tippecanoe*, 2024).

Risk Management Discussion

Most courts view supervision as an important and essential legal duty for coaches and sports administrators. However, many times, this duty is given the least amount of attention by the sports professional. It is important to document what one does to supervise programs, personnel, participants, spectators, and others. The supervisor must be able to document and show concern for the program(s) and people and have a reasonable supervision plan; the courts will look more favorably upon the supervisor as one who cares for the well-being and safety of the program(s) and the people involved.

Supervision is a learned skill. Negligent supervision is also learned through a lack of proper education, no education, or “bad” role models. Supervisors must be trained to supervise properly. The novice supervisor must be assigned to a veteran to work with and oversee them for a few weeks or months. The organization or program must have a developed written procedure for the supervision of all personnel. There must be an in-service education guideline and a supervisory plan. As the guidelines and plan are developed, the following aspects must be considered:

- What should the supervisor look for,

- What should the supervisor listen for,
- Where should the supervisor stand,
- How should the supervisor move around,
- What should the supervisor do if a problem arises,
- Identify all potential dangerous/harmful activities,
- How close should the supervisor be to the activity,
- Understand the warning signs of impending trouble during an activity,
- Establish a “stop signal” that can be used when the supervisor must immediately suspend activity,
- Develop a detailed job description including qualifications (e.g., education, certification(s), experience, and references), and
- Provide ongoing education and training for supervisors to meet industry standards and certifications within the sport and activity.

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Tippecanoe School Corporation v. Reynolds & Reynolds, 187 N.E.3d 213 (Ind. Ct. App. 2022).
Matter of C.G., 157 N.E.3d 543 (Ind. Ct. App. 2020).
Pfenning v. Lineman, 947 N.E.2d 392 (Ind. 2011).

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