Motivating High School Students in a Blended Physical Education Learning Environment: A Self-Determination Theory Analysis

Soyini Chism
wini1971@gmail.com

Follow this and additional works at: https://huskiecommons.lib.niu.edu/allgraduate-thesesdissertations

Recommended Citation
ABSTRACT

MOTIVATING HIGH SCHOOL STUDENTS IN A BLENDED PHYSICAL EDUCATION LEARNING ENVIRONMENT: A SELF-DETERMINATION THEORY ANALYSIS

Soyini Afi Chism, Ed.D.
Department of Curriculum and Instruction
Northern Illinois University, 2020
Elizabeth A. Wilkins, Chair

This qualitative case study examines the impact an autonomous-supportive/competence-satisfying learning environment has on the motivation of blended physical education (BPE) students. The goal of this study was to highlight the lived experiences of BPE students in order to gain an in-depth understanding of how pedagogical practices promote or demote student motivation in a physically active learning environment. The participants included 20 eleventh- and twelfth-grade students enrolled in BPE at Central High School. The study took place during the 2019-2020 school year. Data analysis included the triangulation of three data sources: focus group discussions, semi-structured interviews, and vlogging. Six themes emerged from the analysis of student interviews: Class Schedule, Technology, Responsibility, Autonomy, Motivation, and Competence. The most important pedagogical implication of this study was the inclusion of the six themes when designing a BPE curriculum. The findings of this study reveal that motivation is an element in all six themes and is enhanced when pedagogical practices reinforce autonomy support and feelings of competence.
MOTIVATING HIGH SCHOOL STUDENTS IN A BLENDED PHYSICAL EDUCATION LEARNING ENVIRONMENT: A SELF-DETERMINATION THEORY ANALYSIS

BY

SOYINI AFI CHISM
©2020 Soyini Afi Chism

A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF EDUCATION

DEPARTMENT OF CURRICULUM AND INSTRUCTION

Doctoral Director:
Elizabeth A. Wilkins
ACKNOWLEDGEMENTS

The encouragement, support, insight, and love that I received throughout this journey was resolute and deeply appreciated. A special thanks goes out to my dissertation chair, Dr. Elizabeth Wilkins. I do not know how I would have navigated this program without you. I cannot thank you enough for your guidance, support, devotion, and unwavering encouragement. We will continue to do great things together. I would also like to thank my committee members Dr. Steven Tonks and Dr. James Ressler. Dr. Tonks’ expertise in student motivation inspired my decision to frame this research in the realm of motivation, and Dr. Ressler’s content knowledge in physical education is renowned and was considerably important to my research. I am abundantly grateful to Dr. MaryBeth Henning for a light conversation that we had in the beginning of this program. Your words eased so much of the anxiety and doubt that I carried for seven years prior to starting this program. I would also like to give a heartfelt thank you to Gail Jacky from the NIU Writing Center. You are a master at your craft, and I am eternally grateful for your expertise.

Second, I would like to thank individuals from my undergraduate and graduate years at Northern Illinois University. Thank you to my dear friend, Lisa King, for being the smartest, coolest, and the most insightful and honest person I know. You have literally been in my corner since the first day. Thank you to Dr. E. Constance Fox for embracing me as a child and holding tight as I evolved. Thank you to Janet Ainsworth for always being a most genuine friend, mentor, and supporter. I would also like to thank my dear friend Dr. Charles Carter for every
dance we have danced. I cherish your love and support, your wit and humor, and your intellect and guidance. Last, I would like to thank Larry and Cecelia Bolles for being the best and most supportive team parents, then and now.

Next, I would like to thank my Central family. Thank you to Dr. Karla Guseman for your inspiration and for being an outstanding leader, especially during the COVID-19 pandemic. Thank you to Dr. Iman Ellis-Bowen for your real conversations about this journey, and the laughs that accompanied those conversations. Thank you to Angel Hauert and the Central physical education staff for your support, encouragement, and laughs. Thank you to my beautiful BPE students for your spirit, your candor, and for consistently making me smile. I would also like to thank Dr. Janel Grzetich for your support, your tips, and your encouragement.

There are not enough words in existence to express how much I appreciate and love my family and friends for their support, patience, and understanding. First, to my mother, Debra Chism-Davis, you are my rock and my absolute inspiration. Your strength is my strength and I could not have conquered this without you. Your resilience, perseverance, and tenacity as a single mom permeated my soul and made me the independent, driven woman that I have become. I love you. To my brothers, Adumila and Malcolm, thank you for motivating me and being motivated by me. To Katreal, I thank you for your love and laughter and for bragging about me long before I finished. To Phala and Rhana, I thank you for a lifetime of love and support. To Niaja, watching your education evolve has been incredibly exhilarating. Your strength and independence and your desire to conquer the world is inspiring. You are definitely a chip off the old cousin block! To all the cousins, my journey is only worth it if you are inspired. Finally, to the crew—Tennea, Stenesha, Seantel, Kristen, and Nicole—there is no me
without you. You all are five of the most pivotal people in my world. We have been through so much and I am so grateful to exist with you all.

I am often asked, “Soyini, why are you pursuing a doctoral degree?” As an educator, most think that I desire an administrative position, but the thought of being locked in a square box taking phone calls and planning meetings makes me want to jump off the nearest cliff. I do recognize and appreciate the importance of administrative positions; these types of positions are just not for me. I love being in the trenches with my students. My purpose for pursuing this degree is to pay homage to the tribe of Black leaders, and ordinary citizens, whose unrelenting bravery and tenacious regard for the equal rights for ALL people, paved the way for me to extend my education to the highest level. Thank you Nat Turner, Denmark Vessy, Crispus Attucks, Maria Stewart, Mary Prince, Sarah Mapp Douglas, Harriet Tubman, Frances Harper, Sojourner Truth, the Tuskegee Airmen, W.E.B. DuBois, Barbara Jordan, Nelson Mandela, Frederick Douglas, Booker T. Washington, Gwendolyn Brooks, George Washington Carver, Rosa Parks, James Baldwin, Dr. Martin Luther King, Jr., Ruby Bridges, John Lewis, Cornel West, Michelle and Barack Obama, Dick Gregory, Malcolm X, Maya Angelou, Medgar Evers, Coretta Scott King, Ida B. Wells, Thurgood Marshall, Stokely Carmichael, Septima Poinsette Clark, Angela Davis, Dorothy Height, etc, etc, etc.; there are just not enough pages. Your resilience, your sacrifice, your bravery, and your resolute charge for equal rights has permeated my spirit for many years and gave me the strength to start and finish this endeavor. Thank you with much love.
DEDICATION

In loving memory of Walter Patterson.

When I hear your words in my subconscious, “Girl, you alright with me,” I find purpose. You have walked this journey with me. Granddad, I miss you and love you.
TABLE OF CONTENT

LIST OF TABLES ......................................................................................................................................... xi
LIST OF FIGURES ....................................................................................................................................... xii
LIST OF APPENDICES .................................................................................................................................. xiii

Chapter

1. INTRODUCTION ....................................................................................................................................... 1
   Introduction ............................................................................................................................................... 1
   Technology Standards for Education ........................................................................................................... 2
   Blended Learning ....................................................................................................................................... 4
   Motivation .................................................................................................................................................. 6
   Theoretical Framework ............................................................................................................................... 8
   Problem Statement ..................................................................................................................................... 10
   Purpose Statement and Research Questions ............................................................................................... 13
   Significance of the Study ............................................................................................................................. 13
   Definitions of Terms .................................................................................................................................. 14
   Methodology .............................................................................................................................................. 15
   Organization of the Study ............................................................................................................................ 16

2. REVIEW OF LITERATURE ...................................................................................................................... 17
   Organizational Framework of the Review of Literature ........................................................................... 17
   Human Motivation ..................................................................................................................................... 17
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>21</td>
</tr>
<tr>
<td>Relatedness</td>
<td>22</td>
</tr>
<tr>
<td>Intrinsic and Extrinsic Motivation</td>
<td>23</td>
</tr>
<tr>
<td>Cognitive Evaluation Theory</td>
<td>27</td>
</tr>
<tr>
<td>Perceived Locus of Causality</td>
<td>28</td>
</tr>
<tr>
<td>Perceived Competence</td>
<td>30</td>
</tr>
<tr>
<td>Student Empowerment</td>
<td>31</td>
</tr>
<tr>
<td>Blended Learning</td>
<td>32</td>
</tr>
<tr>
<td>Limited History</td>
<td>36</td>
</tr>
<tr>
<td>Blended Learning Modalities</td>
<td>37</td>
</tr>
<tr>
<td>Learner Characteristics in a Blended Learning Environment</td>
<td>39</td>
</tr>
<tr>
<td>Blended Learning in Physical Education</td>
<td>40</td>
</tr>
<tr>
<td>Traditional Physical Education</td>
<td>41</td>
</tr>
<tr>
<td>Blended Physical Education</td>
<td>44</td>
</tr>
<tr>
<td>CET and Physical Education</td>
<td>46</td>
</tr>
<tr>
<td>CET and Blended Physical Education</td>
<td>48</td>
</tr>
<tr>
<td>Summary</td>
<td>50</td>
</tr>
<tr>
<td>3. METHODOLOGY</td>
<td>52</td>
</tr>
<tr>
<td>Introduction</td>
<td>52</td>
</tr>
<tr>
<td>Qualitative Research Design</td>
<td>52</td>
</tr>
<tr>
<td>Research Positionality</td>
<td>54</td>
</tr>
<tr>
<td>Description of the CHS Community</td>
<td>56</td>
</tr>
<tr>
<td>Chapter</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>BPE at CHS</td>
<td>58</td>
</tr>
<tr>
<td>Participants and Consent</td>
<td>59</td>
</tr>
<tr>
<td>Data Collection</td>
<td>61</td>
</tr>
<tr>
<td>Focus Group Discussions</td>
<td>64</td>
</tr>
<tr>
<td>Justification</td>
<td>65</td>
</tr>
<tr>
<td>Process</td>
<td>67</td>
</tr>
<tr>
<td>Semi-Structured Interviews</td>
<td>68</td>
</tr>
<tr>
<td>Justification</td>
<td>70</td>
</tr>
<tr>
<td>Process</td>
<td>71</td>
</tr>
<tr>
<td>Vlogging</td>
<td>72</td>
</tr>
<tr>
<td>Justification</td>
<td>74</td>
</tr>
<tr>
<td>Process</td>
<td>75</td>
</tr>
<tr>
<td>Alignment to Research</td>
<td>75</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>76</td>
</tr>
<tr>
<td>Triangulation</td>
<td>77</td>
</tr>
<tr>
<td>Coding</td>
<td>78</td>
</tr>
<tr>
<td>Primary Data Analysis</td>
<td>81</td>
</tr>
<tr>
<td>Conclusion</td>
<td>83</td>
</tr>
<tr>
<td>4. FINDINGS</td>
<td>84</td>
</tr>
<tr>
<td>Introduction</td>
<td>84</td>
</tr>
<tr>
<td>BPE Themes</td>
<td>84</td>
</tr>
<tr>
<td>Themes 1 and 2: Class Schedule and Technology</td>
<td>85</td>
</tr>
<tr>
<td>Chapter</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>Themes 3: Responsibility</td>
<td>91</td>
</tr>
<tr>
<td>Theme 4: Autonomy</td>
<td>95</td>
</tr>
<tr>
<td>Theme 5: Motivation</td>
<td>97</td>
</tr>
<tr>
<td>Theme 6: Competence</td>
<td>104</td>
</tr>
<tr>
<td>Summary</td>
<td>109</td>
</tr>
<tr>
<td>5. DISCUSSION</td>
<td>110</td>
</tr>
<tr>
<td>Introduction</td>
<td>110</td>
</tr>
<tr>
<td>Summary of Findings</td>
<td>111</td>
</tr>
<tr>
<td>Discussion</td>
<td>112</td>
</tr>
<tr>
<td>BPE Themes</td>
<td>112</td>
</tr>
<tr>
<td>Research Question 1</td>
<td>114</td>
</tr>
<tr>
<td>Motivation Interconnections for Each Qualitative Method</td>
<td>116</td>
</tr>
<tr>
<td>Research Question 2</td>
<td>117</td>
</tr>
<tr>
<td>Autonomy Interconnections for Each Qualitative Method</td>
<td>119</td>
</tr>
<tr>
<td>Research Question 3</td>
<td>120</td>
</tr>
<tr>
<td>Competence Interconnections for Each Qualitative Method</td>
<td>122</td>
</tr>
<tr>
<td>Implications</td>
<td>123</td>
</tr>
<tr>
<td>Pedagogical Implications</td>
<td>124</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>128</td>
</tr>
<tr>
<td>Future Research</td>
<td>129</td>
</tr>
<tr>
<td>Conclusion</td>
<td>131</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>132</td>
</tr>
</tbody>
</table>
APPENDICES ................................................................................................................................. 132
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demographic Makeup of Midwest Central High School for the 2019-2020 School Year</td>
<td>56</td>
</tr>
<tr>
<td>2. Individual Students’ Demographic Information, Including Pseudonyms</td>
<td>61</td>
</tr>
<tr>
<td>3. Autonomy and Competence Satisfaction Items for Physical Education</td>
<td>63</td>
</tr>
<tr>
<td>4. Examples of Vlogging Discussion Topics Constructed from BPNSFPES</td>
<td>65</td>
</tr>
<tr>
<td>6. Focus Groups</td>
<td>68</td>
</tr>
<tr>
<td>7. Examples of Semi-Structured Interview Questions Constructed from BPNSFPES</td>
<td>70</td>
</tr>
<tr>
<td>8. Examples of Vlogging Discussion Topics Constructed from BPNSFPES</td>
<td>73</td>
</tr>
<tr>
<td>9. Research Question Alignment to Data Collection Strategies</td>
<td>76</td>
</tr>
<tr>
<td>10. Comment Count for Research Questions for All Three Instruments</td>
<td>82</td>
</tr>
<tr>
<td>11. Comment Count for Each Qualitative Tool</td>
<td>83</td>
</tr>
<tr>
<td>12. Key Words, Phrases, and Concepts—Class Schedule and Technology</td>
<td>85</td>
</tr>
<tr>
<td>13. Key Words, Phrases, and Concepts—Responsibility</td>
<td>91</td>
</tr>
<tr>
<td>14. Key Words, Phrases, and Concepts—Autonomy</td>
<td>95</td>
</tr>
<tr>
<td>15. Key Words, Phrases, and Concepts—Motivation</td>
<td>98</td>
</tr>
<tr>
<td>16. Key Words, Phrases, and Concepts—Competence</td>
<td>104</td>
</tr>
<tr>
<td>17. Types of Exercise Routines They Like and Why</td>
<td>108</td>
</tr>
<tr>
<td>18. Types of Exercise Routines They Dislike and Why</td>
<td>108</td>
</tr>
<tr>
<td>19. BPE Pedagogical Recommendations</td>
<td>128</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CET theoretical framework in BPE.</td>
<td>10</td>
</tr>
<tr>
<td>2. Graphic summary of the continuum of motivation behavior</td>
<td>26</td>
</tr>
<tr>
<td>3. Blended learning models</td>
<td>35</td>
</tr>
<tr>
<td>4. SHAPE’s national standards for K-12 PE</td>
<td>43</td>
</tr>
<tr>
<td>5. Open coding for the sub-question “What does blended PE mean to you?”</td>
<td>79</td>
</tr>
<tr>
<td>6. Axial coding for the sub-question “What does blended PE mean to you?”</td>
<td>80</td>
</tr>
<tr>
<td>7. Example of tally sheet for student comments</td>
<td>82</td>
</tr>
<tr>
<td>8. Six themes of BPE</td>
<td>111</td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. KEY POINTS FOR TECHNOLOGY STANDARDS IN EDUCATION</td>
<td>149</td>
</tr>
<tr>
<td>B. NORTHERN ILLINOIS UNIVERSITY: CONSENT TO PARTICIPATE IN A RESEARCH STUDY</td>
<td>155</td>
</tr>
<tr>
<td>C. NORTHERN ILLINOIS UNIVERSITY: ASSENT TO PARTICIPATE IN A RESEARCH STUDY</td>
<td>159</td>
</tr>
<tr>
<td>D. BASIC PSYCHOLOGICAL NEED SATISFACTION AND FRUSTRATION SCALE FOR PHYSICAL EDUCATION</td>
<td>163</td>
</tr>
<tr>
<td>E. INTERVIEW GUIDE</td>
<td>167</td>
</tr>
<tr>
<td>F. SELECTIVE CODING WITH THEME CONNECTIONS</td>
<td>172</td>
</tr>
<tr>
<td>G. QUALITATIVE DATA SUMMARY FOR EACH QUALITATIVE TOOL</td>
<td>175</td>
</tr>
<tr>
<td>H. SUPPLEMENTAL FILES</td>
<td>179</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

Introduction

The evolution of technology in the classroom has progressed considerably since the opening of Boston Latin School in 1635, America’s first public school. From the hornbook to the Kindle, from the chalk board to the interactive whiteboard, from lead pencils to smart pens, from the card catalog to digital catalogs, from conducting research in a library to researching with platforms such as Google Scholar while patronizing the local coffee shop, and from storing notes and resources in a file cabinet to cloud technology, educating the world’s citizenry has taken giant technological strides since the 17th century. In recent decades, access to the internet has grown exponentially and has transformed traditional modes of communication and information gathering into always-connected access on a global scale. In 1992, the integration of information and communication technology (ICT) emerged as “a mode of teaching and learning that not only increases students’ motivation and deepens understanding of the subject matter but also promotes collaborative and lifelong learning” (Mtebe & Raphael, 2018, p. 163). The ICT process includes the collection, processing, storing, and transmission of information through electronic sources like computers, telecommunications (e.g., telephone lines and wireless networks), and personal hardware (e.g., mobile phones, MP3 players, and personal devices) (Arseven, Orhan, & Arseven, 2019; Elen et. al, 2010; Tamilselvan, Sivakumar, & Sevukan, 2012).
With advancements in ICT, educators and school administrators are realizing that the education of 21st century students must transition away from traditional instructional models by including modalities that foster a digitally connected learning environment. In fact, research (Bell, 2016; Christensen, Horn, & Staker, 2013; Horn, 2010; Sheninger, 2015; Staker & Horn, 2012) has indicated that 21st century students, what Prensky (2001) considers “digital natives” (p. 1), may be hindered by a singular traditional learning structure and must include holistic student-centered engagement in educational experiences.

An organization that has led the charge for 21st century learning since 2002 is the Partnership for 21st Century Learning. By putting 21st century skills—learning and innovation skills, information, media and technology skills, and life and career skills—at the center of learning, the P21 framework is designed to ensure student success in a “globally and digitally interconnected world” where access to learning is always available (Partnership for 21st, 2019, p. 2). The P21 framework supports the integration of ICT within a student-centered approach for 21st century skill development for grades K-12.

Technology Standards for Education

The rapid influx of digital technology into our daily lives has permeated school systems, and as K-12 education adopts ICT in the classroom, professional and curricular decisions concerning technology are guided by a selection of international, national, and state standards. Here, I introduce two international organizations (one national organization and one state organization) that have drafted educational standards for the inclusion of technology in the classroom. The International Society for Technology in Education (ISTE) has designed digital learning standards for education leaders, educators, students, and coaches. The standards are
designed to apply strategies for the transformational use of technology in the advancement of teaching and learning practices. The International Association for K-12 Online Learning (iNACOL) has gone further to create a framework that encourages transformative personalized learning in both online and blended learning environments. Its framework for teacher proficiency in blended learning includes 12 specific competencies housed in four domains: mindset, qualities, adaptive skills, and technical skills (Powell, Rabbitt, & Kennedy, 2014). Powell and colleagues connected the foundation of blended learning to the effective competencies of traditional learning, including setting high expectations in a supportive environment, recognizing the importance of competency-based learning, and valuing the diverse learning skills of students.

Many state boards of education and local school districts frame their physical education (PE) in Society of Health and Physical Educators (SHAPE) America’s national standards. These standards state that a physically literate individual demonstrates competency in motor skills, applies knowledge to movement, maintains health-enhancing physical fitness, exhibits responsible personal and social behavior, and recognizes the value of physical fitness (Mitchell & Walton-Fisette, 2016). In 2017, Physical Education Teacher Education (PETE), a faction of SHAPE America, updated its National Standards for Initial Physical Education Teacher Education to include a section on planning and implementing learning experiences that align with learning standards. PETE Standard 3.e encourages preservice teachers to include technology in meeting planned objectives in PE. Technology in the PE classroom can enhance student engagement and can lead to physical literacy (Yu, Kulinna, & Lorenz, 2018). Finally, the Illinois State Board of Education updated the Illinois Learning Standards in 1997 to include technology as an independent standard and as a component of existing standards, including PE.
All of the aforementioned organizations and the key points of their standards are listed in Appendix A.

The previously mentioned organizations have acknowledged the value of developing 21st century ICT skills in both educators and students. The standards outlined by each organization share a common thread: students in all curricular areas can benefit from ICT skills and the use of technology. Regarding physical fitness, technology runs the gamut from fitness trackers to pedometers, heart rate monitors, fitness applications, smart phone technology, smart TV technology, smart scales, smart home gym equipment, etc. Common learning experiences in PE that include technology are the use of pedometers to track steps, heart rate monitors to capture heart rate data while performing fitness activities, fitness trackers and smart watches to gather a variety of data (e.g., heart rate, steps, calories burned, floors climbed, sleep patterns, oxygen levels, blood pressure, distance, specific workouts, etc.), fitness applications to track and store fitness data, video and information streaming platforms to model fitness choices, and social media to inspire continued participation in physical fitness outside of school. The online portion of the blended learning teaching model encapsulates the use of many available technologies, including those mentioned above. In the next section, I define and describe blended learning and introduce blended physical education (BPE). A deeper analysis of the blended learning teaching model will take place in Chapter 2.

**Blended Learning**

To accommodate the technology-driven digital natives, school administrators and educators are now putting into practice e-learning and blended learning teaching models. An e-learning platform utilizes electronic technologies to guide learning opportunities outside of the
traditional classroom, whereas blended learning is an educational approach that combines a face-to-face traditional classroom with an e-learning platform (Balentyne & Varga, 2017; Christensen, Horn, & Staker, 2013; Staker & Horn, 2012). Christensen and colleagues (2013) and Guzer and Caner (2014) went further to claim that blended learning merges the best elements of traditional learning with those of online learning, while Giannousi, Vernadakis, Derri, Antoniou, and Kioumourtzoglou (2014) noted that the coexistence of traditional learning and online learning in a blended environment is harmoniously interdependent. As blended learning was gaining popularity in education throughout the world, Nazarenko (2015) took comfort in knowing that, while introducing innovative technologies, the model preserves traditional learning “shaped by centuries of pedagogical experiences” (p. 77).

BPE is the combination of traditional classroom instruction and the use of innovative technologies to encourage student ownership of fitness inside and outside of the PE setting (Bachman & Scherer, 2015; Giannousi et al., 2014). In their study, Vernadakis, Giannousi, Tsitskari, Antoniou, and Kioumourtzoglou (2012) pointed out that when supplementing traditional learning with online formats, students experienced increased interest, welcomed the inherent flexibility, and appreciated multiple delivery modalities that accommodated diverse learning styles. Daum and Buschner (2014) noted that students in BPE environments are motivated by emerging technologies and thrive cognitively, but are hindered in the development of motor and sports skills (i.e., hopping, skipping, throwing, and catching) and thus, BPE may not be ideal for elementary-aged students. In a comprehensive assessment of a blended physical activity classroom, Bachman and Scherer (2015) concluded that when students embrace autonomy, their sense of competence and intrinsic motivation are enhanced, elevating feelings of support and a willingness to continue engaging in physical activities.
Fundamental to the operation of a BPE program is the ability to monitor and track one’s fitness data. Fitness trackers and smart watches are loaded with data collection software that can sync with computers or smart phone applications to collect fitness data long-term. Ridgers, McNarry, and Mackintosh (2016) considered fitness trackers effective tools for self-monitoring, resulting in behavioral changes that may increase physical activity levels. As Ridgers et al. stress, self-assessment is fundamental to increased awareness of physical activity levels and the features inherent in fitness trackers enable the owner to continually monitor their progress when training. Closely aligned to Ridgers et al.’s assessment, Bohm, Karwiese, Bohm and Oberhoffer (2019) suggested that the self-monitoring feature of wearable activity trackers could potentially increase the physical activity levels of youth. Both of these researchers agree that fitness wearables have the potential to address the physical inactivity pandemic affecting youth worldwide. In their study, Rupp, Michaelis, McConnell, and Smither (2016) examined the impact that wearable fitness devices had on self-determined motivation. They found a strong correlation between autonomy and competence when using a fitness tracker and increased motivation. Broadly speaking, when physical fitness technologies include a layer of autonomous execution, there can be an increase in intrinsic motivation and a promotion of physical activity in general (Butler-Wall, 2015). The following section will delve further into motivation and the role it plays in BPE.

Motivation

Motivation has been the focus of much research across many disciplines, including education (Alkaabi, Alkaabi, & Vyver, 2017). Irvine (2018) described motivation in education as a meta-concept that encompasses a considerable number of pedagogically significant
theoretical constructs such as expectancy-value theory and intrinsic/extrinsic motivation theories, as well as several related theories: self-efficacy, goal theory, theories of intelligence, choice theory, self-determination theory, and flow. Hartnett (2012) linked motivation to cognitive and affective development when “thoughts, belief, [and] goals” (p. 439) are emphasized in the learning environment. Sucaromana (2013) made the case that a critical aspect of acquiring and retaining knowledge is motivation, as it “defines the extent of a student’s involvement in learning, originating with his/her wish to achieve a goal and the effort he/she is willing to put forth to achieve it” (p. 142).

Deci and Ryan’s (1985, 2004, 2008) and Ryan and Deci’s (2000, 2017) self-determination theory (SDT) identified three main types of motivation: intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation is behavior driven by internal forces and may lead to positive learning outcomes (Chen & Jang, 2010; Deci & Ryan, 2004, Ryan & Deci, 2000, 2017; Saeed & Zyngier, 2012; Vallerand & Ratelle, 2004). Extrinsic motivation is behavior driven by a separable outcome and may also lead to a desired outcome (Chen & Jang, 2010; Deci & Ryan, 2004, Ryan & Deci, 2000, 2017; Saeed & Zyngier, 2012; Vallerand & Ratelle, 2004). Chen and Jang (2010) defined amotivation as “the state of lacking the intention to act” (p. 742) that may lead to negative outcomes (Deci & Ryan, 2004; Ryan & Deci, 2000, 2017). Intrinsic motivation, extrinsic motivation, and amotivation form a continuum from non-self-determined to self-determined (Ryan & Deci, 2000a). The far left of the continuum is represented by behaviors that lack intention (amotivational behaviors). Extrinsic motivation falls in the middle of the continuum and includes, from least autonomous to most autonomous, external regulation, introjected regulation, identified regulation, and integrated regulation.
Intrinsic motivation represents self-determined behaviors, which is found at the far right of the continuum. These concepts are discussed in detail in Chapter 2.

Fundamental to the SDT framework, Deci and Ryan (2000) identified autonomy, competence, and relatedness as innate psychological needs essential to human development. According to Deci and Ryan, the need for autonomy is one’s need to experience volition, the need for competence is one’s need to experience mastery, and the need for relatedness is one’s need to feel connected to others in a social setting. In education, the satisfaction of the needs for autonomy, competence, and relatedness is influenced by a number of social factors, including teacher behavior, learner environment, and other external factors (Lodewyk & Gao, 2013). To support a sense of autonomy, competence, and relatedness in PE, Sun, Li, and Shen (2017) recommended that teachers should design a curriculum that includes pedagogical strategies that consider the social factors mentioned above. The theoretical framework for this study brings notice to certain social-contextual events that may enhance or diminish intrinsic motivation and is discussed in the next section.

Theoretical Framework

The theoretical framework for this study draws from cognitive evaluation theory (CET), a sub-theory of Deci and Ryan’s (2004) SDT. CET is not concerned with what induces intrinsic motivation, but it focuses on external events that promote or undermine intrinsic motivation (Deci & Ryan, 2004; Ryan, Williams, Patrick, & Deci, 2009). According to Deci and Ryan, CET argues two important points:

1. Social-contextual events (e.g., feedback, communication, rewards) that conduce feelings of competence during action can enhance intrinsic motivation for that action; and
2. Feelings of competence will not enhance intrinsic motivation unless accompanied by a sense of autonomy or...by an internal perceived locus of causality. (Deci & Ryan, 2000, p. 70)

In short, CET postulates that intrinsic motivation is enhanced when feelings of competence and a sense of autonomy amalgamate when participating in activities (Ryan & Deci, 2000; Deci & Ryan, 2004; Goudas, Dermitzaki, & Bagiatis, 2000). Demonstrations of enhanced intrinsic motivation, linked with autonomy and competence, have been found in physical exercise. By nature, many human beings enjoy play and participation in organized fitness activities and are often intrinsically motivated to perform those activities (Ryan & Deci, 2017). CET specifically accounts for external events such as rewards, controlling or noncontrolling language, and meaningful feedback that may prevail in social environments, including organized sports, amateur sports, and PE (Ryan et al., 2009). Ryan et al. (2009) stressed that when people around the performer—parents, teachers, coaches, etc.—offer meaningful feedback, feelings of competence are enhanced; conversely, when critical or controlling language is articulated, feelings of competence are diminished. Further, the capacity for autonomy is also impacted by the social environment. Ryan et al. noted that self-endorsed, volitional behavior is facilitated when the environment endorses reflection and choice and is diminished when controlling contingencies are present. Autonomy and competence “partially mediated the relations between coach autonomy support and subjective vitality” (p. 115), which can serve to facilitate or diminish intrinsic motivation.

Figure 1 illustrates how BPE embodies the concepts inherent in the CET theoretical framework (i.e., learner autonomy and competence are essential to the enhancement of motivation). The figure is comprised of three color-coded ellipses. The blue ellipse represents face-to-face instruction, the red ellipse represents online instruction, and the yellow ellipse
represents BPE. The intersection of the blue and red ellipses depicts the fusion of face-to-face instruction and online learning to denote blended learning. The intersection of the yellow ellipse with the blue and red ellipses illustrates the connection between competence and autonomy in a BPE environment. The connection of all three ellipses leads to the enhanced motivation that thrives in an autonomy-supportive/competence-satisfying BPE environment. Chapter 2 includes a detailed discussion of the CET theoretical framework, along with its attributional concepts.

Figure 1. CET theoretical framework in BPE.

Problem Statement

Determining what teaching and motivational strategies are most effective to keep a mobile PE classroom actively engaged is often a challenge for PE teachers. While attitudes toward participation in PE are generally positive among both genders in elementary school, there
tends to be a moderate to significant decline in attitudes toward PE as students progress through high school, especially among girls (Kretschmann, 2014; Ryan, & Poirier, 2012; Yilmaz, 2019). Mowling, Brock, Eiler, and Rudisill (2004) noted that students in kindergarten have a curious thirst for knowledge and exploration and are rarely unmotivated in PE, yet that eagerness diminishes as they age. The researchers identified six barriers to motivation in PE that seem to gain strength as students progress from preschool through middle school: a lack of intrinsic motivation, behavior driven by extrinsic rewards, poor pedagogical practices, inferior curriculum content, substandard administrative support, and school facilities and equipment. Kretschmann (2014) viewed student motivation in PE as a principle construct in dismantling these barriers. He emphasized the importance of fostering an environment that supports autonomous motivation with the intention to bolster confidence and competence.

Some researchers discussed the importance of including motivational elements (Karaday & Ilker, 2018), like choice and variety, when developing pedagogical practices to support participation in PE (Gibbons & Humbert, 2008). Bachman and Scherer (2015) added that when a teacher develops students’ senses of autonomy and acknowledges their perspective, intrinsic motivation is elevated. Karadag, Agirtas, and Pulur (2018) determined that a student-centered PE classroom resulted in both academic success and positive attitudes towards PE. Phillips and Silverman (2015) indicated the likelihood that students are motivated to participate in fitness activities outside of school is heightened if students have positive experiences in PE.

Introducing practices that facilitate an autonomous-supportive/competence-satisfying environment is essential to student engagement in a blended learning program. As school administrators and teachers introduce blended learning models in all content areas, including PE (Giannousi, Vernadakis, Derri, Michalopoulos, & Kioumourtzoglou, 2009; Guzer, & Caner,
2014; Nazarenko, 2015; Yapici & Akbayin, 2012), Balentyne and Varga (2017) noted that it is “increasingly important to determine which students are best suited for the blended learning environment” (p. 56). Several researchers have identified ideal learner characteristics for students in a blended learning curriculum, including self-regulation, intrinsic motivation, high self-efficacy, high motivation, computer competencies, satisfaction, and knowledge construction (Artino, 2010; Balentyne & Varga, 2017; Kintu & Zhu, 2016; Kirmizi, 2015; Tempelaar, Niculescu, Rienties, Gijseelaers, & Giesbers, 2012). Moreover, Kintu and Zhu (2016) concluded that these learner characteristics are significant “predictors of learning outcomes in blended learning” (p. 192). However, care must be taken to design a blended learning program that supports autonomy and competence so learner characteristics, particularly motivation, are stimulated.

Although a dearth of research studies investigating the effectiveness of K-12 blended learning on academic outcomes exists (Chandler, Park, Levin & Morse, 2013; Halverson, Graham, Spring, & Drysdale, 2012; Means, Toyama, Murphy & Baki, 2013), at the time of this study, I found that even fewer exist for K-12 BPE. Furthermore, the very limited number of studies on BPE highlight in higher education (Bachman, & Scherer, 2015; Giannousi et al., 2014; Vernadakis, et al., 2012). This research effort has not discovered empirical research on high school BPE nor has it discovered research on how social-contextual events affect motivation and learning outcomes in a high school BPE classroom. Through the lived experiences of BPE students, the position of this study was to gain an in-depth understanding of how pedagogical practices promote or demote motivation in an autonomous-supportive/competence-satisfying BPE classroom.
Purpose Statement and Research Questions

Guided by the cognitive evaluation theory, the purpose of this study was to examine 11th and 12th grade high school students’ motivation in blended PE classes. The following research questions guided this study:

1. What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment help students meet their personal goals?

2. How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?

3. How do competence-satisfying practices relate to 11th and 12th grade student motivation in a BPE class?

Significance of the Study

Blended learning instructional models are rapidly infiltrating high school curricula and challenging traditional teacher-centered instructional models by creating opportunities for student-centered engagement. It is important for educators to initiate and sustain practices that promote student motivation, a key learner characteristic in this type of environment (Balentyne & Varga, 2017). Unfortunately, the very limited number of studies on BPE (Daum & Buschner, 2014; Giannousi et al., 2014; Vernadakis et al., 2012) are all in higher education and do not address motivation. This study examined the development of student motivation as high school BPE students performed in an autonomous-supportive/competence-satisfying learning environment. Previous studies have addressed factors that enhance motivation in such a blended learning setting. Martin (2003) determined motivation was a key attitudinal factor when using
ICT tools in education. Kintu and Zhu (2016) concluded that intrinsic motivation was critical in a blended learning environment for the construction of knowledge and student engagement in the learning process. Further, Bachman and Scherer (2015) posited that offering choices in a physical activity setting cultivates a sense of autonomy, enhances intrinsic motivation, and may increase student engagement. Thus, it seems imperative that BPE instructors facilitate an autonomous-supportive/competence-satisfying environment that supports student motivation.

**Definitions of Terms**

**Asynchronous modalities:** learning solutions that support relations between students and the teacher, separated by time and distance, and includes streaming media, emails, discussion boards, social media, and so on (Malinovski, Vasileva, Vasileva-Stojanovska, & Trajkovik, 2014).

**Autonomy-supportive learning environment:** a classroom setting that provides students with the support necessary to take control of their learning and teachers with support to ensure the provision of an autonomous learning environment (Cripps, 2011). Furthermore, autonomy support includes the integration of student voice, “including personal interest, preferences, intrinsic goals, and self-endorsed values in classroom activities” (Jiang, Vauras, Volet, Salo, & Kajamies, 2019, p. 1)

**Competence-satisfying learning environment:** a classroom setting where knowledge is gained when feelings of confidence and effectance in mastering learning activities is coupled with meaningful feedback and noncontrolling informational messages (Jang, Reeve, & Deci, 2010).
Learner autonomy: the capacity to take charge of or control important aspects of one’s own learning (Benson, 2013; Smith, 2008).

Learning outcomes: statements that specify what a learner is expected to know and be able to do to demonstrate understanding at the end of a learning process, an activity or a course (European Centre for the Development of Vocational Training, 2017).

Social media influencers: “a new type of independent third-party endorser who shapes audience attitudes through blogs, tweets, and the use of other social media” (Freberg, Graham, McGaughey, & Freberg, 2011, p. 90).

Structured autonomy: the practice of facilitating structured lessons that include range of free choice; such practices include nurturing the needs and interests of students, providing an array of choices, providing meaningful challenges, giving relevant feedback, and delivering noncontrolling informational assessments (Jang, Reeve, & Deci, 2010).

Synchronous modalities: learning solutions that provide real time teacher-student interaction while closely resembling a face-to-face educational environment; communication is performed online via video/audio conferencing, instant messaging, real-time collaboration applications, and so on (Malinovski et al., 2014).

Methodology

This study examined the participation of 20 11th and 12th grade students enrolled in a BPE program at a public high school located in a mid-sized city in the Midwest. To capture an in-depth analysis of the role that autonomy-supportive/competence-satisfying pedagogical practices play in promoting the motivation of BPE students, case study methodology was employed. Focus group discussions, semi-structured interviews, and video blogging (vlogging)
were triangulated to strengthen the validity of the data. Data were analyzed by tabulating, examining, and coding participant responses.

Organization of the Study

This study is presented in five chapters. Chapter 1 introduces this study. Chapter 2 provides a review of relevant literature concerning blended learning and BPE along with the study’s theoretical framework. Chapter 3 includes a detailed description of the methodology. The findings are captured in Chapter 4. Finally, Chapter 5 includes a discussion of the findings, implications for current practices, and suggestions for future research.
CHAPTER 2
REVIEW OF LITERATURE

Organizational Framework of the Review of Literature

As technology has impacted the fabric of everyday life, blended learning is rapidly becoming a viable pedagogical approach in K-12 education. Balentyne and Varga (2017) argued that it is becoming increasingly important to determine what learner characteristics are fundamental to meeting students’ performance goals in a blended environment. Furthermore, Ryan and Deci (2017) noted the significance of examining motivational processes in PE. This review of literature examines how motivation factors can lead to learning outcomes in an autonomous-supportive/competence-satisfying BPE classroom. This review of literature examines human motivation in education, defines blended learning, describes blended learning modalities, identifies learner characteristics essential to a blended environment, and discusses motivation in BPE.

Human Motivation

Deci and Ryan (pioneers of the self-determination theoretical framework) have dedicated upwards of three decades to the self-determination theory and learner motivation. According to Deci and Ryan (2008), SDT addresses human motivation and basic needs such as “personality development, self-regulation, universal psychological needs, life goals and aspirations, energy and vitality, nonconscious processes, the relations of culture to motivation, and the impact of
social environments on motivation, affect, behavior, and well-being” (p. 182). Furthermore, the premise of SDT is to realize three basic psychological needs: autonomy, competence, and relatedness. Deci, Vallerand, Pelletier, and Ryan (1991) referred to autonomy as one’s ability to self-regulate and contended that relatedness occurs when one develops secure relationships with others in a social environment. Competence is one’s desire to experience mastery. When applied to education, SDT “is concerned primarily with promoting in students an interest in learning, a valuing of education, and a confidence in their own capacities and attributes” (Deci et al., 1991, p. 325). Feelings of autonomy, competence and relatedness are important to optimal functioning when examining motivation and self-determination. When investigating the two main types of motivation—intrinsic and extrinsic—outlined in SDT, Ryan and Deci (2000) noted that individuals who are intrinsically motivated have an inherent tendency to perform tasks for mastery and personal satisfaction. Conversely, extrinsically motivated individuals perform tasks for a separable outcome, i.e., to gain a reward or to avoid a consequence.

Some researchers have presented evidence that the three basic psychological needs—autonomy, competence, and relatedness—serve as positive indicators in lifelong physical activity and weight management (Bachman & Scherer, 2015; Deci, & Ryan, 2008; Teixeira, Silva, Mata, Palmeira, & Markland, 2012; Wilson, Mack, & Grattan, 2008). Autonomous-supportive environments have been shown to promote levels of physical activity in students, stimulate intrinsic motivation in students, and influence a students’ enjoyment and perceived competence (Bachman & Scherer, 2015). The empirical findings in Bachman and Scherer’s study indicated the following:

Creating a classroom that embraces autonomy is more likely to result in superior learning and to enhance students’ feelings of competence and support. An autonomous
environment also creates a sense of belonging as students feel like they can learn on their own time leading them to feel more competent and cared for. (p. 13)

In an article that compiled several weight loss studies, Teixeira et al. (2012) reported on the fundamental role that motivation and self-regulation played on weight management and other related activities. Using the SDT theoretical construct, the researchers concluded that autonomy both influenced intrinsic motivation and self-regulation and was a key predictor in long-term weight management and physical fitness. Accordingly, when applied to physical activity, SDT is considered a viable framework for investigating health-enhancing exercises and motivation (Wilson et al., 2008). A more thorough explanation of SDT’s basic psychological needs follows.

According to Carver and Scheier (2000), autonomy is simply “self-direction, self-determination” (p. 284). Bidee et al. (2013) described autonomy as a volitional development that connects with personal values. Reeve and Jang (2006) stated that autonomy “represents an inner endorsement of one’s actions [and] emerge[s] from internally locus[ed] and volitional sources of motivation rather than from an externally locus[ed] causality” (p. 209). Taken together, these definitions support Ryan and Deci’s (2017) view that autonomy and self are fundamentally linked within the scope of SDT, affirming the desire for individuals to experience self-direction and self-determination.

In an educational setting, autonomy-supported pedagogical practices may enhance intrinsic motivation and promote lifelong learning (Vibulphol, 2016). Jang, Reeve, and Deci (2010) presented evidence that autonomous-supportive classrooms evoked positive educational outcomes. The key aspects of Jang et al.’s argument are as follows:

1. Teachers who adopt an autonomy-supportive style engage students by facilitating an ongoing congruence between students’ autonomous sources of motivation and their moment-to-moment classroom activity.
2. Autonomy-supportive teachers facilitate students’ personal autonomy by taking the students’ perspective; identifying and nurturing the students’ needs, interests, and preferences; providing optimal challenges; highlighting meaningful learning goals; and presenting interesting, relevant, and enriched activities.

3. When autonomy-supportive teachers nurture students’ inner motivational resources, they create opportunities for students to take the initiative during learning activities by building instruction around students’ interests, preferences, personal goals, choice making, and sense of challenge and curiosity rather than relying on external sources of motivation such as incentives, consequences, directives, and deadlines.

4. When autonomy-supportive teachers rely on noncontrolling informational language, they provide explanatory rationales for requested tasks and communicate through messages that are informative, flexible, and rich in competence-related information rather than neglecting rationales and by communicating through messages that are evaluative, controlling, pressuring, or even rigidly coercive.

5. When autonomy-supportive teachers acknowledge the students’ perspectives and feelings, they consider and communicate a valuing of the students’ perspectives during learning activities, inquire about and acknowledge students’ feelings, and accept students’ expressions of negative affect as a potentially valid reaction to classroom demands, imposed structures, and the presentation of uninteresting or devalued activities (pp. 588-589).

In addition to examining epistemic beliefs about fitness, effort regulation, and outcomes in PE, Lodewyk and Gao (2013) investigated three indices of motivation—goal orientation, task values, and perceived autonomy support—in relation to meeting fitness outcomes in PE. The researchers concluded that an autonomy-supportive (instituting choice and student-centered tasks) PE setting promoted present and future physical fitness efforts much better than a controlling environment. Autonomy-supportive pedagogical practices in PE were the focus of a study intended to determine the students’ perception of their teacher’s autonomy-supportive pedagogical practices, the teacher’s perception of their own autonomy-supportive pedagogical practices, and what pedagogical practices favored students’ autonomy support (Aguado-Gómez, Díaz-Cueto, Hernández-Álvarez & López-Rodríguez, 2016). One finding indicated that when autonomy-supportive pedagogical practices are employed (i.e., effectively conveying task goals, motivating students with positive feedback, taking an interest in the students’ perspective, and
seeking comprehension of knowledge construction), student autonomy is enhanced. Similarly, Chang, Chen, Tu, and Chi (2016) evaluated the effect of autonomy support on the perceived autonomy and self-determined motivation of elementary PE students. They found that a choice-based intervention enhanced both perceived autonomy and self-determined student behavior.

**Competence**

Competence is an innate feeling of confidence and effectance within a social environment (Deci & Ryan, 2004). It is an “accumulated result of one’s interactions with the environment, of one’s exploration, learning, and adaptation” (Deci & Ryan, 1985, p. 27). Deci and Ryan (2004) made the case that the need for competence drives people to engage in activities that challenge their capacities and enhances both skills and competencies. Elliot, McGregor, and Thrash (2004) supported Deci and Ryan’s explanation when they described the need for competence as an elemental desire to effect and master one’s environment. The inherent urge to be competent in one’s action, skills, and abilities “serves the biological/evolutionary function of adaptation to the environment” (Elliot et al., 2004, p. 365).

The need for competence exists in conjunction with several forms of motivation, including intrinsic motivation. In fact, Ryan (1982) posited that competence manifests when a discernable event increases intrinsic motivation, while incompetence decreases intrinsic motivation. Elliot et al. (2004) concurred with Ryan, suggesting that the need for competence and intrinsic motivation are “inextricably intertwined” and “undoubtedly reciprocal” (p. 375) and can be enjoyable (intrinsically motivating), leading to greater competence.

In relation to SDT, studies of competence as a self-contained unit are limited. As such, the following two studies explored the relationship that autonomy and competence have in
enhancing intrinsic motivation, which corroborates CET principles (discussed in detail in a later section). Xie (2013) examined the relationships among motivation, peer feedback, and student engagement in a distance learning course. The researcher’s findings included three significant outcomes. First, student engagement was increased when the instructor offered a balance between discussion group requirements and autonomy in discussions. Next, Xie reported higher levels of motivation following effective instructor and peer feedback. Finally, Xie concluded that an online course constructed in a way that promotes autonomy and students’ belief in their own competence will boost student engagement and enhance motivation. Closely aligned with Xie’s work, Bachman and Scherer (2015) examined motivation in a hybrid physical activity classroom. The researchers postulated that promoting autonomy will enhance enjoyment and, therefore, augment competence. The results of their study revealed that providing choices and flexibility while maintaining high learning expectations enhanced enjoyment and competence related to being physically active.

**Relatedness**

Relatedness refers to the connectedness and sense of belonging one feels in a social environment and is directly linked to the needs for autonomy and competence (Deci & Ryan, 2004). To expand on this definition, Sun, Li, and Shen (2017) noted that one central idea of SDT is that “all humans have a basic need to feel valued, accepted/supported, and connected to their significant others (parents, teachers, or peers)” (p. 278). This sense of relatedness evolves as one experiences enjoyment in activities of interest, specifically activities shared with other individuals (Sun & Chen, 2010).
The need for relatedness is considerably heightened during the adolescent years (Ruzek et al., 2016). Peer relationships in the classroom contribute to the motivational climate in that variables such as social goals and achievement goals (Nelson & DeBacker, 2008) can either be elevated or diminished when there is a sense of belonging, or a lack thereof. Ruzek and colleagues identified several factors that are enhanced when students thrive socially in the classroom: “achievement motivation, school interest, prosocial goal pursuits, self-efficacy beliefs, expectancies for success, and behavioral and emotional engagement” (pp. 4-5). In contrast, these factors are undermined when students feel less connected to peer relationships in the classroom. Although the need for relatedness has relevance in the motivational climate of a classroom, my study is guided by CET and does not consider this basic human need.

Intrinsic and Extrinsic Motivation

Human motivation is an arbitrary phenomenon that varies in level (i.e., how much motivation) and orientation of motivation (i.e., what type of motivation; Ryan & Deci, 2000). SDT identifies intrinsic and extrinsic motivation as two empirical classes of motivation that address the reasons one engages in a particular task; both are linked to a person’s need for autonomy, competence, and relatedness in that both can be enhanced or diminished based on how a person adapts to a particular situation. The degree to which an autonomy-, competence-, and relatedness-supportive environment persists can influence both self-determined and non-self-determined behavior. Ryan and Deci (2004, 2017) identified three causality orientations that affect situation-specific motivation and basic needs satisfaction:

1. Autonomy orientation—regulating behavior by orientating toward interests and self-endorsed values; enhancing intrinsic motivation and well-integrated extrinsic
motivation; representing the best situation-specific environment to satisfy the three basic psychological needs.

2. Controlled orientation—to the degree in which an autonomy-supportive environment is undermined, a person may orient toward external contingencies, which undermines intrinsic motivation and enhances extrinsic motivation. Competence is diminished when an autonomy-supportive environment is thwarted.

3. Impersonal orientation—the degree to which ineffectance, anxiety, and incompetence results in an inability to experience volition, intentionality, and engagement. This orientation is considered unhealthy and actively impairs basic psychological needs.

(Deci & Ryan, 2004; Ryan & Deci, 2017)

Ryan and Deci (2000) referred to intrinsic motivation as “the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn.” (p. 70). They made the case that a person’s need to be competent and self-determined (autonomous) is intrinsically motivated and is galvanized by a “natural tendency toward assimilation, mastery, spontaneous interest, and exploration that is so essential to cognitive and social development” (p. 70). Thus, intrinsic motivation is driven by internal forces (Saeed & Zyngier, 2012) and may lead to positive learning outcomes (Chen & Jang, 2010).

Many studies have identified intrinsic motivation as a significant construct in mastering learning outcomes (Chen & Jang, 2010; Hartnett, 2012; Kintu & Zhu, 2016; Saeed & Zyngier, 2012; Sucaromana, 2013). As such, Chen and Jang (2010) identified intrinsic motivation as a major consideration in mastering learning outcomes in an online learning environment. Furthermore, Hartnett (2012) pointed out that a distinguishing factor in the success of online students is intrinsic motivation. Hartnett studied the relationship among online motivation,
participation, and achievement and found a significant relationship between intrinsic motivation and online participation. In a study that compared and contrasted SDT’s motivation theory with student engagement theories, Saeed and Zyngier (2012) determined that intrinsic motivation is directly associated with student engagement and students who are engaged are more inclined to complete online learning tasks. Finally, Sucaromana (2013) was interested in determining whether Thai English as a foreign language (EFL) students’ intrinsic motivation was affected by the integration of a blended learning model. One of the more significant findings to emerge from this study was that the Thai students had higher intrinsic motivation for learning English when the blended learning model was introduced. The evidence in these studies indicated that intrinsically motivated students are better engaged and, therefore, are more inclined to meet learning outcomes. Additionally, Deci and Ryan (2008) noted that when a student’s need for autonomy is satisfied, motivation and engagement are further enhanced.

In contrast to intrinsic motivation, extrinsic motivation actualizes whenever an activity is performed for a separable outcome (e.g., grades, a paycheck, allowance). Extrinsically motivated behaviors exist on a continuum between amotivation and intrinsic motivation (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2000b) in which the degree of autonomy can differ significantly (Ryan & Deci, 2000a). In Figure 2, Ryan and Deci (2000a) graphically summarized a range of motivation behavior from non-self-determined to self-determined. At the far left of the continuum, amotivation represents behavior that lacks intention. The middle of the continuum identifies the four types of extrinsic motivation: external regulation (least autonomous, behaviors performed to satisfy an external demand), introjected regulation (behaviors performed to avoid anxiety or enhance ego involvement), identified regulation (more autonomous, behavior valuing behavioral regulation), and integrated regulation (most
autonomous, behaviors congruent with one’s values). At the far right of the continuum, intrinsic motivation represents autonomous behaviors performed for enjoyment and an inherent satisfaction.

Figure 2. Graphic summary of the continuum of motivation behavior. (Source from Ryan & Deci, 2000, p. 72)

One purpose of Adamma, Ekwutosim, and Unamba’s (2018) study on the extrinsic and intrinsic motivation of higher education mathematics students was to determine the relationship between extrinsic motivation and academic performance. The researchers acknowledged that extrinsic motivation drives student performance for external reasons, including parental expectations, good grades and the expectations of role models. Adamma et al. found that extrinsically motivated students focused on earning high grades, receiving rewards and being accepted by their peers. Gambari, Gbodi, Olakanmi, and Abalaka (2016) investigated the intrinsic and extrinsic motivation of secondary chemistry students using CAI. Adopting a
pretest/posttest experimental group design, the researchers concluded that the use of CAI in chemistry enhanced both the extrinsic and intrinsic motivation of students. Both studies concluded that higher levels of extrinsic and intrinsic motivation correlate with improved academic performance. In the next section, the ways in which social-contextual events can enhance or curtail intrinsic motivation are discussed.

Cognitive Evaluation Theory

SDT addresses social and environmental factors that promote versus undermines intrinsic motivation. The cognitive evaluation theory—a sub-theory of SDT—specifically addresses factors in social environments such as feedback, evaluations, and rewards that have a functional significance in the promotion or undermining of intrinsic motivation (Ryan & Deci, 2017; Ryan & Deci, 2000). CET allows analysis of “the effects of events relevant to the initiation and regulation of behavior in terms of their meaning for a person's self-determination and competence” (Deci & Ryan, 1985, p. 9). Specifically, CET is concerned with two of SDT’s three basic psychological needs: autonomy and competence. As such, CET argues two points: 1) socially contextual environments contribute to feelings of competence and 2) participating in activities in a socially contextual environment enhances intrinsic motivation (Deci & Ryan, 2004; King & Howard, 2016; Ryan & Deci, 2000). Furthermore, CET specifies that feelings of competence—elevated when contextual events (e.g., feedback) are introduced—enhances intrinsic motivation but only if accompanied by a sense of autonomy. Deci and Ryan (1985) presented CET in four propositions:

- Proposition I: Internal perceived locus of causality will enhance intrinsic motivation.
- Proposition II: Perceived competence will enhance intrinsic motivation.
Proposition III: The informational aspect (choice and positive feedback) facilitates an internal perceived locus of causality and perceived competence, thus enhancing intrinsic motivation; the controlling aspect (rewards, deadlines, surveillance, etc.) facilitates an external locus of causality, thus undermining intrinsic motivation; the amotivating aspect (e.g., negative feedback) facilitates perceived incompetence, thus undermining intrinsic motivation.

Proposition IV: Internally informational events enhance intrinsic motivation, while internally controlling and internally amotivating events undermine intrinsic motivation.

Perceived locus of causality and perceived competence are discussed in the following two sections.

Perceived Locus of Causality

Central to studies of motivation—specifically intrinsic and extrinsic motivation—is the concept of perceived locus of causality (PLOC; Ryan & Connell, 1989). PLOC describes the extent to which an individual’s perceived actions are the result of internal rewards or external constraints (Deci & Ryan, 1985, 2004; Ryan & Connell, 1989; Turban, Tan, Brown, & Sheldon, 2007) and is closely associated with the need for autonomy and contextual factors that influence intrinsic motivation (Deci & Ryan, 2002; Ryan & Connell, 1989). PLOC exists on a continuum from internally motivated to externally motivated (Turban et al., 2007). Internal perceived locus of causality (I-PLOC) occurs when a person engages in activities that support feelings of autonomy and internal rewards (e.g., interest and mastery), thereby enhancing intrinsic motivation. Conversely, controlling events such as external rewards, deadlines, and surveillance
address an external perceived locus of causality (E-PLOC: Deci & Ryan, 2000) and undermine intrinsic motivation.

Prior studies (Ryan & Connell, 1989; Goudas, Dermitzaki, & Bagiatis, 2000; Turban et al., 2007) noted the significance of PLOC as an indicator of intrinsic motivation and the need for autonomy. In a study conducted by Ryan and Connell (1989), the PLOC construct was examined in two domains: academic achievement and prosocial behavior. Ryan and Connell recorded self-reported student data based on typical reasons for academic engagement: doing homework, working on classwork, answering questions in class, and doing well in class. Ryan and Connell posited that the reasons for academic engagement were placed on a continuum of autonomous behavior and found links between the reason categories and measures of internal-external causality that validate support for the utility of PLOC. With regard to the prosocial behavior domain, Ryan and Connell selected four acts (two positive and two negative) familiar to their nine to 12-year-old subjects: keeping a promise, being nice to others, hitting someone when angry, and making fun of someone who made a mistake. The findings indicated that the internalized prosocial categories predicted empathy, moral judgement, and a measure of positive relatedness to others. In both categories, the subjects’ perceived actions resulted in either external or internal rewards and made the case for the application of PLOC in the appraisal of academic achievement and prosocial behavior.

Similarly, Goudas, Dermitzaki, and Bagiatis (2000) examined how three concepts—perceived locus of causality, perceived competence and outcome expectancies—influenced intrinsic motivation in students taking PE. There were two major findings in this study. First, students with strong I-PLOC reported higher levels of intrinsic motivation. Second, outcome expectancies positively influenced both intrinsic motivation and perceived locus of causality.
Although there was no discussion about the role that perceived competence plays in intrinsic motivation, the researchers briefly mentioned a nonspecific competence assessment that resulted in a Cronbach’s alpha of .81, which indicates a high level of internal consistency between intrinsic motivation and competence.

Furthermore, in a study conducted by Turban and colleagues (2007), personality antecedents and self-regulatory consequences (the extent to which internal or external factors predict an individual’s action) were examined. The researchers theorized that individuals with I-PLOC would engage in more autonomous activities that would predict performance and enjoyment. Having a positive effect on performance and enjoyment, the study found that I-PLOC can serve as a predictor of motivation, performance, and attitude.

**Perceived Competence**

Ryan and Deci (2004) described perceived competence as a person’s desire to be competent. Ryan and Deci affirmed that when an event enhances perceived competence, intrinsic motivation increases. On the other hand, when an event curtails perceived competence, intrinsic motivation decreases. As such, a change in perceived competence is attributed to one’s desire to explore, learn, and adapt within a social environment. Jacobi (2018) stated that perceived competence “involves the knowledge of expectations and the relevant skills needed to succeed.” Expectations can be viewed very differently when considering the two aspects presented in Proposition III of CET: the informational aspect (choice and positive feedback) and the controlling aspect (rewards, deadlines, surveillance, etc.). When an environmental event is perceived as controlling, the recipient may interpret the expectations as forceful or coercive. In that case, meeting the expectations can facilitate an environment that diminishes perceived
competence and decreases intrinsic motivation. An informational event will facilitate an environment that maintains or enhances perceived competence and increases intrinsic motivation.

According to Cocks and Watt (2004), perceived competence is a key indicator undergirding several theoretical frameworks that predict learning outcomes. Their study explored the correlating relationships among perceived competence, intrinsic value—similar to intrinsic motivation as defined by Deci and Ryan, (1985) and Deci, Vallerand, Pelletier and Ryan, (1991)—and mastery goals in English and math. The researchers concluded that a correlation exists between perceived competence and intrinsic value in both English and math. Furthermore, Cocks and Watt found that neither perceived competence nor intrinsic value correlated to the adoption of mastery goals. In contrast to one of Cocks and Watt’s findings, Yeung, Craver, and Kaur (2014) found a significant correlation between perceived competence and the development of mastery goals. Lastly, in a longitudinal study that focused on the relationship among intrinsic motivation/perceived competence, classroom engagement, extrinsic motivation, and reading achievement, Froiland and Oros (2014) found that intrinsic motivation and classroom engagement for fifth grade students predicted their reading achievement in the eighth grade. The researchers also found that extrinsic motivation served as a predictor of eighth grade reading achievement.

**Student Empowerment**

In an effort to draw out the relationship between motivation and student empowerment, Brooks and Young (2011) employed SDT to investigate students’ autonomous choice-making opportunities in the classroom. The researchers explored the connection between motivation and
student empowerment and investigated the role student choice played on motivation and empowerment. Three central themes emerged from this quantitative investigation: motivation, empowerment, and choice. Building on SDT, motivation in the classroom—specifically, intrinsic motivation—is linked to autonomy, one of the three basic human needs. Intrinsically motivated students tend to be self-determined and, thus, empowered in their actions (Brooks & Young, 2011). Analogous with intrinsic motivation, empowerment is “a set of motivational processes that increase personal initiation, persistence to complete a task, and feelings of self-efficacy” (Brooks & Young, 2011, p. 50) and can be influenced by teacher/student and student/student relationships. Choice is a salient factor significant to the origins of motivation and empowerment (Brooks & Young, 2011). Choice-making opportunities support autonomy and may enhance intrinsic motivation and feelings of self-determination. In Brooks and Young’s study, one finding concluded that an autonomous and choice-making classroom reinforced intrinsic motivation and intrinsic motivation enhanced learner empowerment.

Blended Learning

As a “new paradigm in modern education” (Chen & Yao, 2016, p. 1667), blended learning is an evolutionary approach that combines traditional teaching models with advancing ICT, sparking a heightened interest in the always-connected 21st century learning community. Thus, educators have begun to explore and integrate e-learning and blended learning models into curricula (Giannousi, et al., 2009; Guzer & Caner, 2014; Nazarenko, 2015; Yapici & Akbayin, 2012). Epignosis (2014) noted that e-learning is computer-based—taking place outside of the traditional classroom—and allows learners to fit learning into their schedules. e-learning offers
the ability to share material in a number of formats, communicate with professors electronically, and utilize learning management systems to deliver course expectations and materials.

Blended learning is the fusion of the best aspects of traditional face-to-face instruction with the best aspects of e-learning (Christensen et al., 2013; Watson, 2008; Yapici & Akbayin 2012), providing a balance that preserves conventional pedagogical methods while integrating current and evolving ICTs into the teaching and learning process (Jihad et al., 2018; Nazarenko, 2015). Suprabha and Subramonian (2015) described blended learning as a mixture of pedagogical approaches that combines the elements of e-learning with curricular and socialization opportunities presented in the classroom. As noted by Watson (2008), blended learning enables instructors to “personalize learning, allow [for] thoughtful reflection, and differentiate instruction from student to student across a diverse group of learners” (p. 4).

Picciano (2009) pointed out that the definition of blended learning is malleable and is evolving as ICTs progress. Picciano presented a two-part definition that was developed by participants of an invitation-only workshop funded by the Alfred P. Sloan Foundation in 2004:

1. Courses that integrate online with traditional face-to-face class activities in a planned, pedagogically valuable manner; and
2. Where a portion (institutionally defined) of face-to-face time is replaced by online activity. (p. 10)

As is evident from the definitions presented here, the term blended learning has many variants. Indeed while writing the second edition of her book, Web-Based Training, Driscoll (2002) realized the capricious nature of the term. She suggested that the untapped potential of blended learning means different things to different people and falls under one of following concepts:
1. To combine or mix modes of web-based technology (e.g., live virtual classroom, self-paced instruction, collaborative learning, streaming video, audio, and text) to accomplish an educational goal.

2. To combine various pedagogical approaches (e.g., constructivism, behaviorism, cognitivism) to produce an optimal learning outcome with or without [sic] instructional technology.

3. To combine any form of instructional technology (e.g., videotape, CD-ROM, web-based training, film) with face-to-face instructor-led training.

4. To mix or combine instructional technology with actual job tasks in order to create a harmonious effect of learning and working. (p. 1)

In addition to succinctly defining blended learning, Skrypnyk et al. (2015) made the case that blended learning transpires on a malleable continuum between face-to-face instruction and e-learning, arguing the importance of finding the best alliance between the two models. In the same vein, Singh and Reed (2001) contended that to optimize learning outcomes, the convergence of face-to-face instruction with e-learning should blend “the ‘right’ learning technologies to match the ‘right’ personal learning style to transfer the ‘right’ skills to the ‘right’ person at the ‘right’ time” (p. 2). With the right blended mix, online technologies allow students to establish their path and pace while being monitored in a face-to-face setting (Ja’ashan, 2015, p. 42). As such, finding the right blended mix adds value to Balentyne and Varga’s (2017) argument that it is important to determine which students possess learner characteristics that will complement an ideal blend.

To guide implementation of an effective blend, Staker and Horn (2012) and Christensen and colleagues (2013) categorized the blended learning landscape into four models: the rotation model, the flex model, the a la carte model, and the enriched-virtual model (Figure 3).
The rotation model allows students to rotate among learning modalities on a fixed schedule, or a teacher-prescribed schedule, and at least one modality includes online learning. The rotation model includes four subsidiary models: station-rotation, lab rotation, flipped classroom, and individual rotation. During station-rotation, students rotate through learning modalities while in a classroom; conversely, a lab rotation allows students to complete online modalities in a computer lab outside of the classroom. Lesson content is presented offsite via a computer in a flipped classroom; students use class time to complete tasks (e.g. homework) with teacher assistance. With individual rotation, students determine the rotation based on individual needs. The flex model is ICT-heavy, very fluid, and gives students a high degree of autonomy. The a la carte (self-blend) model allows students to take online courses that supplement their face-to-face courses. Lastly, in an enriched-virtual model, a majority of content is completed remotely; students attend the brick-and-mortar location for face-to-face instruction as needed.
Staker and Horn (2012) suggested that selecting a blended model that syncs with the philosophy of the classroom and aligns with school district policies will create an optimal blend of traditional and technology-rich instruction and allow students to govern some aspects of time, place, path, and/or pace in learning.

**Limited History**

Although advancements in educational technology have moved rapidly since the 1980s (Hew, 2004), blended learning as a pedagogical approach in education has not matched the speed at which technology has evolved. The term blended learning began surfacing in research literature in 2000 (Guzer & Caner, 2014). In their article “The Past, Present and Future of Blended Learning: An In-Depth Analysis of Literature,” Guzer and Caner estimated 2,758 occurrences of the term blended learning in the literature during three defined time periods—First Attempts (1999-2000), Definition Period (2003-2006), and Popularity Period (2007-2009). An additional 1,660 occurrences of the term surfaced during what Guzer and Caner considered the Present (2010-2012). Skrypnyk et al. (2015) suggested that technology in the past 10 years “has increasingly been used to enhance course and content offerings both in the [face-to-face] and distance education settings” (p. 60), allowing educators to leverage advancements in technology to synthesize both models and integrate blended classrooms into both the secondary and post-secondary setting. Closely allied to Skrypnyk and colleagues, Watson (2008) noted that the evolution of internet-based content and tech-savvy teachers has resulted in a progressive blend of online and face-to-face teaching and learning in K-12 education. Moreover, Suprabha and Subramonian (2015) described blended learning as logically evolutionary in pedagogical practices. The succinct historical emergence of blended learning seems to be on a progressive
trajectory poised to enhance the traditional face-to-face classroom setting for the foreseeable future (Christensen et al., 2013). Accordingly, implementing blended learning in all aspects of learning is a viable option to be considered by school leaders.

**Blended Learning Modalities**

To meet the specific technological, informational, and knowledge sharing needs of students, the blended learning platform is designed to offer a differentiated experience using both synchronous and asynchronous modalities (Beyth-Marom, Saporta, & Caspi, 2005; Karaaslan, Kilic, Guven-Yalcin, & Gullu, 2018; Papadima-Sophocleous, & Loizides, 2016). Picciano (2009) supported the use of multiple modalities as they “allow students to experience learning in ways in which they are most comfortable while also challenging them to experience and learn in other ways as well” (p. 7). Synchronous modalities are real-time teacher/student communicative processes that simulate traditional classroom interactions (Malinovski, et al., 2014). Examples of synchronous modalities include instant messaging, online/video conferencing, conference calls, and face-to-face communication. The spontaneous nature of synchronous communication offers the connectivity of direct communication and instant feedback, closely resembling the traditional teacher-student interaction. Asynchronous, or time-delayed, modalities include webinars, webcasts, discussion boards, email, blogs, streaming videos, social media, and Web forums; this learning modality is separated by time and distance and offers flexibility in the assimilation and processing of content.

When considering the individual differences of students, most educators make every attempt to accommodate the diverse ways in which students assimilate and process information (Felder & Silverman, 1988). The synchronous and asynchronous modalities inherent in a
blended learning experience foster a flexible learning environment that addresses diverse learning styles and motivation in learning. In a study conducted by Vernadakis et al. (2012), student satisfaction with a blended learning PE course was compared to satisfaction in a traditional PE course. In addition to finding that blended learners reported higher levels of satisfaction than traditional learners, the researchers concluded that the multiple delivery modes inherent in the blended learning model had the potential to meet diverse learning styles. A study conducted by Beyth-Marom et al. (2005) examined the influence of learning styles on learning with synchronous and asynchronous tutorials. The researchers found that most of the study participants preferred a synchronous environment over a virtual one—the presence of other students increased motivation, while two-thirds of the participants preferred the flexibility of a virtual tutor over synchronous tutoring. Papadima-Sophocleous and Loizides (2016) conducted an exploratory research study that examined the impact of regularly scheduled online synchronous tutorials on eight second language university students. Papadima-Sophocleous and Loizides found that meaningful synchronous interactions enhanced learning and student engagement, augmented understanding of the curriculum, improved communication between the instructor and the students, enhanced asynchronous communication, elevated student motivation, and increased an overall awareness of the subject. In a study that adopted synchronous and asynchronous games and activities to enhance student vocabulary, Karaaslan, Kilic, Guven-Yalcin, and Gullu (2018) found that two byproducts of synchronous environments—human interactions and the sense of community—were preferred by the students; however, intrinsically motivated students also benefitted from the asynchronous vocabulary games. Collectively, these studies support the idea that synchronous and asynchronous modalities support diverse learning styles, encourage student engagement, and increase student motivation.
Kintu and Zhu (2016) made the case that learner achievement is vastly influenced by individual differences. Their research focused on applying ICT in a blended learning environment while addressing individual learner characteristics to meet learning outcomes. Kintu and Zhu identified the ideal learning characteristics for students in a blended curriculum: self-regulation, positive attitude toward blended learning, family and social support, management of workload, and computer competencies. As these characteristics are ideal for all students, Kintu and Zhu argue that intrinsic motivation, satisfaction, knowledge construction, and learning performance are critical to meeting learning outcomes in blended learning. One implication of Kintu and Zhu’s findings is that a strong relationship existed between learner characteristics in a blended setting and meeting learning outcomes.

Artino (2010) examined learner characteristics in an online environment. Artino found that high self-efficacy, high motivation, and self-regulation are good predictors of meeting achievement outcomes in an online learning environment. Similarly, Tempelaar et al. (2012) investigated the role achievement emotions play in the online portion of a blended learning environment relative to the face-to-face learning environment. The researchers made the case that self-regulation in the online portion of blended learning is far more impactful on achievement emotions when external factors—external regulations by the teacher and shared regulations with peers—are absent. In a separate study, Balentyne and Varga (2017) investigated the relationship between attitudes and achievement in a self-paced blended mathematics course. Although the researchers reported several significant findings, the one closely associated to this literature review states that motivation is critical for achievement
growth in the online portion of blended learning. Accordingly, these studies outline the critical roles that intrinsic motivation and self-regulation play in the online portion of a blended learning curriculum.

**Blended Learning in Physical Education**

In recent years, online education has expanded significantly to include enrollment of high school students. Goad, Towner, Jones, and Bulger (2019) considered the blended learning model an ideal mode for the delivery of PE in an online environment. This emerging trend includes the integration of digital technologies. As noted by Goad et al., digital technologies such as fitness trackers and mobile fitness applications encourage students to personalize fitness, provide teachers with an objective source for assessment and feedback, and can alleviate concerns about tracking students’ fitness when they are not on campus. According to Wyant and Baek (2019), the addition of digital technologies in PE may promote enhanced cognitive processes and increase motivation for participating in physical activity.

However promising the integration of digital technologies may be in an online or BPE program, many in-service PE teachers lack the knowledge and training required to use technology for meaningful curricular purposes and, therefore, elect to circumvent its use (Liu, Liu, Shangguan, Lim, & Keating, 2018). Liu et al. (2018) examined technology preparation in undergraduate physical education teacher education (PETE) programs and found that less than 50% of the programs studied included technology components. Nonetheless, PE teacher candidates agreed that technology is an essential teaching tool for 21st century learners (Luptakova & Antala, 2017). The affiliate organizations of SHAPE, the National Association for Sport and Physical Education (NASPE) and PETE established guidelines for integrating online
PE into curriculum development and teacher preparation. NASPE’s guidelines include prerequisites for student enrollment, teacher involvement, and curriculum and instruction practices. The guidelines also consider assessments, class sizes, time allocation, availability of community facilities, equipment and technology systems, program evaluation, and students with special needs (National Association for Sport and Physical Education, 2007). Blended learning is NASPE’s recommended mode for the online delivery of content. Calderon, Scanlon, MacPhail, and Moody (2020) agreed with this assessment, conveying that PETE programs should prepare preservice teachers for the implementation of blended learning into the PE curriculum, especially when considering the COVID-19 pandemic. PETE’s contribution to the development of online PE is in the preparation of preservice teachers and continued professional development of in-service teachers. In 2017, the PETE standards were updated to include Section 3.e, which requires the use of technology in the classroom. Put together, the NASPE guidelines and PETE standards can guide the development and implementation of online PE in K-12 classrooms, addressing the emergence of digital technology at all levels education.

As BPE is the fusion of traditional face-to-face instruction with online instruction, it would be imprudent to continue this discussion without briefly addressing traditional PE practices.

**Traditional Physical Education**

PE is a fundamental component in K-12 curricula. Castelli et al. (2014) considered PE an impetus to physical development, cognitive development, and brain development, and noted that physically active students perform better academically. Sun, Chen, Zhu, and Ennis (2012) also pointed out that the PE curriculum serves as a catalyst for promoting principles of healthy living.
According to the President’s Council on Sports, Fitness and Nutrition (n. d.), regular engagement in moderate to vigorous physical activities supports a lifetime of healthy fitness choices and promotes long-term health benefits. Nevertheless, many school districts have marginalized PE, which hinders the delivery of quality PE experiences (DeCorby, Halas, Dixon, Wintrup, & Janzen, 2005; Laureano et al., 2014). Laureano et al. (2014) conducted a literature review of 10 research articles that examined the causes of marginalization in PE. The researchers concluded that the causes of the marginalization of PE programs include financial strains and budgetary cuts in the district, adverse parental perceptions of PE programs, burnout among PE teachers due to feelings of isolation, lack of equipment, and lack of space, PE teachers losing their planning time to cover duties, and inconsistencies in the alignment of PE assessments to state and national standards. Laureano et al.’s review of the 10 studies included schools from multiple regions of the United States, thus, revealing the widespread marginalization of a subject critical to the health of youth. In a refreshing dialog, Laureano and colleagues interviewed an exceptional PE teacher who found ways to combat the marginalization of her PE program. The teacher nurtured close ties to parents, students, and the community, actively pursued learning tools and resources to strengthen her program, developed an impenetrable bond with the paraprofessional assigned to her classes, and promoted interdisciplinary teaching among her colleagues.

A second point of concern regarding traditional PE is the implementation of an outdated curricular design that continues to be practiced in some settings. Historically, the PE curriculum design was dominated by mastering movement skills—dance, sports skills, gymnastics, and track and field activities—and was framed by a disciplinary mastery value orientation that states, “Mastery of the most important subject matter is the key to the best in schooling” (Jewett, 1989, p. 37; see also Koch & Hasbrouck, 2013). This particular design often divided students who are
athletically inclined and those who were not. Twenty-first century PE has shifted the focus from discipline and competition to physical literacy and active engagement. According to Mitchell and Walton-Fisette (2016), the term “physical literacy” began to appear in literature in the early 2000s and was appended to SHAPE’s national standards for K-12 PE in 2014 (see Figure 4). The goal of physical literacy in PE is to cultivate a learning environment that promotes a physically active lifestyle. A physically literate student will demonstrate competency in a variety of movement skills, understand the benefits of being physically active, participate regularly in physical activities, exhibit a respect for themselves and others in a PE setting, and understand the value of a healthy lifestyle (Mitchell & Walton-Fisette, 2016).

Figure 4. SHAPE’s national standards for K-12 PE. (Roetert & MacDonald, 2015, p. 110)
Initiatives, such as Enhanced Physical Education (EPE) in Illinois, shift the narrative from mastering movement skills to maximizing the time spent engaged in moderate to vigorous physical activity (MVPA) in the context of health-related fitness. The EPE task force was developed in 2011 to develop an EPE implementation plan for Illinois. Koch and Hasbrouck (2013) note that the plan encouraged school districts to amend policies and curricula to support maximum participation in fitness activities that elevate the heart rate. Increased time engaged in MVPA has been found to have several benefits, including reduced metabolic disease, improved academic performance, better mental health, better on-task behavior, an increased ability to concentrate, and better overall health (Hollis et al., 2017; Koch & Hasbrouck, 2013). Furthermore, EPE provides recommendations for enhanced PE curricula that include an emphasis on physical competencies and cognitive understanding for a lifetime of physical fitness, student-center learning, and the use of technology (Koch & Hasbrouck, 2013).

**Blended Physical Education**

In accordance with present definitions, Chism and Wilkins (2018) stated that the BPE model combines traditional PE practices with a variety of ICTs, including fitness trackers that connect with web-based research platforms. These platforms collect and analyze fitness data for comma-separated values (CSV) distribution to teachers and students for discussion and assessment. Chism and Wilkins also identified the importance of using online messaging systems (synchronous communication) and learning management systems (asynchronous communication) to connect with students during the online portion of BPE. The researchers concluded that the integration of technology in daily lives is apparent and cannot be ignored by educational policymakers and administrators; therefore, fusing traditional and e-learning
instruction “serves as an agent to keep pace with technology in both traditional and mobile classrooms” (p. 164).

Although Chism and Wilkins (2018) reported the pragmatic inclusion of blended learning in PE, the BPE model as an instructional approach in K-12 education is in its infancy, which limits the available research. In one recent study of undergraduate students enrolled in a PE for early childhood course, Giannousi and colleagues (2014) investigated the effectiveness of blended learning on knowledge performance. The researchers found that although both participant groups (a traditional learning group and a blended learning group) improved their knowledge acquisition, the blended learning group was more successful than the traditional learning group in cognitive learning. Due to a reduction of secondary PE courses in Quebec, Taylor (2007) examined ways in which secondary physical educators could minimize instruction time while maximizing students’ physical activity time. Employing a blended learning approach, a mix of face-to-face instruction and the use of technology was implemented, Taylor found that the blended learning approach was more effective than the traditional approach for teaching a badminton unit.

To address the autonomous nature of the online portion of blended learning, Vernadakis et al. (2012) compared undergraduate student satisfaction with BPE to satisfaction with traditional PE, finding that the blended learners reported higher satisfaction. In a study that applied the self-determination theory as a theoretical framework, Bachman and Scherer (2015) closely examined the relationship between autonomy and competence in a blended physical activity course. The researchers concluded with three significant findings:

1. An autonomous classroom setting, providing choices and flexibility, resulted in superior learning while enhancing feelings of competence and teacher/peer support
2. An autonomous learning environment increased students’ physical activity levels over the course of the semester.

3. An autonomous learning environment created a sense of belonging and resulted in an overall positive perception of the course and the instructor.

To augment Bachman and Scherer’s findings, the following discussion examines constructs of human motivation that support the essence of blended learning.

**CET and Physical Education**

According to CET, intrinsic motivation is optimal when an individual’s perception of autonomy and sense of competence are enhanced (Deci & Ryan, 1985, 2004; Goudas, Dermitzaki, & Bagiatis, 2000). CET’s focus on the roles autonomy and competence play in elevating intrinsic motivation is particularly relevant when participating in physical activity and sports. Frederick and Ryan (1995) found that participation in sports is intrinsically motivating and because sports and physical activity are sectors in which “pressures, expectations, performance goals, and rewards are often salient” (p. 9), PLOC and perceived competence are considerably significant. Physical activities freely chosen by the participants are highly intrinsically motivating, and for many, participating in physical activities (e.g., skiing, recreational softball, hiking, jogging, etc.) requires little to no persuasion and is often a welcomed substitute for less desirable constraints that saturate our daily lives (Deci & Ryan, 1985).

As suggested in Proposition II of CET, perceived competence enhances intrinsic motivation when an individual is optimally challenged. According to Ryan and Deci (2017), an optimally challenging environment “allows people to successfully exercise and stretch their
abilities, which they typically experience as enjoyable” and “in any context in which people experience some level of autonomy, positive feedback will likely enhance intrinsic motivation” (p. 485). Thus, feedback is pertinent in this type of environment. A significant component in physical activity and sport motivation is what Ryan and Deci refer to as competent feedback. Whether positive or negative, competence feedback expressed in an autonomy-supportive manner can enhance intrinsic motivation and physical performance (Mouratidis, Lens, & Vansteenkiste, 2010).

Because physical activity promotes health, fitness, brain activity, and wellness, PE is often a required class in K-12 education. PE’s integration of sport and physical fitness makes it an ideal venue for examination of CET principles. Intrinsic motivation in a physically active setting—enhanced by a perception of autonomy and a sense of competence—is associated with the adoption of a healthy lifestyle that may include sport participation, physical fitness, sound nutrition choices, and overall wellness. Granero-Gallegos, Baena-Extremera, Gómez-López, and Abraldes (2014) reported that self-determined PE students displayed intrinsic motivation for learning, especially when activities were interesting, fun, challenging and satisfying. Furthermore, autonomous experiences in PE classes increased physical performance that could be adopted outside of the classroom (Liukkonen, Barkoukis, Watt, & Jaakkola, 2010). Liukkonen et al. (2010) contended that competence has a reciprocal relationship with the innate need to achieve effectiveness in chosen activities. Perceived competence boosts intrinsic motivation and, consequently, elevates participation in a number of activities prescribed in a PE program.

Ryan and Deci (2017) identified the following studies as important research focusing on CET principles in a PE setting. Taylor, Ntoumanis, Standage, and Spray (2010) speculated about
whether SDT’s basic psychological needs—autonomy, competence, and relatedness—predicted changes in PE students’ effort in and outside of PE class. They found that self-determined forms of motivation were particularly significant in typical school settings where rules and regulations are prominent. Additionally, Taylor and colleagues discovered that students with higher competence need satisfaction (effectance and mastery within one’s environment) increased their leisure-time physical activity more than students with lower perceived competence. Similarly, Mouratidis, Vansteenkiste, Sideridis, and Lens (2011) investigated students’ interest and enjoyment in an autonomy-supportive PE class, concluding that student motivation was enhanced in a setting that encouraged choice, allowed initiative, and promoted social cooperation. Lastly, Lonsdale, Sabiston, Raedeke, Has, and Sum (2009) examined the relationship between autonomous motivation and engagement in physical activity during a structured PE class. The researchers found that both autonomous motivation and the opportunity for free choice promoted students’ engagement in prescribed physical activity.

**CET and Blended Physical Education**

As is the case for traditional PE, CET is worth investigating in a BPE classroom. One challenge in designing a digital framework for the online portion of BPE is cultivating an autonomous-supportive design that promotes student engagement and enjoyment and addresses perceived competence and intrinsic interest. Autonomous-supportive environments have been shown to promote levels of physical activity in students, stimulate intrinsic motivation in students, and influence students’ enjoyment and perceived competence (Bachman & Scherer, 2015). The empirical findings in Bachman and Schrerer’s study indicated the following:
A classroom that embraces autonomy is more likely to result in superior learning and to enhance students’ feelings of competence and support. An autonomous environment also creates a sense of belonging as students feel like they can learn on their own time leading them to feel more competent and cared for. (p. 13)

BPE students are tasked with transferring face-to-face in-class experiences to independent engagement outside of the PE classroom. During the online portion of a BPE course, self-determination and competence satisfaction are significantly critical to a student’s ability to organize a learning path that will meet the prescribed learning objectives. As such, Hartnett (2012) identified motivation as a critical factor in engagement and achievement in an online learning environment. Liukkonen et al. (2010) encouraged the development of task-involving, autonomy-supportive face-to-face experiences that will transfer intrinsic interest to the application of fitness activities outside of the PE classroom. During the face-to-face portion of a BPE classroom, the instructor should introduce concepts and principles important to physical fitness, should manage digital tools, and should be available for support and consultation.

During the online portion, BPE students will have “some element of control of time, place, path, and/or pace” (Staker & Horn, 2012, p. 7) when organizing a learning path to meet the prescribed learning objectives. To illustrate how to satisfy the objectives innately evident in a BPE program, Mandigo and Holt (2000) devised a guide that can promote autonomy and competence in a physical activity environment:

1. Optimize choice and control
2. Minimize the use of controlling external factors
3. Optimally challenge students through individualized instruction
4. Enhance perceived competence
5. Stress the importance of personal improvement
These key aspects align with the views of other researchers who also include student empowerment as an added benefit of an autonomous-supportive/competence-satisfying environment (Brooks & Young, 2011; Glas & Cardenas-Claros, 2013; Kaur, 2014; Pearson & Moomaw, 2005).

Summary

The 21st century digital natives are driven by always-on technology that accesses information at the speed of light. The rapid advancement of ICT has impacted every facet of daily life including education. As such, some aspects of education reform encourage a transition away from the traditional teacher-centered classroom to adopting more holistic student-centered approaches to learning. One approach in an always-connected society is blended learning—the fusion of traditional face-to-face education with online education. Although digital natives are adroit in the use of technology in daily activities, many are inept in the use of ICT as learning tools. In addition to computer competencies, it is critical that blended learning students maintain a high level of self-determination and motivation so online tasks are completed. For that reason, it is important to facilitate a classroom environment that enhances intrinsic motivation with autonomous-supportive/competence-satisfying pedagogical practices.

The research in this literature review has shown the pervasive nature of motivation in mastering learning outcomes. Several corresponding themes emerged from the research presented in this literature review. First, self-determination and intrinsic motivation are key characteristics for students to possess when completing tasks, especially during the online portion of a blended learning or BPE program. Second, an autonomous-supportive environment positively influences intrinsic motivation and self-determination. Next, choice-making
opportunities in an autonomous-supportive/competence-satisfying environment empower students to take ownership of their online tasks. Finally, self-determination and self-regulation are critical characteristics of blended learning for students when addressing learning outcomes.

This study intended to fill gaps in the research presented in this literature review. As evident in the studies cited, much of the research on blended learning and BPE is quantitative and caters to higher education. The current qualitative study focused on high school students’ motivation in a BPE classroom. Additionally, the findings of this study identified some common motivational themes that emerged from the voices of BPE students as they performed in an autonomous-supportive/competence-satisfying BPE classroom.
CHAPTER 3

METHODOLOGY

Introduction

The purpose of this study was to examine 11th and 12th grade high school students’ motivation in BPE classes. Guided by the cognitive evaluation theory, the data I collected answered the following research questions:

1. What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment help students meet their personal goals?

2. How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?

3. How do competence-satisfying practices relate to 11th and 12th grade student motivation in a BPE class?

Qualitative Research Design

As Cameron (1963) wrote in his book *Informal Sociology: A Casual Introduction to Sociological Thinking*, “not everything that can be counted counts, and not everything that counts can be counted” (p. 13). This statement undergirds the essence of qualitative research, which seeks to uncover the textual architecture of experiences, circumstances, or phenomena in a natural setting rather than the quantitative aspects that typically occur in a controlled environment. Mertens (2014) points out that qualitative research positions the observer in the
world to capture in-depth assessments of a phenomenon. Cropley (2015) extended Mertens’ assessment by adding that the non-experimental descriptive design of qualitative research resembles the everyday life of people and determines what things actually exist rather than quantifying the existence of things. Thus, the interests of qualitative researchers are grounded in understanding the interpretations and meaning of one’s experience in an authentic setting (Merriam & Tisdell, 2016). As qualitative researchers engage in and foster relationships with participants, they are mindful of the meaning and value this type of research has for such participants (Dennis, Carspecken, & Carspecken, 2013). To further clarify, Cropley (2015) states that qualitative research

is based on the fundamental idea that “reality” is subjective: Every human being constructs an individual, personal view of the world on the basis of his or her specific interactions with the external world (including the people who are part of this world). As a result, much of what a person, including researchers, regards as reality actually consists of a set of impressions, inferences and opinions in the person’s mind. (p. 8)

Cropley further notes that this subjective reality is not only constructed by the way people make sense of their observations, but also by how people make sense of the world they share with other people.

The current study employed a qualitative research design. The subjective nature of qualitative research (Tufford & Newman, 2012) guided my intention to capture high school students’ lived experiences and motivational practices while engaged in a BPE curriculum. Within the framework of a qualitative approach, a case study research design was employed. Yin (2018) defines case study research in two parts. First, the case study is “an empirical method that investigates a contemporary phenomenon (the ‘case’) in depth and within its real-world context especially when the boundaries between phenomenon and context may not be clearly evident” (p. 52). Yin notes that a case study helps the researcher realize important
contextual conditions pertinent to understanding the phenomenon. I employed a case study research design for this very reason. I am interested in understanding the complexity of the contextual conditions that shape my students’ journey through BPE. Second, a case study relies on the triangulation of data—using multiple data sources to gain a deeper understanding of a study topic, which strengthens the overall quality and validity of a qualitative study (Lapan, Quartaroli, & Riemer, 2012). To capture the lived experiences of BPE students, I aligned the research questions with three qualitative approaches—focus group discussions, semi-structured interviews, and video blogs (from this point forward the term vlog will be used). To reveal any biases or predispositions that could influence the research results and to lend further support to the validity of this qualitative research, in the next section I explicitly examine my relationship to the BPE program at Midwest Central High School (CHS).

Research Positionality

To mitigate the potential effects that biases, assumptions, and preconceptions may occur when a researcher has a close relationship with the research topic, bracketing serves as a comprehensive practice in qualitative research (Fischer, 2009; Tufford & Newman, 2012). Bracketing allows the researcher to scrutinize potential biases that may pertain to the study and, subsequently, share those biases in the narrative of the research report. In a memo pad that I titled “Analytic Memos,” I journaled my thoughts about my role as the only BPE facilitator at CHS, my connections with the BPE students, and my assumptions about the research findings. In the next paragraph, I attempt to raise awareness about my position, prior understandings, and beliefs that could serve as biases in reporting the findings in this study.
In this study, I was the teacher responsible for facilitation of the BPE program at CHS. I have been instrumental in building the BPE program since its inception in 2015. When initially approached by my supervisor to launch the BPE program, blended learning for other content areas had been in our district for only one year. It was all very new, and there was very little research available concerning BPE. For me, the learning curve was significant. I needed to change my mindset to accommodate a student-centered classroom. I had to learn how to utilize technology to both encourage and track my students’ physical fitness. I needed my students to embrace their free choice in and away from CHS. In the five years I have taught BPE, I have grown as an educator. I have witnessed the benefits of an autonomous-supportive/competence-satisfying learning environment. I have come to embrace that student voice and student choice enhance student motivation. Since 2015, I have shared the grass roots nature of BPE with my students and have affirmed their role in building the program. I have encouraged their candor and considered their suggestions.

Cook-Sather (2006) considers student voice imperative to education research and reform, so when introducing this study to the 2019-2020 class of BPE students, I emphasized the importance of their continued candor and honesty when participating in the interviews. Moreover, I minimized any biases by triangulating three data sources and by documenting my students’ comments verbatim. It is worth noting that as I transcribed the data, I was elated to see my students owned their fitness as well as their roles as architects of the BPE program, a role BPE students at CHS have cultivated since its inception in 2015.
Description of the CHS Community

CHS is a large urban secondary school located in the Midwest. CHS services a diverse population of students in grades 9-12. The demographic makeup of the CHS community of learners is noted in Table 1.

Table 1
Demographic Makeup of Central High School for the 2019-2020 School Year

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>63%</td>
</tr>
<tr>
<td>School Enrollment</td>
<td>3321</td>
</tr>
<tr>
<td>Black</td>
<td>18%</td>
</tr>
<tr>
<td>Free and Reduced Lunch Rate</td>
<td>73%</td>
</tr>
<tr>
<td>White</td>
<td>15%</td>
</tr>
<tr>
<td>Students with IEPs</td>
<td>16%</td>
</tr>
<tr>
<td>Multi-Racial/Ethnicity</td>
<td>3%</td>
</tr>
<tr>
<td>English Learners</td>
<td>11%</td>
</tr>
<tr>
<td>Asian</td>
<td>1%</td>
</tr>
<tr>
<td>Homeless</td>
<td>2%</td>
</tr>
<tr>
<td>American Indian</td>
<td>1%</td>
</tr>
<tr>
<td>Graduation Rate</td>
<td>74%</td>
</tr>
</tbody>
</table>

In 2017, the Centers for Disease Control and Prevention (CDC) noted that only 29.9% of high school students in America attend PE classes daily, even though the U.S. Department of Health and Human Services recommends that children and adolescents engage in at least 60 minutes of moderate to vigorous physical activity daily (CDC, 2011). The state of Illinois requires students in middle, junior, and high school to participate in daily physical for a minimum of 225 minutes per week (equivalent to 45 minutes per day). Moreover, as a graduation requirement, CHS students must engage in and pass four years of daily PE, including
one semester of health. However, PE waivers are available for students in the marching band, students enrolled in ROTC, and students who are varsity athletes.

As there has been a compelling increase in adolescent obesity in America since 1980 (from 5% in 1980 to 20% in 2016), the CDC (2011) identifies adolescent obesity as a serious matter of concern (see also Hales, Carroll, Fryar, & Ogden, 2017). CHS keeps records of students with varying health concerns—ADHD, allergies, anxiety, asthma, diabetes, mental health issues, etc.—but does not record obesity rates. Therefore, I considered data reported by the Midwest County Health Department (MCHD), where CHS is located. The MCHD shares the CDC’s concern about today’s youth. In 2018, the Midwest County Community Health Status Assessment reported that 13% of 10th graders and 9% of 12th graders (MCHD did not report on 11th graders) in Midwest County were obese (Will County MAPP Collaborative, 2019). The 10th and 12th graders in this report attended one of three high schools in Midwest County—Catholic High School, Central High School, or West High School. Both the CDC and MCHC agree that consistent moderate to vigorous physical activity is instrumental to the prevention of obesity among adolescents. The current study addressed student motivation in a BPE learning environment. González-Cutre, Sierra, Beltrán-Carrillo, Peláez-Pérez, and Cervelló (2018) asserted that worldwide, sedentary behavior is an urgent public health dilemma. Gonzalez-Cutre et al. view schools as an ideal place to develop healthy lifestyles, but note that enhancing motivation is the catalyst for such an endeavor. In the voices of BPE students, this study uncovers fundamental concepts that motivate students to take ownership of their fitness, which may result in a lifetime of healthy choices.
CHS is one of a few high schools in the United States offering a blended learning course in PE. Inspiration to start a BPE program at CHS began when the Assistant Superintendent of Educational Services and her team visited another high school to explore its blended program. Because PE is primarily performance-based, the Assistant Superintendent and her team had not originally considered including BPE in the new blended program, but the staff at the other school shared a story about an overweight student who signed up for their BPE program. This student was not comfortable with regular PE but wanted to be healthy. This student participated in the BPE program, lost weight, and was extremely thankful for the blended option. This story encouraged the CHS team to consider the viability of the blended option in PE and in other performance-based classes like Culinary Arts and Science. Subsequently, the BPE model was introduced to the CPE program during the 2015-2016 school year and since its inception, 199 students have participated in the BPE program.

Students learn about the BPE option during the course registration week at CHS in December when the CHS PE teachers facilitate a PowerPoint presentation that describes the various PE options, including BPE. The students enter the auditorium with a course registration card in hand and are encouraged to select a course for the following school year based on the presented information. Once all course selections for all content areas are complete, the cards are submitted to the counselors for approval.

The BPE curriculum requires each student to wear a school-issued Fitbit and meet three requirements: walk 60,000 steps a week, work out for at least 30 minutes a day for 5 days, and maintain an elevated heart rate for at least 15 minutes during each 30-minute workout. Students
must sync their Fitbits daily, so their fitness data are uploaded to the Fitabase research platform that collects, aggregates, and analyzes data. The data are interpreted for grading and to provide pertinent feedback. BPE students can monitor their data in real time by referring to the Fitbit app or the Fitbit website. In the next section, the students who agreed to participate in this study are introduced and the consent and assent processes are described.

Participants and Consent

Unlike the other upper class-level PE classes at CHS, BPE is a year-long class; hence, the study was conducted during the 2019-2020 school year. The participants in this study were 11\textsuperscript{th} and 12\textsuperscript{th} grade BPE students. Of the 3,321 students enrolled in CHS, 794 (23\%) were in the 11\textsuperscript{th} grade and 849 (26\%) were in the 12\textsuperscript{th} grade for a total of 1,643. In CHS’s Course Offering Guide, BPE falls under Conditioning, and of the students enrolled in PE, 338 students are enrolled in Conditioning (with 285 females and 53 males). Thirty students were enrolled in BPE Conditioning; 11 students were in the 11\textsuperscript{th} grade and 19 students were in the 12\textsuperscript{th} grade, 28 students were females and 2 students were male. Twenty of the 30 BPE students agreed to participate in this study.

The students were required to attend class in person two days per week (Monday and Tuesday). During the attendance days, I facilitated an autonomy-supportive/competence enhancing classroom with a focus on choice, personal fitness goals, performance techniques, fitness competencies, technology, and connecting with students’ interest. Students transferred the knowledge gained during attendance days to their independent performance days. The non-attendance days were essential for achieving gains that would lead to desired performance
outcomes. These were the days when students made independent and autonomous decisions that orchestrated their progress in BPE.

The BPE students were introduced to the study during the fall semester of 2019, but the data collection started during in January of 2020, during the spring semester. To obtain consent, I communicated the purpose of the study, the ways in which the data would be collected, a statement about the confidentiality of data, and any risks involved to all parents via email. The email communication was followed by distribution of a Northern Illinois University Consent to Participate in a Research Study (Appendix B) form that was signed by students who were 18. For students under 18 years of age, the Northern Illinois University Assent to Participate in a Research Study (Appendix C) was distributed and signed by the student only if a parent/guardian had signed and returned the consent form.

It was my desire to have 30 students participate in this qualitative study, but two months into my data collection, the COVID-19 pandemic forced the school into a stay-at-home remote learning mandate. I was unable to obtain consent forms from 10 students; therefore, 20 BPE students participated in the study, which included females \( n = 18 \) and males \( n = 2 \) ages 16 to 18. Table 2 lists each student’s pseudonym along with their gender, year in school, year in BPE, and the number of interviews in which the student participated.
Table 2

Individual Students’ Demographic Information, Including Pseudonyms

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Gender</th>
<th>Year in school</th>
<th>Year in BPE</th>
<th>*# of Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alo</td>
<td>F</td>
<td>12</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Aylina</td>
<td>F</td>
<td>11</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Brianna</td>
<td>F</td>
<td>12</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Brittany</td>
<td>F</td>
<td>12</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Charlotte</td>
<td>F</td>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>David</td>
<td>M</td>
<td>11</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Elsy</td>
<td>F</td>
<td>12</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Enya</td>
<td>F</td>
<td>12</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>John</td>
<td>M</td>
<td>11</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Laura</td>
<td>F</td>
<td>12</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Les</td>
<td>F</td>
<td>12</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Maria</td>
<td>F</td>
<td>11</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Mia</td>
<td>F</td>
<td>12</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Nani</td>
<td>F</td>
<td>11</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Saoise</td>
<td>F</td>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Shelby</td>
<td>F</td>
<td>11</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Sophia</td>
<td>F</td>
<td>11</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Victoria</td>
<td>F</td>
<td>12</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Xiomara</td>
<td>F</td>
<td>11</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Zoe</td>
<td>F</td>
<td>12</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

*Represents the number of interviews in which the student participated

Data Collection

In the interest of gathering good qualitative data, Merriam and Tisdell (2016) stress the importance of constructing good interview questions in that “the way in which the questions are worded is a crucial consideration in extracting the type of information desired” (p. 117).

Qualitative interview questions should be composed in a voice that is familiar to the participants.
(Merriam & Tisdell, 2016) and assume an epistemology that will elicit the best understanding of each participants’ experience (Ambert, Adler, Adler, & Detzner, 1995). The formulation of questions requires skill and practice. Patton (2015) contends that the following six types of questions force the interviewer to be clear and diligent about what is being asked:

1. Experience and behavior questions. This type of question addresses a person’s experiences, actions, and activities. Example: Tell me about a typical day in a BPE classroom.

2. Opinion and values questions. This type of question addresses a person’s opinions, judgements, and values. Example: What is your opinion about using fitness applications as a substitute for teacher instruction?

3. Feeling questions. This type of question considers the affective domain: “the interviewer is looking for adjective responses [like] anxious, happy, afraid, intimidated, confident, and so on” (p. 855). Example: How do you feel when you have to make up a missed BPE day?

4. Knowledge questions. This type of question is designed to extract a person’s factual knowledge. Example: Where can you find troubleshooting information about your Fitbit?

5. Sensory questions. This type of question captures “the experience of the senses” (p. 856): sight, sound, touch, taste, and smell. Example: What did you see as you entered the fitness center?

6. Background/demographic questions. These types of questions capture a person’s background information and demographic information. Example: How old are you? What is your year in school? What is your race?
For the study, all interview questions were drafted using the autonomy and competence items from the Basic Psychological Need Satisfaction and Frustration Scale for Physical Education (BPNSFPES; Chen et al., 2015; Haerens, Aelterman, Vansteenkiste, Soenens, & Van Petegem, 2015; Wilson, Rogers, Rodgers, & Wild, 2006; see Appendix D). The BPNSFPES is an adaptation of the Basic Psychological Need Satisfaction and Frustration Scales (BPNSFS, Chen et al., 2015). The instrument was available only in the Dutch language and was translated using a number of online translation tools. Some of the descriptive statements were revised to support the English vernacular and the high school-aged student dialect. The BPNSFS addresses need satisfaction in several aspects of one’s life: work and relationships, in general, in PE, and in daily life. The scale includes items assessing the need for autonomy, competence, and relatedness. I focused only on the items assessing autonomy and competence. There are eight separate BPNSFPES descriptive statements addressing satisfaction levels in regard to autonomy and competence during a PE lesson (Table 3).

Table 3
Autonomy and Competence Satisfaction Items for Physical Education

<table>
<thead>
<tr>
<th>Autonomy Satisfaction</th>
<th>Autonomy Frustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>I had a sense of choice and freedom in the things I did.</td>
<td>I felt compelled to do a lot of exercises that I did not choose.</td>
</tr>
<tr>
<td>I felt that the exercises matched what I would like.</td>
<td>I felt obliged to do too many exercises.</td>
</tr>
<tr>
<td>I felt like the way I was taught matched what I wanted.</td>
<td>I felt pressured to do certain things.</td>
</tr>
<tr>
<td>I felt that what we did in class really interested me.</td>
<td>I felt as if I had to do the exercises.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competence Satisfaction</th>
<th>Competence Frustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>I was confident that I could do the exercises well.</td>
<td>I had serious doubts as to whether I could do exercises well.</td>
</tr>
<tr>
<td>I felt able to achieve my goals.</td>
<td>I was not sure about my skills.</td>
</tr>
<tr>
<td>I felt capable of doing what I did.</td>
<td>I was disappointed in many of my achievements.</td>
</tr>
<tr>
<td>I felt I could complete difficult tasks with success.</td>
<td>I felt like a failure because of the mistakes I made.</td>
</tr>
</tbody>
</table>
Yin (2018) expressed the importance of using multiple sources to capture and triangulate the complexity of a case and its context. Focus group discussions, semi-structured interviews, and vlogging were triangulated to strengthen the validity of the data in this study. Patton’s (2015) suggestions and the items from the BPNSFPES guided construction of the questions for all three data collection methods. The following sections describe each data collection method in detail.

**Focus Group Discussions**

According to Merriam and Tisdell (2016), a focus group is comprised of a group of individuals who share knowledge about a particular topic. A focus group interview provides an opportunity for participants to share freely and gain insight from other participants in a welcoming and collaborative space (see George, 2013). Even though this methodological practice has been used in a number of contexts by applied and academic analysts (George, 2013), George points out that focus groups interviews are underutilized in education. Accordingly, Williams and Katz (2001) believe that focus groups discussions are practical for stimulating action-oriented educational research and note that access to “knowledge, ideas, story-telling, self-presentation, and linguistic exchanges within a given cultural context” (p. 2) are key characteristics leading to the elevated use of focus group discussions in education. Regarding the physical activity of children, Woolley, Edwards, and Glazebrook (2018) view focus group discussions as a viable approach to data collection. Among the advantages of focus group interviews included in their study are less time constraints, lively conversations, and informal interview venues (e.g., an informal ‘activities’ area). The BPNSFPES scale items were used to structure conversation starters for the focus group discussion (Table 4).
Justification

To gain insight about the motivation of BPE students to perform physical activities, I chose focus group interviews as one method to triangulate the data. A focus group is an effective way to assemble a small group of people to discuss topics of interest. Although guided by a moderator, the open forum approach facilitates an atmosphere in which individuals can share experiences, opinions, and attitudes about the topic that may extend the prepared questions. Further, the open forum often elicits perceptions and ideas from an individual that are motivated by the responses of other members of the group. According to William and Katz (2001), focus group discussions produce rich, in-depth, high quality data, providing researchers with perspectives that are void in quantitative research. Additionally, the collaborative efforts inherent in the focus group format often empower its members. William and Katz identified four

Table 4
Examples of Vlogging Discussion Topics Constructed from BPNSFPES

<table>
<thead>
<tr>
<th>Satisfaction/Frustration</th>
<th>Items from Scale</th>
<th>Focus Group Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy Satisfaction</td>
<td>I had a sense of choice and freedom in the things I did.</td>
<td>What are the benefits of a BPE class?</td>
</tr>
<tr>
<td>Autonomy Frustration</td>
<td>I felt compelled to do a lot of exercises that I did not choose.</td>
<td>What are the challenges of a BPE class?</td>
</tr>
<tr>
<td>Competence Satisfaction</td>
<td>I felt I could complete difficult tasks with success.</td>
<td>Provide an example of a fitness application that helped you meet your 15-minute elevated heart rate goal.</td>
</tr>
<tr>
<td>Competence Frustration</td>
<td>I was not sure about my skills.</td>
<td>What physical performance skills challenged you the most?</td>
</tr>
</tbody>
</table>
objectives that have resulted in an increased use of focus group discussions in secondary and higher education in the last 10 years:

- The development of learning tools that will appeal to students’ interests and needs;
- The evaluation of students’ knowledge or attitudes about curriculum issues;
- The formulation of new marketing strategies for educational programs;
- The enhancement of survey results in education research. (Williams & Katz, 2001, p.4)

William and Katz consolidated several focus group how-to guides to develop a practical guide for conducting focus group research in education. Table 5 summarizes the researcher’s points of emphasis and subsequent challenges.

Table 5

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus on the research purpose</strong></td>
<td>Focus groups should not be conducted simply for the sake of conducting a focus group; focus groups should not be conducted if the research requires statistical data; change should occur only when focus groups are complete.</td>
</tr>
<tr>
<td>Answer two questions: what is the research for, and who is using the results?</td>
<td>Ineffective moderation can occur when the moderator is too close to the topic, does not listen carefully, does not maintain a focused energy, and fails to draw out responses from participants.</td>
</tr>
<tr>
<td><strong>Select a skilled moderator</strong></td>
<td>Too many questions, unclear questions, and formal language can threaten the creation of an effective interview guide.</td>
</tr>
<tr>
<td>The moderator should possess the ability to listen, probe, and direct group interaction; the moderator must make participants feel at ease.</td>
<td>At times, researchers must go through a gatekeeper, such as a principal, to form groups.</td>
</tr>
<tr>
<td><strong>Design an effective interview guide</strong></td>
<td></td>
</tr>
<tr>
<td>Design questions that are unstructured and open-ended in order to ensure the collection of applicable data.</td>
<td></td>
</tr>
<tr>
<td><strong>Select and recruit appropriate participants</strong></td>
<td></td>
</tr>
<tr>
<td>Strive for homogeneity in the selection of participants.</td>
<td></td>
</tr>
</tbody>
</table>
Twenty students, separated into five groups, participated in the focus group discussions (Table 6). Four of the five focus group discussions took place in a classroom on the campus of CHS. Because I facilitated the interviews, the focus group discussion students were the only students required to attend class on the scheduled interview days. I recorded each discussion using an iPad (audio and video) and my cell phone (audio only). I provided each student with a notepad, a pencil, and healthy snacks. To avoid interrupting a student who was speaking, I advised the students to use their notepad if they had thoughts to share. I started each interview with this script:

Thank you for agreeing to participate in this focus group discussion. You are here because you are BPE students and I am interested in hearing your valuable opinion about BPE and what motivates you to meet personal fitness goals.

I will lead the discussion by asking questions. There are no wrong answers. Please feel free to share your point of view even if it differs from others. Keep in mind I am just as interested in negative comments as I am in positive comments. In fact, negative comments are sometimes the most helpful.

You’ve probably noticed that I am recording this session; I am doing this because I don’t want to miss any of your comments.

Although I will address you by your first name, I will not use your names in my report. I will use your pseudonym.

This session will last about 30 minutes. I have provided some snacks. Feel free to help yourself. I have a few simple ground rules:

1. Please turn off your cell phones.
2. Everyone should participate
3. Please do not have side conversations
4. Please keep the information provided in this discussion confidential (i.e., please don’t share with other students)
5. Have Fun!

Let’s begin.
Then I began each discussion with three warm-up questions: What does BPE mean to you, How is BPE different from your regular PE experience, and What things do you like and/or dislike about BPE. After which, I continued guiding the discussion by asking the sub-questions for each research question (Appendix E).

The fifth focus group discussion took place using the Zoom video and audio platform because everyone needed to shelter-in-place. I contacted each member of FG5 using the Remind app to schedule a day and time that worked for each participant. Before reading the script, we had a light conversation about living in the COVID-19 Pandemic. After which, I read the script, led with the warm-up questions, and then asked the sub-questions. At the conclusion of each focus group discussion, I uploaded the video to either Temi or Rev, which are online audio and video transcription programs.

Table 6
Focus Groups

<table>
<thead>
<tr>
<th>Focus Group Discussion Groups</th>
<th>FG1</th>
<th>FG2</th>
<th>FG3</th>
<th>FG4</th>
<th>FG5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alo</td>
<td></td>
<td></td>
<td>Mia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elsy</td>
<td></td>
<td></td>
<td></td>
<td>Aylina</td>
<td></td>
</tr>
<tr>
<td>John</td>
<td></td>
<td></td>
<td>Maria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laura</td>
<td></td>
<td></td>
<td>Nani</td>
<td>Charlotte</td>
<td></td>
</tr>
<tr>
<td>Sophia</td>
<td></td>
<td></td>
<td>Xiomara</td>
<td>David</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enya</td>
<td>Brittany</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Saoise</td>
<td>Les</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Zoe</td>
</tr>
</tbody>
</table>

Semi-Structured Interviews

Yin (2018) identifies interviews as a critical source for case study evidence. Case study interviews are guided conversations that can be methodical and/or fluid. The questions are
designed to unpack each interviewee’s perspective of key events. Yin notes that knowledgeable interviewees can offer an understanding about natural events that can abbreviate the historical context of the event. The core of the interview is bounded by the purpose of the study and the research questions (Creswell & Poth, 2017) and encourages free exploration that will fundamentally highlight significant participant experiences (Maxwell, 2013). To help further guide the narrative, Yazan (2015) suggests branching several substantive questions from the research questions. For example, one of my research questions was What motivates 11th and 12 grade students to meet BPE performance requirements during face-to-face meetings? A substantive question was What motivates you to choose to run a timed mile during our face-to-face meetings? Composing a list of questions helped guide the conversations.

Tyson (1991) notes that the format of semi-structured interviews provides enough flexibility to keep the interviewee engaged in a dialog. Tyson adds that the semi-structured interview format promotes richer responses and allows the interviewer to probe ambiguous responses to evoke additional information. The theoretical framework for this study draws from the cognitive evaluation theory, which examines the effects that autonomy and competence have on intrinsic motivation. For the study, the semi-structured interview questions were designed using the autonomy and competence items from the Basic Psychological Need Satisfaction and Frustration Scale for Physical Education. Table 7 illustrates how scale items were transformed into interview questions.
Table 7
Examples of Semi-Structured Interview Questions Constructed from BPNSFPES

<table>
<thead>
<tr>
<th>Satisfaction/Frustration</th>
<th>Items from Scale</th>
<th>Interview Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy Satisfaction</td>
<td>I had a sense of choice and freedom in the things I did.</td>
<td>What is your opinion about the free choice you had in and outside of class?</td>
</tr>
<tr>
<td>Autonomy Frustration</td>
<td>I felt pressured to do certain things.</td>
<td>How did you handle meeting class requirements outside of the classroom?</td>
</tr>
<tr>
<td>Competence Satisfaction</td>
<td>I was confident that I could do the exercises well.</td>
<td>Describe times when you felt confident in performing exercises.</td>
</tr>
<tr>
<td>Competence Frustration</td>
<td>I had serious doubts as to whether I could do exercises well.</td>
<td>Describe times when you had doubts about performing exercises well.</td>
</tr>
</tbody>
</table>

As Merriam and Tisdell (2016) suggest, a qualitative investigation is generally less structured and more open than a quantitative analysis. Therefore, the construction of semi-structured interview questions should mimic the characteristics of a qualitative approach. The interview questions presented in Appendix E were flexibly worded and led to purposeful conversations with the high school BPE participants.

Justification

Qualitative research seeks to find meaning in a person’s experiences. I was interested in obtaining in-depth understanding of the BPE students’ lived experiences during face-to-face exchanges and independent participation. Semi-structured interviews allowed me to develop a list of questions and probes (the interview guide) that served as a framework for facilitating guided conversations; it was not a script to be followed precisely. The open and exploratory nature of semi-structured interviews allowed for occasional offhand dialog that delved deeper
into the students’ perspectives of the phenomenon. Additionally, the semi-structured interviews provided the opportunity to connect non-verbal cues to the students’ responses and ensured that all questions were answered, and respondents were not influenced by others (Barriball & While, 1994).

The idea of conducting semi-structured interviews in educational research is supported by many professionals and researchers in the field. Boyce and Neale (2006) emphasize that a key advantage of in-depth interviews is that they yield substantially more information than other data collection methods (i.e., surveys, questionnaires). The researchers also point out that the personable nature of an interview elicits a comfortable atmosphere that evokes relaxed, and open dialog. Although Boyce and Neale reveal four limitations to interviews—they can be prone to bias, they can be time-intensive, appropriate interviewer training is a must, and they are not generalizable, Boyce and Neale also contend that interviews are useful when detailed information about a phenomenon is desired. Adhabi and Anozie (2017) also identified limitations to semi-structured interviews similar to previous researchers, but they point out that the use of technology tends to minimize challenges (e.g., video conferencing to assist with time constraints). As the use of technology is a major component of BPE, vlogging technology (introduced in the next section) served as one of the qualitative data collection approaches in this study and minimized time constraints that can accompany interviews.

**Process**

All of the data for the semi-structured interviews were captured via Zoom to accommodate for the unexpected changes brought on by the COVID-19 Pandemic. The students selected for the semi-structured interviews—Alo, Enya, Shelby, Victoria, and Xiomara—are
chosen based on how active their participation had been during the focus group discussions. To schedule a day and time for the interviews, I contacted each participant using the Remind app. I started each interview with light conversation about life during the pandemic. After which, I started the interviews with three warm-up prompts: What does BPE mean to you, How does BPE compare to your regular PE experience, and Describe a typical nonattendance school day when you must include a workout. For the remainder of the interviews, I guided the conversation by asking the sub-questions related to the research questions. At the conclusion of each semi-structured interview discussion, I uploaded each video to either Temi or Rev.

Vlogging

In this highly advanced ICT society, the Web 2.0 framework emphasizes user-generated content that can be shared in a virtual community. Specifically, Web 2.0 is the emergence of social networking and always-connected information sharing in the form of social media, blogs, wikis, podcasts, video streaming and other collaborative forms of internet technologies (Penrod, 2008). A vlog is simply a blog that uses video as the medium (Gao, Tian, Huang, & Yang, 2010) and is routinely updated and shared on a video streaming platform. To expand on this definition, Griffith and Papacharissi (2010) report that vlogs are the descendants of blogs and are posted on public spaces for candid expressions of individuality where the author manages the content. Murthy (2008) concludes that the growth of digital technologies creates research opportunities that can balance a participant’s cultural phenomena in both a physical and digital arena, giving the researcher an expansive array of research methods.

BPE is the fusion of traditional instruction with independent physical performance and is monitored electronically. BPE students are encouraged to employ technological applications to
meet physical performance requirements outside of the traditional classroom. With that in mind, I included vlogging as a final triangulation method. Students in this study were asked to vlog about their experiences in BPE. The vlogs took on characteristics of unstructured interviews absent an interviewer. An unstructured interview is an exploratory procedure with no predetermined set of questions (Merriam & Tisdell, 2016; Zhang & Wildemuth, 2009). Typically, the interviewer engages in a conversation with the interviewee and generates questions based on the dialog. Zhang and Wildemuth (2009) convey that an unstructured interview intends to uncover unanticipated themes and helps the researcher gain a clearer understanding of the participants’ social reality. The BPE vlogging forum was absent an interviewer and the questions were guided by some central ideas (e.g., autonomous participation, knowledge mastery, and motivation), but my desire was to gain additional insight into the experiences and motivational stimuli of BPE students. The BPNSFPES scale items were used to structure vlogging topics (Table 8).

Table 8
Examples of Vlogging Discussion Topics Constructed from BPNSFPES

<table>
<thead>
<tr>
<th>Satisfaction/Frustration</th>
<th>Items from Scale</th>
<th>Vlogging Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy Satisfaction</td>
<td>I felt that exercises matched what I would like.</td>
<td>Vlog about the exercises you chose to do this week.</td>
</tr>
<tr>
<td>Autonomy Frustration</td>
<td>I felt pressured to do certain things.</td>
<td>Vlog about any pressure or anxiety you may have experienced during your workouts this week.</td>
</tr>
<tr>
<td>Competence Satisfaction</td>
<td>I felt capable of doing what I did.</td>
<td>Vlog about how you managed your workouts this week.</td>
</tr>
<tr>
<td>Competence Frustration</td>
<td>I was not sure about my skills</td>
<td>Vlog about any concerns that surfaced during your workouts this week.</td>
</tr>
</tbody>
</table>
Justification

As there is a dearth of literature concerning the use of vlogging as a distinct qualitative research protocol, a small but growing number of articles examine using video streaming in research. Since video streaming is a participatory act, Jewitt (2012) drafted a report that introduced the use of video for research and defined participatory video as a process or an intervention in which research participants are provided with access to video recording equipment and training to ensure they can use it in order to document an aspect of their lives. Generally, participatory video is used to explore people’s experiences and it produces three kinds of data: 1) the video ‘as product’, 2) the process of its production – which itself is often video recorded, and 3) the process of video editing. (p. 3)

Hung (2011) explored the pedagogical implementation of vlogs in an English for Specific Purposes (ESP) course. Course participants employed vlogs as an additional language learning medium. The results indicated the participants favored this medium because vlogging helped them organize, self-evaluate, and archive their learning. A second result indicated an appreciation for how the autonomy in completing and viewing vlogs relieved participants from time constraints. Next, the participants were able to enhance both their peer learning and professional development. Finally, the participants indicated that certain technical functioning—e.g. creating hyperlinks for sharing, creative editing, and re-uploading vlogs—increased their motivation to produce vlogs. Hung identified several challenges that surfaced in his research: occasional internet stability issues, affective interferences (presenting vlogs to larger groups), deficient real-time communication in small groups, and the time requirements involved with recording, editing, and uploading videos.
Process

The vlogs were a weekly assignment for all students in the BPE program, but I was only able to consider vlogs from 15 students who both submitted their consent forms and completed the vlogs: Alo, Brianna, Brittany, David, Elsy, Enya, John, Laura, Les, Maria, Nani, Paola, Shelby, Xiomara, and Zoe. For this study, the students vlogged 15 times by either answering questions or responding to statements. I employed an app called Random Name Picker to gather data for six students per question. At the conclusion of each vlog series (one question, six responses), I uploaded the videos to either Temi or Rev.

Alignment to Research

Yin (2018) identified the importance of connecting data collection methods with research questions and triangulating the different methods. Unlike the inflexible nature of a quantitative inquiry in which fixed responses can range from very satisfied to not satisfied, qualitative inquiry is malleable and aims to elicit open-ended responses that capture the true nature of a phenomenon (Patton, 2015). In the previous section of this chapter, three qualitative data collection strategies (triangulation)—focus group discussions, semi-structured interviews, and vlogging—were identified and defined. Furthermore, to illustrate alignment to the research questions, sample interview questions were included in the discussion. Table 9 illustrates the alignment of the research questions to the data collection strategies.
Table 9

Research Question Alignment to Data Collection Strategies

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Semi-Structured Interviews</th>
<th>Focus Group Discussions</th>
<th>Video Blogging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What do 11th and 12th grade students say about their motivation in a BPE class?</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>In what ways does a BPE learning environment help students meet their personal goals?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>3. What motivates 11th and 12 grade students to meet BPE performance requirements during independent, online training?</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Data Analysis

A fundamental property of qualitative data analysis is the organization and management of the data (Merriam & Tisdell, 2016; Mertens, 2014; Yin, 2018). Yin (2018) advises that researchers employ the following principles when collecting case study data:

Principle 1: Use multiple sources of evidence—triangulation with three sources of evidence increases the validity of the study.

Principle 2: Create a case study database—organize and document the data collected using word-processing tools or computer-assisted qualitative data analysis software (CAQDAS).

Principle 3: Maintain a chain of evidence—allows the reader to follow the evidence from research questions to study findings.
Principle 4: Exercise care when using data from social media sources—set limits when using social media, cross-check sources, and exercise skepticism when using information from Facebook, Twitter, YouTube, and individual blogs.

Yin also advises that researchers, especially novice researchers, adopt these four principles to guide the organization and management of data and increase quality data analyses.

**Triangulation**

Merriam and Tisdell (2016) characterize triangulation as the best-known strategy to establish internal validity and increase the credibility of a study. Maxwell (2013) reports that triangulation balances the strengths and limitations of different data collection methods to establish a bias-free conclusion. Triangulation strengthens the validation and reliability of data, which corroborates the findings of a study (O’Connor & Gibson, 2003). The use of multiple data collection methods, multiple investigators, and multiple data sources are common triangulation methods in qualitative research (Merriam & Tisdale, 2016). For this study, focus group discussions, semi-structured interviews, and vlogs were triangulated to strengthen the validity and reliability of the data.

Triangulation of qualitative data sources connects ideas to identify themes, patterns, and concepts that materialize from interview questions (Patton, 2015). Patton (2015) considered the field notes and raw data emerging from observations, interview transcripts, and document reviews “the fruit of qualitative inquiry” (p. 69). The formation of themes and patterns that progress from analysis of the data transpires via coding, a process of classifying the elements of text data into common themes (Lapan, Quartaroli, & Riemer, 2012). I describe my coding process for this study in the next section.
Coding

I used transcription software (e.g., Temi and Rev) to transcribe the BPE students’ responses for all three data collection techniques: focus group discussions, semi-structured interviews, and vlogs. The transcriptions allowed me to organize the data, ideas and concepts; build over-arching themes; ensure reliability and validity in the data and findings; and find reasonable explanations for the findings (O’Connor & Gibson, 2003).

After the interviews were transcribed, I employed a three-prong qualitative coding system to identify and connect common characteristics and themes: open coding, axial coding, and selective coding (Merriam & Tisdell, 2016). I created an Excel spreadsheet to organize my coding. The spreadsheet included three sheets titled Open, Axial, and Selective. I took students’ comments for each research question from the transcription document and organized them by either focus group number or participant, depending on the data collection method. In the Open sheet, I used a color-coding system to connect analogous BPE student responses to the interview questions or vlog statements. As I analyzed these responses, I identified generic themes, named the themes, and placed the themes in color-coded cells above the students’ comments. Figure 5 illustrates an exchange between students answering the question “What does blended PE mean to you?” during focus group discussions.
RQ1: What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment meet their personal goals?

<table>
<thead>
<tr>
<th>Q1: What does blended PE mean to you?</th>
<th>Free Choice/Ownership</th>
<th>Class Schedule</th>
<th>Do Other Things</th>
<th>Responsibility</th>
<th>Settings Goals</th>
<th>Time Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus Group 1</td>
<td>Focus Group 2</td>
<td>Focus Group 3</td>
<td>Focus Group 4</td>
<td>Focus Group 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to work on yourself, to prepare</td>
<td>having responsibility (Brianna)</td>
<td>being able to learn myself, what my body needs, what to take and what exercises I need for my body (Mia)</td>
<td>Freedom of choice...you can choose what you want to work on (Charlotte)</td>
<td>you're independent by yourself some days (Brittany)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yourself, to be able to reach your</td>
<td>learning how to work on my own...what I need to take care of, you know what workouts I need to do for myself (Victoria)</td>
<td>Learning responsibility (Enya)</td>
<td>Learning how to take like take working out into your own hands (Ela)</td>
<td>It helps you also like learn more responsibility by being independent (Les)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>healthy (Alo)</td>
<td>doing your own stuff on your own time (Brianna)</td>
<td>feeling how to work on my exercise, after, you start to learn (Enya)</td>
<td>going to class everyday and actually focusing on um, what you need to focus on, like you can choose the type of workout and when you want to work out (Doe)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to come twice a week (Alo)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>we get to sleep in the rest of the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>days or do our workout (Alo)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>learn what you need for yourself</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and for the future (Georgia)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>signing up for the two days (Ely)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can't like pick their own workouts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Ely)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5. Open coding for the sub-question “What does blended PE mean to you?”

The color codes from the Open sheet helped me group student comments into generic themes and organize them in the Axial sheet (Figure 6).
**Q1: What does blended PE mean to you?**

<table>
<thead>
<tr>
<th>Theme I</th>
<th>Theme II</th>
<th>Theme III</th>
<th>Theme IV</th>
<th>Theme V</th>
<th>Theme VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Choice/Ownership</td>
<td>Class Schedule</td>
<td>Do Other Things</td>
<td>Responsibility</td>
<td>Settings Goals</td>
<td>Time Management</td>
</tr>
</tbody>
</table>

Finally, selective coding allowed me to develop common themes for all sub-questions and form connections. The linked concepts were placed in the theme connection cells of the Selective sheet. Appendix F illustrates the theme connections that emerge from focus group discussion data for RQ1 and the sub-questions.
Primary Data Analysis

Comments related to the lived experiences of the BPE students were grouped thematically around six themes: autonomy, competence, motivation, responsibility, class schedule, and technology. I discovered the themes interconnected to influence motivation in an autonomy-supportive/competence-enhancing learning environment. For each qualitative tool, a count of the relevant comments was tallied to determine which themes received the most attention relative to the research questions and the sub-questions. For example, Alo made a total of nine comments related to RQ1: two comments connected to autonomy, two comments connected to competence, three comments connected to motivation, and two comments connected to class schedule (Figure 7).

An overall comment count related to each research question for all three qualitative instruments is presented in Table 10. The themes are listed in order by the number of comments (from most to least) made in answering the sub-questions related to each research question.
**RQ1:** What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment meet their personal goals?

Q1: What are the benefits of a BPE class? (11)
Q2: What are the challenges of a BPE class? (10)
Q3: Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal. (12)
Q4: What is motivation and how does it apply to BPE? (15)
Q5: What motivates you to meet your fitness goals? (16)

---

**Table 10**

<table>
<thead>
<tr>
<th>Theme</th>
<th>RQ1</th>
<th>RQ2</th>
<th>RQ3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All 3 Instruments</td>
<td>All 3 Instruments</td>
<td>All 3 Instruments</td>
</tr>
<tr>
<td>AUTONOMY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMPETENCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOTIVATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESPONSIBILITY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLASS SCHEDULE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TECHNOLOGY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td># of Comments</td>
<td>%</td>
<td># of Comments</td>
</tr>
<tr>
<td>Competence</td>
<td>51</td>
<td>33%</td>
<td>35</td>
</tr>
<tr>
<td>Motivation</td>
<td>68</td>
<td>49%</td>
<td>48</td>
</tr>
<tr>
<td>Autonomy</td>
<td>42</td>
<td>42%</td>
<td>39</td>
</tr>
<tr>
<td>Responsibility</td>
<td>48</td>
<td>60%</td>
<td>21</td>
</tr>
<tr>
<td>Technology</td>
<td>15</td>
<td>20%</td>
<td>11</td>
</tr>
<tr>
<td>Class Schedule</td>
<td>17</td>
<td>77%</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>570</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 11 presents an overall comment count related to each qualitative tool. The themes are listed in order by the number of comments (from most to least) made in answering the sub-questions related to each research question. A summary of all qualitative data including comment counts, percentages, definitions, and theme connections for each qualitative tool is presented in Appendix G.

Table 11

<table>
<thead>
<tr>
<th>Theme</th>
<th>Focus Group Discussions</th>
<th>Semi-Structured Interviews</th>
<th>Vlogs</th>
<th>Total</th>
<th>Total # of Comments</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Comments</td>
<td>%</td>
<td># of Comments</td>
<td>%</td>
<td># of Comments</td>
<td>% used</td>
</tr>
<tr>
<td>Competence</td>
<td>76</td>
<td>49%</td>
<td>20</td>
<td>13%</td>
<td>59</td>
<td>38%</td>
</tr>
<tr>
<td>Motivation</td>
<td>78</td>
<td>56%</td>
<td>22</td>
<td>16%</td>
<td>39</td>
<td>28%</td>
</tr>
<tr>
<td>Autonomy</td>
<td>39</td>
<td>39%</td>
<td>25</td>
<td>25%</td>
<td>35</td>
<td>35%</td>
</tr>
<tr>
<td>Responsibility</td>
<td>56</td>
<td>70%</td>
<td>4</td>
<td>5%</td>
<td>20</td>
<td>26%</td>
</tr>
<tr>
<td>Technology</td>
<td>49</td>
<td>65%</td>
<td>5</td>
<td>7%</td>
<td>21</td>
<td>28%</td>
</tr>
<tr>
<td>Class Schedule</td>
<td>14</td>
<td>64%</td>
<td>2</td>
<td>11%</td>
<td>6</td>
<td>32%</td>
</tr>
</tbody>
</table>

Conclusion

In this chapter, I explained the methods used to carry out the study. Four main areas were covered: design, participants, the data collection, and data analysis. The next chapter will delve further into the themes that emerged from the data collected and the role the themes play in the motivation of BPE students.
CHAPTER 4
FINDINGS

Introduction

The purpose of this qualitative case study was to examine 11th and 12th grade high school students’ motivation in a BPE class. This chapter provides an overview of the findings produced by triangulating three qualitative data sources: focus group discussions (FG), semi-structured interviews (SS), and vlogs (VL). By using this approach, student voice revealed the intent, ideas, and values that accentuated their lived experiences in an autonomy-supportive/competence-enhancing BPE environment. Cook-Sather (2006) describes student voice as the “students’ own words, presence, and power” (p. 16) in education research and reform. Cook-Sather recognizes that students have exceptional perspective and valuable insight within the context of teaching and learning, and ought to be considered when shaping their education. Student voice is a core element in the paradigm shift from teacher-centered learning to student-centered learning, which is fundamental to the principles of BPE. The voices of the students in this study facilitated the emergence of six themes from the key concepts and, through the data analysis, gave depth and authenticity to the qualitative findings. The six themes are discussed in the following sections.

BPE Themes

The students’ aggregate comments from the focus group discussions, semi-structured interviews, and vlogs uncovered six BPE themes instrumental to their motivation: class schedule,
technology, responsibility, autonomy, motivation, and competence. What follows, through the BPE students’ voices, are their lived experiences as related to the six themes. Each section begins with an epigraph and a table detailing the themes for each theme as well as key concepts and phrases used when analyzing the data.

**Themes 1 and 2: Class Schedule and Technology**

When asked in a vlog, “Why did you enroll in BPE?,” Zoe replied, “The first reason was because it meant that I didn’t have to come to class everyday…the final reason why I took blended PE was because of the Fitbit.”

<table>
<thead>
<tr>
<th>Table 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Words, Phrases, and Concepts—Class Schedule and Technology</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theme</th>
<th>Key Words, Phrases, and Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class Schedule</strong></td>
<td><strong>KEY WORDS AND PHRASES:</strong> Any word or phrase that referred to the two days per week students were required to attend class or the three days they were not required to attend; blended days, attendance days</td>
</tr>
<tr>
<td>Technology</td>
<td><strong>KEY CONCEPTS:</strong> required attendance days, nonattendance days</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td><strong>KEY WORDS AND PHRASES:</strong> Any word or phrase that referred to the fitness tracker (Fitbit), fitness apps (Nike Training), social media (Instagram, TikTok), or video, information, and streaming platforms (YouTube, Pinterest, Pandora); technology, fitness data, steps, calories.</td>
</tr>
<tr>
<td></td>
<td><strong>KEY CONCEPTS:</strong> synchronous or asynchronous modalities, social media applications, fitness trackers, learning management systems, use of technology</td>
</tr>
</tbody>
</table>

Although class schedule and technology received the least amount of coded aggregate comments (total \( n = 97 \) or 17% of all comments), these two themes informed the remaining themes that generated more comments. Prior to class registration at CHS, the PE teachers gather all freshmen, sophomores, and juniors in the auditorium for a presentation that highlights PE
course offerings. The two-day-a-week class schedule and use of a Fitbit are presented as highlights for BPE and are the initial motivation for many students to enroll in BPE. When asked in a vlog, “Why did you enroll in BPE,” Enya responded, “I did it so that I would not be at school as much as I usually do, because [for] this blended education program, we’re there two days a week and then the rest of the week, we’re not there.” Enya added, “But I also did it for the Fitbit so that I could be serious about working out at home” (VL2; Supplemental File A). Paralleling Enya, Zoe said she also enrolled because of the class schedule and the Fitbit:

I enrolled in blended physical education for many reasons. The first reason was because it meant I didn't have to come to class every day…And the final reason why I took blended PE was because of the Fitbits. The Fitbits record a number of different things such as your heart rate, calories burned, your steps. (VL2; Supplemental File B)

Charlotte, Nani, Xiomara, Alo, and Shelby all enrolled in BPE because of the class schedule. Charlotte listed several reasons for enrolling in BPE with the first one being, “that you only go to the gym two days a week” (VL2). Nani described her motivation to enroll in BPE when she explained, “I enrolled in blended PE because it’s only two days a week, the rest of the week I get to sleep in” (VL2). Xiomara’s response mirrored the consensus of the group:

To be really, really honest, I enrolled because I knew I didn't have to go to class every single day. I didn't even really know it was going to be in the morning. I just knew I didn't have to go to class every single day, and I looked forward to that. (VL2)

Alo added an interesting nuance, “I enrolled in blended because I didn’t want to dress for gym every day” (VL2), and a very spirited Shelby added,

So I chose blended conditioning basically because I knew that I didn't want to be in gym class every day. I had dealt with that my freshman year, I had dealt with that my sophomore year. I didn't want to do it for my junior year. And I planned on taking conditioning for my senior year. (VL2; Supplemental File C)

1 The supplemental files can be found in Appendix H.
Brianna and Lisette decided to enroll in BPE after hearing about the two-day-a-week class schedule during the PE course offerings presentation, while Sophia and David shared an interest in starting school late some days. Brittany, a second year BPE participant mentioned wanting to experience a different kind of PE during her junior year. She explained, “I was like, ‘Oh let me try something new cause they probably have the Fitbits, and I want to see how that works’” (VL2).

Victoria and Aylina both had previous experience in blended learning. Victoria was a second year BPE student, and Aylina had a blended learning health class during her sophomore year. Aylina mentioned that she “really liked going to class only two days a week” (VL2); in contrast, Victoria emphatically proclaimed that the class schedule had nothing to do with why she enrolled in BPE during her senior year.

So, this week’s question is why did I enroll in blended physical education. No, it is not just because of the 2 days that we only have to come. I actually took this course last year, and I can honestly say it completely changed my whole lifestyle, like it really truly has. It has changed me so much that up to the point where I, you know, started going to the gym. I applied for my own gym membership, now I work out like outside of school. Before I took blended, I did not work out at all, like honestly, I didn't work out. I never used to care about, you know, the stuff that I ate or worried about my body but now this course has given me so much information that I need to know about myself that has completely changed me, and I can honestly say it’s probably like one of the best things that has happened and I just wanted to continue to keep learning. (VL2; Supplemental File D)

Thus far, the BPE students have linked the incentive to enroll in BPE to class schedule and technology. The participants also addressed how the class schedule and technology connected to motivation once they were actively enrolled in BPE. To explain the relationship between class schedule and their perspective of BPE, Shelby and Xiomara agreed that the two-day-a-week schedule partly defines BPE. Shelby explained, “I don’t have to be here Wednesday, Thursday, and Friday” (SS). Xiomara added, “It means…freedom because you kind
of have a sense of feeling more of an adult because you don’t have to go to class every day”

(SS). Brittany talked about how being independent “some days” was an important aspect of BPE (FG5). Furthermore, Alo, Enya, Maria, Shelby, and Zoe all agreed that the class schedule is a key benefit to BPE. Enya summarized this groups’ thoughts when she said,

And I've said this in a lot of videos, but basically you get a sense of responsibility, and the benefit is literally you're only there for two days a week. That is a biggest benefit that I could ever name. I'm only there for two days a week and the rest of the week I get to work by myself. I get to focus on schoolwork, I get to do exercise on my own time as compared to like regular gym, I'd have to be there every day and have to work out every day. And that's definitely something really good that comes out of blended physical education. (VL11)

When asked to share thoughts about the autonomy they experienced in BPE, Shelby and Mia spoke about activities they participated in on nonattendance days. Shelby began with,

I'm going to talk about the hour that I get in the morning. I can use that to either finish homework or squeeze my 35 minutes in there. Sometimes it is more than 35 minutes, but I use that hour for anything. If I know I don't have second period the next day, then I can literally stay up doing homework til like, shouldn't but till like 12 in the morning only because I know that instead of having to wake up earlier I get an extra hour of sleep so that extra hour really does go a long way. (FG3)

Mia added,

The hour goes a long because I still have to take my sister to school and for me to drop her off, come back and do all that. It's just a lot. But to know that I can go to sleep a little bit earlier without doing homework and be able to do homework in the student center, to have that choice to just have that time and get a good amount of rest the next morning. (FG3)

Shelby and Mia went on to convey that autonomy can be a challenge, especially when considering the class schedule. Shelby opened with,

Yes. Like I said, because of the fact that we get the extra hour, sometimes I will overextend my blendedness and instead of coming on time third period and be like, ‘well I'm here now’, or because you don't have second period, I don't want to come, that's my challenge. I don't know about you all, but yes, I do overextend my blendedness. (FG3)

Mia concurred,
Since I have a younger sister I have to come, she makes me, but like to have that hour, me and my sister will necessarily... If we're not feeling it, I'll not take her for the second period and we will go have, we’ll go eat something and then we'll come back. We'll have that hour to ourselves, prepare ourselves for school the whole day of school. (FG3)

In a vlog, Alo responded similarly to the challenges of BPE described by Shelby and Mia,

I feel like you have to have willpower. Like to have to show up to the class the days that you have to, cause I feel like the less, the less that you have to show up to class, the less you want to cause you're like, Oh I don't have to go. Or you simply think to yourself, Oh I can make it up like the next day or whatever. So I would say that's a challenge. Just like making sure you're going to class. (VL10; Supplemental File E)

Many students emphasized the use of technology as a motivating factor in BPE. Thirteen students had similar responses about setting and reaching personal fitness goals, their choice of fitness activities during attendance and nonattendance days, and overcoming challenges when performing. Xiomara described how motivational messages rendered by the Fitbit inspires her to get off the couch, stop watching Netflix, and move, so she can reach her weekly step goal (FG2). Similarly, Shelby stated, “One thing that helps me would be the Fitbit for sure, they send, like I get motivational messages…it’ll be like get up or you got it and stuff like that” (FG3).

Alo, Mia, Saoise, Victoria, Xiomara, and Zoe all used their Fitbits to guide their fitness choices. They all mentioned how tracking the fitness data (steps, calories, and time in heart rate zone) influenced, and sometimes, altered their fitness choices. The students’ comments demonstrated their awareness of how the functionality of the Fitbit played a role in their fitness choices. Victoria said, “I would get probably like 5000 [steps]. I’m like, ‘Oh my God’, like I still need half and it’s already the end of the day” (FG3). Alo added, “And then you look down, you look at your steps and you’re like, ‘Hey, I should have more steps…I’ve got to get up and do what I do to get more steps’” (FG1). Xiomara ended with, “I’ll be like, ‘I only have 10000…I’ll try to walk more’” (FG2).
Fitness apps (e.g., Nike Training), information streaming platforms (e.g., Pinterest), video streaming platforms (e.g., YouTube), and social media (e.g., Instagram and TikTok) were resources frequently considered when choosing fitness activities that could lead to reaching personal fitness goals. Alo, Brianna, David, Enya, Les, Maria, Mia, Shelby, Victoria, and Zoe were partial to the Nike Training app for choosing workouts that aligned with their fitness goals. In addition, Alo, Brittany, Les, Xiomara, and Zoe employed TikTok, Instagram, YouTube, and certain social media influencers to choose their workouts. At least three students—Alo, Les, and Zoe—used multiple platforms to find workouts that could help them reach their fitness goals.

Finally, when asked how they overcame challenges when performing certain exercises, Les described being inspired by virtual fitness trainers and social media influencers on YouTube, whereas Zoe used music to address her fitness challenges. She explained,

But I say music would be also like a good way to, well in a way, they say it distracts you from if you're like feeling pain or something. Like it motivates… I listen to music and [it] pushes me to keep going cause it kind of distracts me from the pain… I feel. I don't know, every time I'm tired or something, I just push myself to finish it until the song is done or something and then that's, it helps me. (FG5)

Saoise, a cello player, used a music metaphor to describe how she addresses her challenges with cardiovascular training:

I'm going to use a music metaphor because I really don't know any what way to explain it. Um, so when there's like a really hard passage or something that, something really fast, like Mendelssohn Reformation Symphony or something like that. And then just a lot of crazy things like you have to move your bow a lot and you have to, there's just a lot of things going on there and it's hard to get all of the notes at that speed. So I, I take my metronome and I set it to a very, very, very slow speed and then I take it one measure at a time doing that slow speed over and over and over and over and over again until I can speed it up slower and like a little bit faster, a little bit faster, little faster a little bit faster until I can finally get it up to that tempo. So, I guess using that, um, and cardio, like I'll use an app like Couch to 5K or something like that or something like I'll do something very easy. So, I'll run for maybe like two minutes and then I'll walk for a minute or run for two minutes again, I just start out at a very slow pace and I just bump it up again. (FG4)
Although class schedule and technology received the least number of comments, these two themes are important to the structure of BPE in that some instruction takes place in a traditional setting and some instruction is delivered with the use of technology (Kelly, McCain, & Jukes, 2009). Therefore, class schedule and technology served to inform the remaining four themes. Responsibility is the next theme and refers to a student’s sense of accountability.

**Themes 3: Responsibility**

When asked in two separate focus group discussions how BPE is different from their regular PE experience, Aylina responded, “You have more with more responsibility in this class that the other classes,” and Alo simply stated, “You have to be on top of your stuff.” (FG4 and FG1)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Key Words, Phrases, and Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsibility</strong></td>
<td>KEY WORDS AND PHRASES: having responsibility, learning responsibility, responsible, managing my time, time-management</td>
</tr>
<tr>
<td></td>
<td>KEY CONCEPTS: accountability to self and others, an obligation to complete a task, completing other school-related task, time-management, taking care of the Fitbit, acting with volition, independence</td>
</tr>
</tbody>
</table>

According to Cook-Sather (2010),

to be responsible is to be answerable or accountable for something within one’s power, control, or management; it is to be able to make sense of and respond within one’s sphere of association; it is to take action based on one’s sense of connection and answerability to the self and to others. (p. 2)
In this case, responsible students act of their own volition, rather than in response to others. A blended learning environment shifts the role of a traditional teacher to more of a facilitator, giving students far more control and responsibility for completing tasks and solving problems. Of the six themes, responsibility was mentioned 80 times (out of the 570 total coded aggregate comments, or 14%).

When asked what BPE means, Brianna responded, “I think blended PE is like regular PE but having responsibility” (FG2). Enya agreed, saying, “to me it means learning responsibility” (FG4). Enya expanded her thoughts in a semi-structured interview, affirming that autonomy enhanced her sense of responsibility and allowed her to “take responsibility and incorporat[e] it with my home workouts” (SS). Maria added, “I think blended PE is you being responsible…You don’t have a teacher on your back telling you what to do…You’re responsible for your body and how you want to treat your body” (FG2). Xiomara’s thoughts aligned very well with Maria’s. Xiomara contended, “It means having more responsibility…like taking ownership over your body, your grade and coming with that responsibility of taking this class” (SS). Les supported Maria and Xiomara by adding, “I feel like it helps you also learn more responsibility by being independent” (FG5).

When discussing the benefits and challenges of BPE, a number of the students commented on gaining responsibility, being responsible for performance absent a teacher, increased focus on other curricular responsibilities, and being challenged by curricular responsibilities. Enya identified responsibility as a key benefit of BPE, connecting responsibility to BPE, college life, and the current state of school-aged students:

But basically, you get a sense of responsibility… And another thing is it gets you ready for college life and you definitely need a lot of responsibility and a lot of self-time management in college. And that is another benefit of blended physical education. And I
just think it's a really good program overall for kids to be introduced to responsibility because at this age kids aren't responsible at all. They just go to school to go to school because they are forced to. And this class is literally going to show them that this class is 100% based on your choices, your actions, and you are in control of everything. (VL11)

Maria commented on both BPE and other curricular responsibilities as she explained how she is “responsible for [my] own exercises and [my] own health…without a teacher telling [me] to exercise or what to do” (VL11). Maria described how she uses the extra hour she has to “get my homework done for the specific class I'm in, which is blended physical education, or I get the work done for other classes, which really helps me maintain my grades and make sure I'm on top of my assignments” (VL9; Supplemental File F). Shelby also factored the extra hour on nonattendance days into addressing other curricular responsibilities. She explained,

When I come home late from work or like 10 o'clock at night and I know that the next day is a blended day, I will literally probably stay up till like 12 o'clock in the morning doing my homework because I know that I don't have to be there first period. (VL9)

Although Enya ardently expressed the need to demonstrate responsibility in BPE and other sectors of life, she noted that she struggles with responsibility:

And I would say that challenges are, for me personally, is reaching my step goals sometimes because a lot of the times I won't wear my Fitbit or I'll forget it, like when I'm going to do something that involves a lot of walking and that will mess up my steps. But also I feel like another big challenge, like if in any school, if any school were to do it, a big challenge for all of the students would be um, keeping up with work because blended physical education means that you work a lot at home, you do a lot of assignments at home, you do vlogs, you do worksheets, you do studying, you do all of that and you especially do exercise. And I feel like that's really challenging because a lot of students aren't really used to doing that much work at home and doing that much work might either discouraged students or might make them feel like they can't do it, but that's certainly a big challenge. But overall, blended physical education is a good class, and the only challenges would be with responsibility. (VL10; Supplemental File G)

In concurrence with Enya, Brittany said, “The difficulties about being in a blended PE class is keeping your grade up, how many steps you take a day, [and] turning in your homework”
At times, both Enya and Brittany had difficulty managing the physical and cognitive responsibilities inherent in the BPE class.

In the early stages of the program, the BPE students were guided in the development of personal fitness goals. However, developing personal fitness goals and working to meet those goals are volitional acts, so when prompted to discuss at least one personal fitness goal and their plan to meet that goal, five students talked about setting goals specific to their needs, designing workouts aimed at meeting their goals, and engaging in focused independent training to reach goals. Brianna, Shelby, and Paola all had a goal to improve their cardiovascular fitness.

Brianna’s plan involved interval training as she planned to “run for two minutes, walk for two minutes, run for two minutes, walk for two minutes…and then I also try to run a little bit more each day” (VL12). Shelby and Paola were interested in improving their mile run time. Shelby’s plan involved decreasing her mile time by one minute:

One of my goals would be to decrease my mile time by a minute each time. And to do that, run more often or while we are having exercises and we’re running, running is included in that, I’ll put more effort into it instead of just running just to run, I’ll take my fitness goal into consideration. So that’s what I’ll do. That’s my plan. That’s how I plan to achieve it. (V12)

Paola planned to “run more long distance…work on breathing…and] practice PACER” (VL12).

The Progressive Aerobic Cardiovascular Endurance Run (PACER) is a multistage aerobic capacity test that progressively gets more difficult with each minute. Zoe wanted to eat better and gain more muscle mass, so she planned to eat healthier and start resistance training (VL12). Xiomara’s (VL12) fitness goals were specific to soccer. She wanted to be the “best me that I can be” by training at home with video workouts specific to her sport.

In a traditional classroom, the teacher is responsible for delivering the curriculum to students for learning; in other words, the teacher teaches, and the learner learns (Cook-Sather,
In a BPE classroom, students assume a certain level of responsibility in connecting curricular expectations and learning independent of a teacher. Additionally, autonomy support, coupled with student choice, drives student engagement and self-determination in a blended classroom. The next section examines student voice in an autonomy-supportive BPE classroom.

**Theme 4: Autonomy**

When prompted to talk about the free choice that students experience in BPE, Enya explained, “And with blended physical education, literally everything that you do is free choice...the thing about free choice is that you get to basically like reflect on yourself, your character, whether or not you're willing to do the work, whether or not you're willing to actually be true and sincere with your results. And I think that free choice is a good thing with blended physical education.”

<table>
<thead>
<tr>
<th>Theme</th>
<th>Key Words, Phrases, and Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>KEY WORDS AND PHRASES: personalize it, pick their own workouts, your own fitness, do my own thing, ownership, free choice, in my own hands, independent, freedom of choice, choose, do what you actually want to do, choose when I work out</td>
</tr>
<tr>
<td></td>
<td>KEY CONCEPTS: freedom of choice, structured autonomy, choice, independence, volition, self-paced learning, self-regulation, personalized training</td>
</tr>
</tbody>
</table>

According to Vibulphol (2016), autonomy-supported pedagogical practices may enhance intrinsic motivation and promote lifelong learning. Autonomy is an inherent psychological need that galvanizes a sense of volition and choice and may lead one to engage in an activity solely for enjoyment and a sense of personal value (Deci & Ryan, 2004; Jiang, Vauras, Volet, Salo, &
Implementing pedagogical practices that facilitate an autonomous-supportive learning environment is essential to student engagement in a BPE program. Of the six themes, autonomy was mentioned 99 times (out of 570 coded aggregate comments, or 17%).

When prompted to talk about the free choice students have in BPE, several students commented about the value of having the choice to own their fitness. For instance, Xiomara commented, “I like free choice because I know I can do my own thing…I get to customize whatever I want to do without feeling like I’m wasting my time” (SS). Similarly, Victoria expressed her appreciation for being able to select her own workouts,

I’m going to say that I like having the choice to pick our workouts. I don’t like what other people like, and I don’t, I’m not at their level. I like picking workouts where I know that I can do or it pushes me to my furthers, because I know my furthers isn’t like someone [else’s] furthest. I like picking my own workouts. (FG3)

Enya added, “It’s a really good opportunity for us to get in the habit of taking working out to our own hands” (SS). Alo concluded with, “You make your own choices but like you have your free choice on how you want to take the opportunities that are given in class” (FG1).

As there was a shift from teacher-centered pedagogy to student-centered learning in the blended learning classroom, the students became self-determined regarding own their fitness, and sometimes had little use for the guidance of a teacher. Alo and Shelby illustrated this point. Alo explained, “I personally, I like it because I get to work on what’s best for me and what I want to work on, not just what teachers think that we should work on” (VL9). Shelby expressed the same idea when she said,

So you choose what you want to do and it's kind of great because instead of just being told to like, no, instead of just being told what you're going to do, you get to actually choose and pick and choose [what] you're going to do, to work out, and you don't have to rely on nobody's teacher, you know? (VL9)
Several students found that having the ability to choose when to perform was an immediate advantage of the free choice they experience in BPE. In a focus group discussion, Nani and Xiomara shared similar viewpoints about merging BPE requirements into their schedules. Nani explained, “I know I can do it whenever… I could either go right out of the school or I can go a little later at night, I can go after dinner, like you have a free choice of when to go or when to do what you want” (FG2). Xiomara immediately followed Nani’s comment by stating,

I like that I can work it into my schedule. Like sometimes it would be better for me to do it right after school, like to do a workout or sometimes it’d be during my blended period so that I know that if things come up I can always say, you know, push it further or do it before rather than just having a set schedule that I can’t meet. (FG2)

Victoria succinctly pointed out her appreciation for having the freedom to choose her workout time during nonattendance days (SS). In responding to Vlog #9, Talk about the amount of free choice you have in BPE, Alo and Les discussed being able to decide when to work out and how long to work out during nonattendance days. Zoe responded in this way,

In blended physical education, I'd say you have like a great amount of free choice because you get to choose when you want to do a workout or what type of workout you want to do. And like if you don't feel like working out in the morning, you can do it in the afternoon or in the night. It all depends on you… And I'd say it's very convenient because, um, it's, it's set at your own specific time. (VL9; Supplemental File H)

Jang et al. (2010) note that autonomy-supportive teachers facilitate student autonomy, which may enhance motivation. In the next section, students share their thoughts about the role motivation plays in BPE.

**Theme 5: Motivation**

When asked, “What is motivation and how does it apply to BPE,” Alo answered, “Well, to me, motivation is anything that keeps you inspired to push forward and to keep going.
I feel like motivation applies to blended physical education because you have to be very self-motivated.”

Table 15

<table>
<thead>
<tr>
<th>Theme</th>
<th>Key Words, Phrases, and Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>KEY WORDS AND PHRASES: accomplish my goal, goals, reach your goal, motivated, motivation, motivational, inspire</td>
</tr>
<tr>
<td></td>
<td>KEY CONCEPTS: intrinsic motivation, extrinsic motivation, amotivation, student outcomes, reaching goals, encouragement, desire</td>
</tr>
</tbody>
</table>

To a high degree, the BPE program at CHS is goal oriented. Early in the school year, students were asked to create personal fitness goals based on two things: their pretest fitness scores and changes they desired for their health and fitness. Students were encouraged to frequently revisit their goals throughout their progression in the program. According to Harnett (2012), motivated students are more likely to engage in activities that stimulate cognitive and affective processes and enhance performance. Accordingly, Harnett linked motivation to learners’ thoughts, beliefs, and goals and the “interactive relationship between the learner and the learning environment” (p. 29). Brianna affirmed that “motivation does play a really huge role when it comes to blended education and is a must have in that class” (VL15; Supplemental File 1). Of the six themes, motivation was mentioned 139 times (out of 570 coded aggregate comments, or 24%).

In answering VL15, “What is motivation and how does it apply in BPE,” a number of students agreed that motivation is goal driven. Xiomara commented, “It’s basically something
that drives you to accomplish your goal, to accomplish you to meet some type of desired success.” Enya added, “Motivation basically is a student’s drive and a student’s willingness to put, to do things on their own without having somebody tell them what to do.” Elsy and John equated motivation with their workouts. John said, “I think the motivation I have for blended gym is always the fitness goal, the weekly steps that we have to do,” and Elsy added, “I feel like motivation is the way you’re pushed to do something and how you see something in order to do something like working out for example, so like how you reach a goal.”

When the same question was presented during the semi-structured interviews, Enya added to her narrative from VL15 by saying, “It means looking at the end goal.” Xiomara’s answer was very similar to her VL15 answer,

Motivation to me is like something that pushes me to do my goal or whatever it is I’m working on, something that reinforces me to do my work and then it goes into blended PE because, honestly, if you don’t have motivation, you’re not gonna do it. (SS)

Victoria took a slightly different approach,

Motivation to me is what I want to look like. If I know that I want to look a certain way or weigh a certain amount, that will push me to work out even more…it’s like, ‘Oh, okay, I want to look this way at some point, so I’m going to push myself until I get to that’. That’s what motivates me. (SS)

Alo, Brianna, Elsy, and Xiomara also believed that motivation facilitates an environment that encourages purposeful intent. These students were motivated by grades (Alo, Brianna, Elsy, and Xiomara, VL15), to become healthier (Brianna and Xiomara, VL15), and/or to engage in daily workouts (Elsy VL15) with an intentionality that may elicit progression.

The second part of the question asked how motivation applies to BPE. Alo explained that one must be self-motivated in a BPE environment (VL15). Enya and Xiomara firmly agreed with Alo. Enya said, “So, that’s definitely motivation to me, and I think that’s very important in
this class, because without motivation, I don’t think that anybody would succeed in this class” (SS). Xiomara responded similarly, “You have to have motivation in order to be successful in this class” (VL15).

In the interest of reaching personal fitness goals, the BPE students said they were motivated by technology, social media influencers, peers, family members, and even COVID-19. Many students reported being inspired by the motivational messages the Fitbit sends when it is time to move and during an actual workout (Alo FG1; Shelby FG3; Victoria FG3; Saoise FG4; Zoe FG5; Xiomara VL3, Supplemental File J). In the same manner, Alo, Aylina, Brianna, Charlotte, David, Elsy, Enya, Les, Maria, Nani, Saoise, Shelby, Victoria, Xiomara, and Zoe all reported being motivated by asynchronous modalities such as apps (e.g., Nike Training), social media (e.g., Instagram, TikTok, and Pinterest), video sharing Web sites (e.g., YouTube), and music streaming platforms (e.g., Pandora). When asked, “What inspires you to work out when you’re not at school,” Alo, Brittany, Les, and Zoe talked about being motivated by social media influencers—a person, or persons, who, while using a social media platform, has established credibility in a specific industry and has a significant following. In a focus group discussion, Les started with “I mean because on YouTube or Instagram, there’s always that, what’s it called? Influential? You’re like, ‘Oh, they have a nice body…you’re not trying to be like them…but you want to, maybe they push you to have a nice body’” (FG5). Brittany interjected with, “No, I agree with her cause, yeah, I usually do get motivated when I see, mostly on YouTube, when I see influencers” (FG5). Alo and Zoe also acknowledge that social media influencers play a part in their fitness plans when away from school. Alo remarked, “Another thing would be just when you’re scrolling down TikTok or Instagram or something, and you see people working out, you get motivated and want to do the same thing” (VL17). Zoe added, “I’d say social media is
another motivation. I follow a lot of influencers that are into fitness and their posts are mainly about that” (VL17; Supplemental File K).

Several students indicated that peers and family members were motivating factors when working out at school and away from school and when overcoming challenges. When engaged in physical activities at school, Shelby was both motivated and demotivated by her peers. She explained,

So, I like working out at school, I like working out with my friends…it makes me feel more comfortable…however, with me being the type of person I am, me being motivated, it is uncomfortable sometimes when, um, I am in a gym class with people that aren’t as motivated…sometimes I have to dim down my excitedness to do a workout to please other people, you know, cause I don’t want to make it seem like I’m a know-it-all. (VL8; Supplemental File L)

Zoe acknowledged the comradery she shared with her friends concerning selecting a workout when she is not at school. Zoe said, “Another motivation would also be my friends because they have a tendency to send me workouts they’ve been following. They’re always asking me if I’m keeping up with my workouts” (VL17). Several students identified family members who motivated them to participate in physical activities when away from school. Alo was highly influenced by her cousin (FG1 and SS), Maria (FG2) and Xiomara (FG2) gave credit to their mothers, and Saoise was inspired by her father (FG 4). In a healthy exchange, the members of FG3 added to this narrative. Victoria began by naming her friend Mia (also a member of this group),

Mia. When we work out together. If we work out together or like we do different things. I'll be on a machine and she'll be on a different one. But I know it's just having someone there, because I know if I'm by myself, I’ll just be like, “Oh this is all I can do.” [Mia will say], “No, you could do more. No, you could do this. No, we can go longer.” I like the support system. (FG3)

Mia added,
doing the videos with my mom, she'll push me a lot and then seeing my sister get these many weights done. I was like, you know what I can do better. (FG3)

Shelby completed the exchange,

One thing that helps me is Mya, when she's not feeling or when she's not in the mood to exercise I am, but then when I'm not she is so when she texts me in the morning like, "Hey are you up?" I'm like I guess I should get up. She's the person. She'll be like if I'm doing it, you know you should be doing like or, if I can do it, you can do it. Because she's not the type of person to just get up and exercise. So she'll be like, well if I'm doing it you can do it too. And I don't know, that's my best friend. So if she's doing it I'm like, "I guess I'll do it." (FG3)

When feeling challenged about performing certain exercises, Alo (FG1), Mia (FG3), and Victoria (FG3) all spoke about enlisting friends to help them overcome the challenge. Aylina summed up this practice,

For me, I feel like support is a really big factor in it because like, like I said, sometimes my friend picks me up and “Oh let's go to the gym, we're gonna go”. So, okay. So she tells me “Oh you can do this, you can do this”. Like having someone believe in you can actually kind of help, well for me, in my point of view, I think actually it helps me and then her going through it with me so that I'm not alone, like okay I have this person with me, she's gonna do it with me so I can do this. And so that's how I kind of overcome my challenges to the workouts. (FG4)

Because of the global pandemic sparked by COVID-19, Brianna and Enya were motivated to stay active, neither wanting to gain the “COVID 15” (the gaining of 15 pounds). Enya stated, “Overall, just staying healthy in these times of really, it’s really tough times and staying healthy should be number one priority and that’s really what definitely motivates me right now, in this current moment” (VL16). Brianna shared Enya’s concern,

So, a few things that motivate me to meet my goal is probably that I just don't want to gain the Corona 15. I think being isolated in the house with, literally, nothing to do but really just eat and watch TV. I kind of like to get my heart rate going. Another thing is that, sometimes, I just want to do something out of the ordinary. I don't want to have every day ... Wake up, lay down, do homework, eat chips, watch Netflix in bed all day. I like having my heart going. I also feel like it's satisfying to feel my sweat. I don't know, in a way, it means that you accomplished your workout. But other than that, it's mainly just not to gain weight during this quarantine time, not more so, lose it. Obviously, if I
lose weight, who's going to complain about that? But, for sure, I'm not trying to gain weight, and I think that's what motivates me to work out during this time. (VL16; Supplemental File M)

Conversely, several students indicated that extracurricular and outside obligations, along with a languid approach to exercise some days, challenged their motivation. Maria, Xiomara, and Zoe found that striking a balance between BPE and other events (homework, work, and extracurricular school activities) could be demotivating at times. Maria was actively involved in extracurricular activities, such as cheerleading and school musicals, and found difficulty in scheduling her workouts (FG2). Xiomara responded, “Sometimes I have too much homework and it’s like I prioritize over working out” (FG2). Zoe revealed that she has steady employment after school, “so it’s hard finding time to get the workouts in” (FG5). Other times, Zoe said she simply lacks the motivation to work out, “and at the end, I just don’t do it because I, I guess lack the motivation or I just feel like I don’t have the energy to do it” (VL10; Supplemental File N). Zoe was not alone in her sentiment; Xiomara and Brianna experienced the same demotivating moments. Xiomara admitted, “I've definitely struggled because sometimes I just want to lay in bed, not do anything and just chill” (VL3). Brianna disclosed her struggles with motivation, Sometimes it's like basically I don't feel like working out. It's just basically like that. Like sometimes you're just so tired or you just have work or it's like you just have so much homework that it's like, well, I'd rather get my homework done and then get an A in that class [rather] than take 30 minutes doing my workout. But then, you also think about it like, well, if I don't do my 30-minute workout today, I'll just have to do it tomorrow. I don't know. (VL10)

According to Nunez and Leon (2015), students who feel competent in their social environment are more motivated than those who are not as equally stimulated. Competence in the BPE classroom is examined in the next section.
Theme 6: Competence

When asked in a focus group discussion, “What does BPE mean to you?,” Mia answered, “What it means to me necessarily is being able to learn myself, what my body needs, what to take and what exercises I need for my body.”

Table 16

Key Words, Phrases, and Concepts—Competence

<table>
<thead>
<tr>
<th>Theme</th>
<th>Key Words, Phrases, and Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>KEY WORDS AND PHRASES: learn, prepare, learning, learned, focusing on, focus on, what I need, workouts that'll help me, I've seen growth, I've done better, work on yourself, confident</td>
</tr>
<tr>
<td></td>
<td>KEY CONCEPTS: knowledge gained, recognizing physical, emotional, and academic benefits, understanding health benefits, displaying confidence, having the capacity to design workouts, identify exercises to work certain areas of body</td>
</tr>
</tbody>
</table>

Many students in this study valued their autonomy and the opportunity to own their fitness. This section explores how competence interconnected in an autonomy-supportive BPE classroom. Of the six themes, competence was mentioned 157 times (out of 570 coded aggregate comments, or 27%).

When asked in both the focus group discussions and the semi-structured interviews “What does BPE mean to you,” Enya, Mia, Sophia, and Victoria spoke about knowledge gained throughout the course that gave them the confidence to determine what they needed for their own bodies. Mia responded to the question by saying, “What it means to me necessarily is being able to learn myself, what my body needs, what to take and what exercises I need for my body” (FG3). Victoria paralleled Mia’s comment with her description,
For me, it’s basically learning how to work on my own, not being able to depend on other people for help, learning what I need to take care of, you know, what workouts I need to do for myself, and not do other workouts that other people need for them. It’s just me specifically that I need to figure out what I need, independently. (FG3)

Enya and Sophia shared a perspective about what it means for them to be in a BPE class that was similar to Mia’s and Victoria’s. Enya appreciated learning how to take her fitness into her own hands: “To me it means learning responsibility and learning how to take working out into your own hands” (FG4). Sophia stated that BPE has allowed her to learn what she needs for herself now and in the future, “It’s basically like a way to learn what you need for yourself and for the future” (FG1).

In separate semi-structured interviews, Alo and Shelby added to the discussion about the meaning of BPE with a narrative similar to their focus group discussions. For Alo, BPE meant making healthy choices now and in the future and making sure “everything in the body is functioning right because we’ve learned that being healthy isn’t just with your body, but it’s with your mind as well.” Shelby added, “Blended PE to me is you putting or having a chance to put your health in your own hands, and everything’s on your own time, and you basically figure out what’s best for you, what’s not best for you.”

With reference to reaching personal goals, many of the students made direct statements about putting into practice the knowledge gained during attendance days. When asked three integral questions about engaging in exercises geared toward reaching goals in a BPE setting, John, Les, Victoria, and Zoe identified specific skills in which they experienced improvement and growth. John talked about improving his mile time, “Yeah, I’m at a 5:50, I’m trying to get to a 5:20, so let me get out there and train” (FG1). Victoria also spoke about improving her mile time: “I was at 14 [minutes] for a mile, and before I used to be 10 minutes for a mile… I started
running a lot…I know my time has gotten down because I have timed myself” (FG3). Brianna mapped out a plan to improve her cardiovascular fitness that included interval training (VL12; Supplemental File O). Les (FG5), Zoe (FG5), and Laura (FG1) all identified growth in their muscular strength, specifically when performing pushups.

When asked “How do you decide which exercises will help you reach your personal fitness goals,” Alo, Shelby, and Victoria selected exercises based on their progression. For instance, Alo commented, “Like after you start seeing progress is when you know what exactly works out best for you” (FG1). Shelby and Victoria, both in FG3, were in accord with Alo. Shelby simply stated, “I would say I look at the results from what I’ve done,” while Victoria was a bit more detailed, “So I just look at my results that I have now or my results that I recently had and that’s why I determine like, okay I need to work more on this or I can start cutting it down and focus more on this other goal that I can start bring up.” Laura’s and Saoise’s position on this question included understanding the body to know what exercises it needs. For instance, Laura stated, “So I think it’s knowing what exercises do…what exercises do what to your body” (FG1), and Saoise’s added, “When you know exactly what you’re going to work for…it’s just, it’s kind of easy to set your own goals when you understand how your body works” (FG4).

The research has shown that an innate feeling of confidence is a condition of competence (Deci & Ryan, 2004; Ryan & Deci, 2000; Ryan & Powelson, 1991). In separate semi-structured interviews, Alo, Enya, Shelby, Victoria, and Xiomara were asked, “How confident are you in performing exercises on your own?” Xiomara was “pretty confident, very confident doing it on my own…so I feel like I’m pretty confident on my workouts.” Victoria was clear in her conviction, saying, “On a scale of one to 10? Probably a nine…a strong nine.” Alo, Enya, and
Shelby said they gained confidence as the semester progressed. Enya outlined how she gained confidence:

In the beginning I wasn't really confident because working out wasn't something that I did on [a] regular [basis]. But I would say that now I'm definitely more confident because there's apps like Nike Training, there's apps like YouTube and you definitely taught us how to do a lot of things right. I didn't know how to do a proper pushup before this class, so I would say that I'm more confident now because I have that technology to go to. If I have questions on anything, I can always look it up and I definitely learned a lot. (SS)

Deci and Ryan (2004) defined competence as an innate feeling of confidence and effectance within a social environment. Klimmt and Hartmann (2006) suggested that effectance—the desire to be competent—influences the decisions that one may make when engaged in an activity. Jacobi (2018) added that perceived competence includes knowledge acquired and relevant skills gained through the course of an event. To gauge BPE students’ competence and perceived competence, they were asked to vlog about exercises they liked or disliked and to discuss why they liked or dislike those exercises (Tables 17 and 18).

The knowledge gained as the BPE students navigated through their independent workouts influenced their selection of exercises. These students were able to decisively pinpoint the reasons they like or dislike certain activities. For example, Alo said that she likes cardio exercises (aerobic) because of the potential to lose weight. Whereas Enya expressed that she prefers high intensity anaerobic exercises as opposed to aerobic exercises such as running.

Tables 17 and 18 are a succinct accumulation of comments made in the context of competence and the selection of exercises.
Table 17
Types of Exercise Routines They Like and Why

<table>
<thead>
<tr>
<th>Student</th>
<th>What type of exercise routines do you like and why? (VL5)</th>
<th>Why</th>
<th>View</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alo</td>
<td>▪ Cardio ▪ Calisthenics</td>
<td>“Cardio is a big help in weight loss.” ▪ “I like to do stuff like squats and crunches, sit-ups just to have a better physique and then just, just to feel better about myself.”</td>
<td>Supplemental File P</td>
</tr>
<tr>
<td>Shelby</td>
<td>▪ T25 videos ▪ Track training</td>
<td>“I like T25, his different routines and his videos because he’s motivating you the entire time.” ▪ “We do like legitimate workouts that actually help us run faster.”</td>
<td>Supplemental File Q</td>
</tr>
<tr>
<td>Zoe</td>
<td>▪ Core ▪ Lower body</td>
<td>“It just helps tone your abdominals and like gain more muscle.” ▪ “For me I feel it’s very important because I’m a runner.”</td>
<td>Supplemental File R</td>
</tr>
<tr>
<td>Maria</td>
<td>▪ Flexibility ▪ Core</td>
<td>“Because it helps me with cheer and it also makes my body better.” ▪ “I think you need it in almost every sport.”</td>
<td>Supplemental File S</td>
</tr>
</tbody>
</table>

Table 18
Types of Exercise Routines They Dislike and Why

<table>
<thead>
<tr>
<th>Student</th>
<th>What type of exercise routines do you dislike and why? (VL14)</th>
<th>Why</th>
<th>View</th>
</tr>
</thead>
<tbody>
<tr>
<td>David</td>
<td>Balance</td>
<td>“It has to be balancing type of exercises because it’s like they hurt your hamstrings”</td>
<td>Supplemental File T</td>
</tr>
<tr>
<td>Enya</td>
<td>▪ Aerobic exercises ▪ Running</td>
<td>“I dislike anything that’s not anaerobic. I like working at high intensities.” ▪ “I also dislike running in general because I’ve never been good at it.”</td>
<td>Supplemental File U</td>
</tr>
<tr>
<td>Laura</td>
<td>▪ Core ▪ HIIT workouts</td>
<td>“Ab workouts because for me those are the hardest to do.” ▪ “Those are very intense.” ▪ “But I know it’s what is best for me.”</td>
<td>Supplemental File V</td>
</tr>
<tr>
<td>Xiomara</td>
<td>▪ Yoga ▪ Zumba ▪ Dancing</td>
<td>“That’s slow paced.” ▪ “Just not for me.” ▪ “Just not my style.”</td>
<td>Supplemental File W</td>
</tr>
</tbody>
</table>
Summary

This study’s intent was to examine high school students’ motivation in a BPE learning environment. In triangulating three qualitative data sources—focus group discussions, semi-structured interviews, and vlogs—six themes emerged: class schedule, technology, responsibility, autonomy, motivation, and competence. Students’ comments connecting their lived experiences in BPE to each theme was analyzed. It is important to note that class schedule and technology informed the remaining themes; 94 student comments made about enrolling in BPE because of one or both of these themes. Chapter 5 summarizes these findings, analyzes the role of motivation in relation to each research question, and concludes with implications, limitations of the findings, and recommendations for further research.
CHAPTER 5
DISCUSSION

Introduction

Quality K-12 PE cultivates a learning environment in which the knowledge gained and the skills acquired can influence healthy fitness choices for a lifetime. Leveraging the PE landscape with asynchronous modalities and Internet technologies provides adequate learning opportunities to augment traditional face-to-face instruction, ensuring the promotion of knowledge construction (Killian, Kinder, & Woods, 2019). Calderon, Scanlon, MacPhail, and Moody (2020) emphasized that synchronous-asynchronous educational tools and digital pedagogies should be considered when building curricula. Calderon and colleagues also noted that the blended learning teaching model is a revolutionary approach to pedagogical practices in education. Blended learning—the fusion of face-to-face instruction with online learning—is emerging as a viable method for delivering instruction in K-12 PE. BPE students control some aspect of their learning, including the path and pace as well as the place and time (Staker & Horn, 2012), which contributes to positive physical fitness attitudes for a lifetime of healthy choices (Killian et al., 2019).

This qualitative study examined the role motivation played in the daily fitness activities of the high school BPE students. This chapter presents a summary of the findings. The role of motivation in regard to each research question is discussed. This chapter concludes with the implications and limitations of the findings as well as recommendations for further research.
Summary of Findings

This study examined the impact motivation has in an autonomy-supportive/competence-satisfying BPE classroom. The students in this study participated in three types of qualitative research data collection activities: focus group discussions, semi-structured interviews, and vlogs. A myriad of comments describing their lived experiences in BPE, including factors that motivated their performance, emerged through the students’ voices. Six themes emerged when the comments were tabulated: class schedule, technology, responsibility, autonomy, motivation, and competence. Figure 8 illustrates percentages of comments for each theme.

![Emerging Themes](image)

Figure 8. Six themes of BPE.

The theoretical framework guiding this examination was cognitive evaluation theory, which argues that social-contextual events reinforce feelings of competence, enhancing intrinsic motivation but only if accompanied by a sense of autonomy (Ryan & Deci, 2000; see also Deci & Ryan, 2004; Goudas, Dermitzaki, & Bagiatis, 2000; King & Howard, 2016). To align with CET, the discussion section focuses primarily on competence, motivation, and autonomy. Class schedule, technology, and responsibility are woven into the discussion where applicable.
Discussion

To capture the students’ innate feelings of effectance, confidence, and volition in the BPE learning environment, the discussion section focuses on the BPE themes and research questions.

BPE Themes

In accordance with the lived experiences of BPE students at CHS, the findings are clear with respect to the influence class schedule, technology, responsibility, autonomy, motivation, and competence had in the implementation of a BPE program. Six themes of BPE emerged from the data and should be considered when implementing a BPE program. Prior research supports this claim. Kintu and Zhu (2016) examined the ideal learning characteristics of students when ICT was introduced in a blended learning environment. One implication of their findings was that self-regulation (autonomy), management of workload (responsibility), computer competencies (technology), intrinsic motivation, and knowledge construction (competence) support the acquisition of learning outcomes. Artino (2010) studied learner characteristics in an online environment and identified self-efficacy (competence), motivation, and self-regulation (autonomy) as predictors of the acquisition of learning outcomes. Bachman and Scherer’s (2015) research effort was designed to develop a template for teaching physical activity when using a hybrid model. The researchers concluded that an autonomous learning environment, in which choice and flexibility are paramount, resulted in enhanced competence, increased physical activity levels, and an elevated sense of belonging. Teixeira et al. (2012) adopted SDT as a framework to explore the role autonomy played in motivating individuals to participate in lifelong physical activity and weight management. Teixeira et al. found that individuals who feel
competent and autonomous in their weight-loss related goals were more likely to engage in lifelong physical fitness.

The emergence of the six themes has important implications for developing a BPE program. Facilitating an autonomy-supportive/competence satisfying learning environment serves as a fundamental approach to fostering the motivation essential for independent participation in physical activity. To take ownership of their fitness, BPE students must have autonomy in their fitness choices, must feel competent in their ability to perform effectively, and must feel connected to the curriculum. Drawing from the CET framework, the teacher must communicate learning activities in a non-controlling manner, fostering an environment that promotes autonomy and competence while endorsing motivation. For some educators, granting autonomy—allowing students freedom of individuation by encouraging participation and decision-making in the design of the curriculum (Kunz & Grych, 2013)—may require a shift in mindset. To keep students safe and engaged in a mobile setting, managing a PE classroom requires a great deal of structure. Six years ago, and after 15 years of teaching PE, I was presented with the opportunity to teach BPE. I quickly had to shift my mindset from facilitating a mostly teacher-centered learning environment to one that fostered choice and freedom and student participation in the design of the program. I began by employing structured autonomy. Students were presented with an array of fitness activities and were encouraged to choose from only those activities. I encouraged students to select activities based on what they needed for their bodies. As the students participated in the activities, I provided an abundance of meaningful feedback and non-controlling informational messages. As time passed, I began to wean students off my predetermined activities by asking them to discover apps or fitness ideas from other resources. I asked my students to bring those ideas to class to show me what was
available, especially through social media. At first, students were hesitant to share their ideas, as if they did not trust my trust in them, but eventually they were assured. I displayed genuine excitement when they brought ideas to class and I shared with them the importance of their contribution to the BPE program. Eventually, I witnessed a shift in my students’ mindset.

Ultimately, I had a group of students who valued their autonomy and who confidently shared their ideas, their discovery of relevant technology, and their appreciation, or lack of, for my ideas. In my students, I witnessed an enrichment of competence and a spike in their desire to meet personal fitness goals. These findings support the CET framework: in the aggregate feelings of autonomy and competence enhance motivation.

The next three sections capture the significance of the BPE themes in addressing this study’s research questions. Each section will conclude with a segment that interconnects competence, autonomy, and motivation with each other and the remaining three themes (namely responsibility, class schedule, and technology). Maxwell (2013) considered the practice of connecting themes a method for understanding the data in context and for building theory.

**Research Question 1**
What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment help meet their personal goals?

The first question in this study sought to elicit discussions about the role motivation plays in a BPE classroom and ways in which the BPE environment helped students reach their personal fitness goals. The sub-questions for Research Question 1 were meant to analyze the students’ general perception of BPE, BPE’s role in meeting their fitness goals, their motivation in a BPE environment, and the benefits and challenges of BPE. As Deci and Ryan (2000) consider motivation, specifically intrinsic motivation, directly connected to the need for
autonomy and competence, I expected to find comments about both themes in the students’ narrative.

In answering Research Question 1, BPE students addressed motivating factors that accompanied the autonomy they experienced, including the ability to choose their workouts in and away from school, the ability to choose when they worked out, and the ability to determine their needs based on knowledge gained during face-to-face instruction. Students found free choice and student ownership motivating and pivotal to reaching their personal fitness goals. Harnett (2012) lends support to this conclusion when she states that providing choices stimulates a student’s sense of autonomy and motivation and may increase their propensity to engage in physical activities. Brooks and Young (2011) noted that a student’s choice-making ability is linked to motivation and enhanced academic development. Students acknowledged that BPE requires an elevated level of responsibility which was both motivating and stimulating, which is conceptually autonomous. Bachman and Scherer (2015) pointed out that an autonomy-supportive classroom facilitates an environment where students take responsibility for their learning, which helps to develop academic and physical skills.

The BPE students indicated that mastering the content elevated confidence, which helped them reach their personal fitness goals by designing workouts for focused, independent training. The students reported that understanding what their bodies needed was motivating. These results corroborated Xie’s ideas (2013) that confident students were more likely to engage in prescribed activities and that teachers need to design their instruction to stimulate students’ confidence in learning tasks. Furthermore, the students acknowledged that the use of technology enhanced their effectance and confidence when determining their workouts and tracking their fitness data. As mentioned in the literature review, synchronous and asynchronous modalities serve to
enhance one’s motivation for learning. Beyth-Marom et al. (2005) noted that the introduction of technology into traditional education promotes the individualization of learning, while Kintu and Zhu (2016) acknowledge that the use of technology is central to enhanced motivation and knowledge construction in a blended learning classroom.

**Motivation Interconnections for Each Qualitative Method**

In focus group discussions, students discussed how motivation connected with autonomy, competence, responsibility, class schedule and technology. Thirteen students found autonomy and free choice to be motivating factors in the engagement of physical activities. Five students were demotivated by the amount of autonomy, stating that too much freedom decreased the likelihood of their attendance during the off days or attending school at all. Nine students acknowledged that mastering the content (including fitness principles, relevant anatomical principles, and the use of technology) was motivating and helped them choose the appropriate fitness activities relevant to the needs of their bodies. Eleven students realized that the level of responsibility in BPE was much greater than regular PE, and seemingly, stimulated their motivation to perform. During the focus group discussion, only one student talked about being motivated by the class schedule. Eleven students talked about the motivating effects of technology, specifically the motivating messages that are a feature of the Fitbit.

In semi-structured interviews, participants talked about how their motivation connected with autonomy, competence, and technology. Two students agreed that to be successful in a BPE program, you must be self-motivated. Five students were motivated by the freedom to choose their workouts and when to perform their workouts. Setting personal fitness goals, personal progression and growth, working with other students, helping other students reach their
goals, getting a desirable grade, and the use of technology were motivating to the students who participated in the semi-structured interviews.

In their vlogs, students expressed that motivation connected with autonomy, competence, responsibility, and technology. Fourteen students vlogged about how free choice and knowledge gained in BPE motivated them to meet their personal fitness goals. However, five students admitted that there were times when they were unmotivated to work out. Six students talked about having to be responsible for their own fitness outside of school and responsible for maintaining the Fitbit. Seven students vlogged about how the use of technology motivated them to complete their independent workouts outside of school.

**Research Question 2**

How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?

In this study, autonomy support refers to “one’s feelings of support, choice, guidance, and autonomy” (Lodewyk & Gao, 2013, p. 4) from teachers who attempt to offer meaningful choices, include student voice, and foster an environment that encourages students to take the lead (Haerens et. al., 2015). Supporting volitional behaviors in students’ learning experiences cultivates student engagement and interest. Jang et al. (2010) noted that autonomy-supportive teachers reinforce the motivational capabilities of students. As a BPE teacher, I fostered a learning environment that provided ample autonomy-support primarily by allowing student voice and choice. I made a deliberate effort to connect with the perspectives, needs, interests, and goals of my students, while encouraging free expression during synchronous and asynchronous engagements. I encouraged choice-making in the use of technology, in the design and implementation of a lesson, and in the selection of activities during face-to-face days. I was
intentional in my efforts to give and receive meaningful feedback. During face-to-face interactions, I used non-controlling, informational language to reinforce fitness principles and proper form when training. Finally, by way of the Remind app, I was calculating in my efforts to connect with student during their independent days. I sent motivational messages, information about apps I had discovered, and fitness ideas from online sources, and I encouraged my students to do the same.

Research Question 2 sought to address the enhancement of motivation in an autonomy-supportive classroom. The sub-questions for Research Question 2 were meant to analyze the students’ general perception of autonomy, determine autonomy’s role in developing fitness plans, decipher the connection between autonomy and motivation, and uncover the benefits and challenges of autonomy in a learning environment. The BPE students addressed how an autonomy-supportive classroom connected to competence and responsibility to influence motivation. The BPE students in this study found autonomy-supportive practices were fundamental to their selection of fitness options, central to their motivational resources, and key to their increased sense of responsibility. They indicated that an autonomy-supportive classroom reinforced their confidence to choose exercises that aligned with fitness principles. They maintained that their sense of autonomy helped enrich their content knowledge, which allowed them to seamlessly transfer content to their independent workouts. The present study extends the findings from Lonsdale et al.’s (2009) research examining the relationship between self-determined motivation and student performance in PE. Lonsdale et al. concluded that autonomous conditions in PE promoted self-determined motivation, increased physical activity levels, and fostered an environment that satisfied CET principles. In a similar study, Chang et al. (2016) investigated the effect of autonomy support on self-determined motivation in elementary
PE students. Chang et al. concluded that, compared to traditional PE, students who were provided choices when selecting learning content experienced higher levels of perceived autonomy and motivational responses.

Conversely, several students disclosed there were times when too much autonomy adversely affected their time management and motivation. The present findings seem to be consistent with other research that found motivation was contextual-dependent and situational-specific. While examining the motivation of preservice teachers to learn in an online environment, Hartnett, George, and Dron (2011) confirmed the association between motivation and situational conditions. Hartnett et al. found that motivation is not one-dimensional but is multifaceted and influenced by the person and context (such as grades, time constraints, and autonomous motivation). Employing SDT, Hartnett (2012), in a separate study, examined the relationship between online engagement and the motivation of preservice teachers. Similarly, Harnett determined that the motivation experienced by students to engage in online learning was complex and situational-specific.

**Autonomy Interconnections for Each Qualitative Method**

In focus group discussions, students discussed how autonomy connected with competence, motivation, and responsibility. Eleven students talked about how autonomy-supportive practices in BPE allowed them to choose their own workouts and when they worked out, elevated their motivation to work out, capitalized on fitness opportunities, and enhanced their level of responsibility. Three students mentioned that too much autonomy adversely effected their time management and motivation to perform.
In semi-structured interviews, participants talked about the connection autonomy had with competence, motivation, and responsibility. Twelve students agreed that autonomy-supportive practices in BPE gave them the freedom to customize their workouts, gave them the confidence to transfer their skills to home workouts, allowed them to enrich their knowledge, and taught them responsibility. Two students disclosed that the amount of autonomy they received in BPE often incited procrastination, causing them to delay their attempts to meet the weekly class requirements. One student found that autonomy sometimes made it harder to select workout routines and two students were, at times, unmotivated to attend school.

In their vlogs, students expressed that autonomy connected with competence, motivation, and responsibility. Nine students disclosed the advantages and disadvantages of the amount of autonomy they experience in a BPE classroom. Advantages included the freedom to choose when to work out, the freedom to create workouts based on individual needs, and the level of responsibility that was heightened in the BPE environment. Disadvantages included a lack of motivation that sometimes accompanied students’ intention to work out. Two students noted that they found no challenges with the amount of autonomy they experienced in BPE.

**Research Question 3**
How do competence-satisfying practices relate to 11th and 12th grade student motivation in a BPE class?

Research Question 3 explored the role competence played in the motivation of BPE students and ways in which a competence-satisfying environment helped students reach their personal fitness goals. There is a consensus among researchers that an elevated level of competence increases motivation (e.g., Deci & Ryan, 2004; Elliot et. al, 2004; Lonsdale et. al., 2009; Nunez & Leon, 2015; Ryan, 1982; Sun & Chen, 2010). The need for competence is
heightened when students experience effectance within a social environment (Deci & Ryan, 2004); therefore, a learning environment that supports a student’s desire to explore, learn, and adapt has a causal effect on a student’s perception of competence. To foster a learning environment that supported perceived competence, I instituted instructional strategies that included clear expectations to balance face-to-face learning with autonomous learning. For example, one physical requirement was to complete at least 60,000 steps a week; students would often consider their outside obligations for the week and then decide if their face-to-face activities needed to focus more on a walk/run. I cultivated a sense of ownership and confidence by encouraging freedom of choice in the selection of fitness activities. I focused heavily on encouraging student input in the selection of fitness apps and other physical fitness training methods. I frequently challenged students to use their fitness competencies and technological knowledge to transcend their fitness goals, including their fitness pre-assessment scores (i.e., fitnessgram test scores). Finally, I make a concerted effort to give meaningful feedback as students perform physical activities.

The sub-questions for Research Question 3 were meant to examine students’ capacity to design their own workouts, to perform workouts independently, to select exercises that would help them reach their personal fitness goals, to overcome challenges when performing certain exercises, and to use technology as a source for independent training. The BPE students in this study expressed confidence in choosing appropriate exercises to meet personal fitness goals, choosing exercises based on their current progression, choosing exercises based on specific muscle groups, choosing exercises based on anticipated end results, and using technology to guide the design of their workouts. Some students disclosed that initially they were not confident about selecting exercises and performing without guidance but gained confidence as
the semester progressed. The BPE students were able to identify exercises they liked or disliked and provided clear explanations about their experience with certain exercises. The dexterity and confidence the students displayed in navigating the BPE curriculum is strongly associated with enhanced feelings of competence that materialize in an autonomy-supportive classroom (Bachman & Scherer, 2015). These findings are in agreement with Bachman and Scherer’s (2015) results that suggested the format of a course is closely associated with changes in relative autonomy and competence. In connection with being physically active, Bachman and Scherer reported that expanding choices while maintaining high standards of learning enhanced enjoyment in the activity and increased feelings of competence. Further, the present findings seem to be consistent with one conclusion in Xie’s (2013) examination of the role motivation and peer feedback plays in online student behavior: students who feel confident about mastering learning tasks are more likely to participate in activities. On the other hand, those who are not confident in their capabilities will put minimal effort into completing learning tasks. 

**Competence Interconnections for Each Qualitative Method**

In focus group discussions, students expressed that competence connected with motivation, responsibility, and technology. Sixteen students talked about choosing exercises based on personal fitness goals, choosing exercises based on their current progression, choosing exercises based on specific muscle groups, and choosing exercises based on anticipated end results. Ten students were motivated and confident about transferring knowledge gained during face-to-face instruction to home workouts. Eight students were confident in using technology to design their workouts.
In semi-structured interviews, participants discussed how competence connected with autonomy and technology. Five students were confident in performing exercises on their own and talked about the important role free choice played in their selection of workouts. Two of the five students expressed they were not confident about performing without a teacher at the beginning of the semester, but they gained confidence as the semester progressed. Two students talked about knowledge gained while using technology.

In their vlogs, participants discussed how competence connected with autonomy and technology. Nine students were confident enough to schedule and complete their workouts when they were not at school. These students were able to identify exercises they liked and disliked and provided clear explanations about why they liked or disliked certain exercises. Seven students were well-versed in using technology to design fitness plans to help meet personal fitness goals.

The findings in this study have important pedagogical implications for developing and implementing a BPE program. In the section that follows, I discuss these implications and provide pedagogical recommendations.

Implications

The traditional landscape of K-12 education is shifting across all curricula, including PE. Eleven years ago, Kelly et al. (2009) forecasted the establishment of cyber schools, a service that “will use technology to communicate with students and parents, deliver instruction, and assist students with their learning…[and] will range from a physical school that uses technology to extend and enhance instruction to a completely virtual school that is accessed entirely online” (p. 204). Accordingly, greater effort must be made by K-12 school administrators and educators to
implement models that include a blended or virtual format. Even now, the current COVID-19 climate has highlighted the need for school systems to be exposed to and trained in non-traditional teaching methods. Having said that, what follows are pedagogical implications.

**Pedagogical Implications**

The findings of this study have important pedagogical implications for developing a BPE curriculum. Six themes emerged and must be considered when implementing a BPE program. A blended learning environment combines face-to-face instruction with online or virtual instruction. Depending on which blended model one chooses, there should be a point when students are virtual: at home, in a computer lab, in a collaborative space within the school building, or in separate pods in their scheduled classroom. In any case, the class schedule must reflect the conditions of the model.

In terms of technology, educators considering implementing a BPE model must determine how the fitness of students will be tracked. There are a myriad of available technologies including fitness trackers, pedometers, fitness applications, smart phone applications, heart rate monitors, and smart fitness equipment. As indicated in the findings, students are motivated by tracking their fitness via the Fitbit. The inclusion of technology is imperative to independent training in a BPE program. As a 1:1 school, CHS supports the blended learning curriculum. The challenge with introducing blended learning into PE is securing technologies that can track students’ fitness data. At CHS, the Fitbits for the BPE program were purchased through a Title grant and were distributed to all participants. The Fitbits were then connected to Fitabase, a subscription-based online data collection platform that collects and aggregates fitness data in real-time. This is not always possible in all school
districts. Alternate ways for students to track and record fitness data include employing Android and iOS health apps (e.g., Samsung Health and iOS Health), using an infinite number of available fitness apps (e.g., Nike Training, MyFitnessPal, Jefit, etc), using video and vlogging to display or talk about the workouts, and logging workouts in a traditional or electronic notebook. Other possibilities include requiring students to purchase their own fitness tracker or scheduling students who already possess a tracker. In any case, tracking the fitness of PE students is a key component in a blended learning curriculum.

The remaining themes—autonomy, competence, motivation, and responsibility—were enriched when facilitating an autonomy-supportive/competence-satisfying learning environment. Jang et al. (2010) made the case that autonomy-supportive pedagogy creates conditions that nurture intrinsic motivation; acknowledge students’ interests, perspectives, and choices, and rely on non-controlling language. This current study’s findings support Jang et al.’s perspective in that autonomous practices—providing students with choices, considering students’ perspectives, and providing structured, but non-controlling, informational language enhance competence and student motivation in BPE. As Elliot et al. (2004) pointed out, the need for competence is inseparably entwined and mutually exclusive to the enhancement of motivation. Competence, elevated by the introduction of compliant contextual events, enhances motivation, but only when autonomy persists. Therefore, it is imperative that educators foster an environment that supports autonomy and communicates through non-controlling abundantly competency-related messages. The following is an example of a teacher/student conversation in an autonomy-supportive/competence-satisfying BPE classroom.

Teacher: Shelby, what do you need for your body? What area of your body would you like to improve?
Shelby: I want a stronger upper body, but I do not have equipment at home.
Teacher: We should explore some bodyweight only exercises. Where might we find that information?
Shelby: I think we can use Google or YouTube.
Teacher: Sounds good. Take a few minutes to explore, keeping in mind the muscles you want to build.
Shelby: According to Google and a few YouTube videos, I can do daily pushups to strengthen my pecs, deltoids, biceps, and triceps, and even my abs if I hold the correct form.
Teacher: That is correct and sounds perfect for you. I am so happy with your research.

Responsibility was an unexpected, but welcome, byproduct of the findings. In this study, student responsibility ran the gamut of arriving at school on time during the scheduled BPE days, attending school during the off days, completing planned workouts, wearing the Fitbit daily, syncing the Fitbit, and caring for the Fitbit. With regard to attendance, the BPE students at CHS are scheduled to attend face-to-face instruction two days per week, during either the first class period of the day or the last. Because of the bus schedule, many of the BPE students arrive at school on the off days during first period and do not leave until after the last period of the regular school day. An interesting dynamic occurred with some students: being enrolled in a blended learning program curtailed their desire to arrive at school on time, to attend school at all on the non-attendance blended days (especially first period blended students), or to be supervised when at school during their non-attendance blended hour. Therefore, a key policy priority should address attendance requirements and the placement of students who are in the building but not in class. Possible suggestions include the library, computer labs, tutoring services, assisting teachers, or PE facilities to fulfill BPE requirements. Largely, the BPE students were compliant with the policies, but there were times when students irresponsibly roamed the halls, arrived at school late, or did not attend.
Generated by the findings of this study, Table 19 proposes recommendations for administrators and PE teachers to consider when onboarding and building a blended learning environment based on the six themes. Other researchers have suggested similar practices for pedagogical development in a blended learning program. Pizzi (2020) developed a blended learning course in mental health practice at his university. Pizzi’s course followed a format that included 50% participation online and 50% face-to-face participation. The course included an array of synchronous and asynchronous technologies. Pizzi concluded that the incorporation of blended learning practices requires considerable upfront work and requires a slow introduction to students. Hockly (as cited in Thornbury, 2016) suggested 12 principles that can be applied to the technology component of blended learning: “Adaptivity [allowing students to set their own learning paths and goals], input, output, noticing, scaffolding, feedback, interaction, automaticity, the use of chunks and formulaic language, personalization, and flow” (p. 99). Both Killian, Kinder, and Woods (2019) and Pizzi (2020) agree that the blended learning format along with the use of technology has improved student achievement and motivation to perform.
### Table 19

**BPE Pedagogical Recommendations**

<table>
<thead>
<tr>
<th>BPE THEMES</th>
<th>PEDAGOGICAL RECOMMENDATIONS</th>
</tr>
</thead>
</table>
| **Class Schedule** | ▪ Include face-to-face instruction and some form of online learning.  
▪ Should reflect the conditions of the chosen BPE model. |
| **Technology** | ▪ Determine how BPE students’ fitness will be tracked, i.e., the Fitbit.  
▪ If funding resources for fitness trackers are not available, find alternative ways to track fitness, i.e., Android and iOS tracking apps, free fitness apps). |
| **Responsibility** | ▪ Draft policy to address attendance requirements and the placement of students when in the building during off days.  
▪ Draft policy that identifies proper fitness tracker maintenance and the consequences of mishandling the tracker. |
| **Autonomy** | ▪ Foster an environment that cultivates autonomy and free choice.  
▪ Include student interest, perspective, and voice in the design of the curriculum. |
| **Motivation** | ▪ Provide choice and freedom.  
▪ Provide meaningful feedback and noncontrolling informational, competence enhancing messages. |
| **Competence** | ▪ Foster an environment that challenges students’ capacities and enhances skills.  
▪ Provide students with learning material that evokes knowledge and enhances capacity. |

#### Limitations of the Study

In this qualitative study, a number of important limitations need to be considered. First, the number of participants was relatively small. BPE as a course of study in secondary education is limited to a very small number of high schools. However, in the Township High School district, which includes Central and West high school, BPE is a course selection at both schools. Nonetheless, I elected to only study the students who were enrolled in BPE at Midwest Central. The potential bias regarding my experience as the only BPE teacher at Central T be regarded as a limitation. I was able to connect with the one BPE class that filled during the 2019-2020 school year. This convenience sample allowed me to familiarize students with the focus group discussion format and vlogging during the semester prior to the start of the study. As the
triangulation of data helped to mitigate any potential biases, this study may be limited by my belief that student voice and student choice enhance student motivation.

The COVID-19 pandemic shifted the dynamic of the data collection process, starting with the collection of consent forms. When the pandemic hit, I had 20 out of 30 consent forms. It was not possible to collect the other 10, thereby decreasing the number of potential study participants. At the start of the pandemic, I had conducted four of the five focus group discussions and none of the semi-structured interviews. All ensuing interviews were shifted to a virtual format using Zoom. It is my belief that the virtual format minimized the intimacy of face-to-face interviews, especially the final focus group interview. The students seemed rushed in their answers and limited in their communication with one another. Additionally, fewer students submitted vlogs, and some of the five semi-structured interviews included distractions from members of the household and pets.

Future Research

This qualitative analysis examined 11th and 12th grade student motivation in BPE. This study was guided by CET—a sub-theory of SDT—and supports the enrichment of motivation in an autonomy-supportive/competence-satisfying learning environment. A qualitative analysis that includes all three basic needs of the SDT—competence, autonomy, and relatedness—is recommended. A study of that type might uncover the role relatedness plays in a blended learning environment.

In its current state, the COVID-19 pandemic has certainly put the virtual school into perspective. When I began this analysis, a pandemic was not a foreseeable event. The education of students was suddenly virtual. This study elicited valuable insight about the motivation of PE
students in a blended learning environment, but not in a completely remote environment. There is abundant room for future investigators to take this condition into account.

I would be remiss if I did not mention the practicality of employing vlogs in qualitative research. Two of the three qualitative methods used in this study were commonplace: focus group discussions and semi-structured interviews. Currently, adopting video blogging is not a conventional method for qualitative data collection. However, I found vlogging to be an authentic tool for capturing student voice. It is a familiar and comfortable practice for 21st century high school students. Many of them follow the vlogs of social media influencers, and still others are very adept in vlogging technology. When having the opportunity to speak on a subject independent an adult and in front of a recording device, I found that the BPE students were vibrant, colorful, robust, and forthright in their comments.

At the time of this study, a dearth of research examining blended learning in PE existed, and none were in secondary education. Future research is needed to further analyze the practicality of high school BPE. Is BPE a viable alternative for all grade levels of high school PE? Can high school physical educators employ the same blended learning model across all grade levels or are some models more appropriate for specific grade levels? In terms of personnel, infrastructure, and curriculum, what logistical and pedagogical changes will be necessary to implement BPE at smaller versus larger high school districts? Additionally, a deeper investigation of the six themes that emerged from this study is warranted to determine if the same or similar six themes emerge in subsequent qualitative research. In a comparison between BPE and regular PE, how differently would any or all of the six themes emerge and which themes would hold a higher percentage of comments? If the same six themes emerged in a future investigation, how different would the percentages be between females and males,
underclassmen and upperclassmen, and rural versus urban school districts. Finally, a longitudinal analysis could determine if it is more likely students’ participation in BPE will extend their desire to participate in physical fitness beyond high school more than for the perspective of traditional program PE students.

Conclusion

In a perfect PE world, students find empowerment in owning their fitness while in high school and then transfer that empowerment to adulthood for a lifetime of physical fitness and healthy choices. The inherent nature of a BPE classroom cultivates a student-centered learning environment that promotes autonomy, choice, and student voice. Feelings of competence, confidence and effectance in mastering learning activities are the products of an environment that is autonomy-supportive and competence-satisfying. Knowledge is gained from meaningful experiences that derive when contextual cues are purposeful, noncontrolling, and relevant to the fitness needs of the students. Taken together, an autonomy-supportive/competence-satisfying BPE classroom can promote motivation to engage in fitness challenges and empower students to take ownership of their fitness for a lifetime of healthy fitness choice.
REFERENCES


APPENDIX A

KEY POINTS FOR TECHNOLOGY STANDARDS IN EDUCATION
<table>
<thead>
<tr>
<th><strong>STANDARD</strong></th>
<th><strong>KEY POINTS</strong></th>
</tr>
</thead>
</table>
| **Illinois State Standards** | **Late Elementary**  
Monitor individual heart rate before, during, and after physical activity, with and without the use of technology.  
**Middle/Junior High School**  
Monitor intensity of exercise through a variety of methods (e.g., perceived exertion, pulse, heart rate monitors), with and without the use of technology.  
**Early High School**  
Record and interpret health-related physiological data (e.g., blood pressure, body mass index, oxygen exchange), with and without the use of technology.  
**Late High School**  
Collect and interpret health-related fitness data over a period of time, with and without the use of technology. |
| **International Society for Technology in Education (ISTE)** | **For Education Leaders**  
*Equity and Citizenship Advocate*  
Leaders use technology to increase equity, inclusion, and digital citizenship practices.  
*Visionary Planner*  
Leaders engage others in establishing a vision, strategic plan and ongoing evaluation cycle for transforming learning with technology.  
*Empowering Leader*  
Leaders create a culture where teachers and learners are empowered to use technology in innovative ways to enrich teaching and learning.  
*Systems Designer*  
Leaders build teams and systems to implement, sustain and continually improve the use of technology to support learning.  
*Connected Learner*  
Leaders model and promote continuous professional learning for themselves and others.  
**For Educators**  
*Learner*  
Educators continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning.  
*Leader*  
Educators seek out opportunities for leadership to support student empowerment and success and to improve teaching and learning.  
*Citizen* |
Educators inspire students to positively contribute to and responsibly participate in the digital world.

**Collaborator**
Educators dedicate time to collaborate with both colleagues and students to improve practice, discover and share resources and ideas, and solve problems.

**Designer**
Educators design authentic, learner-driven activities and environments that recognize and accommodate learner variability.

**Facilitator**
Educators facilitate learning with technology to support student achievement of the 2016 ISTE Standards for Students.

**Analyst**
Educators understand and use data to drive their instruction and support students in achieving their learning goals.

**For Students**

**Empowered Learner**
Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.

**Digital Citizen**
Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

**Knowledge Constructor**
Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

**Innovative Designer**
Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

**Computational Thinker**
Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

**Creative Communicator**
Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

**Global Collaborator**
Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
For Coaches

Visionary Leadership
Technology coaches inspire and participate in the development and implementation of a shared vision for the comprehensive integration of technology to promote excellence and support transformational change throughout the instructional environment.

Teaching, Learning and Assessments
Technology coaches assist teachers in using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant and engaging learning experiences for all students.

Digital Age Learning Environments
Technology coaches create and support effective digital age learning environments to maximize the learning of all students.

Professional Development and Program Evaluation
Technology coaches conduct needs assessments, develop technology-related professional learning programs, and evaluate the impact on instructional practice and student learning.

Digital Citizenship
Technology coaches model and promote digital citizenship.

Content Knowledge and Professional Growth
Technology coaches demonstrate professional knowledge, skills and dispositions in content, pedagogical and technological areas as well as adult learning and leadership and are continuously deepening their knowledge and expertise.

<table>
<thead>
<tr>
<th>Physical Education Teacher Education (PETE, SHAPE America)</th>
<th>Standard 3: Planning and Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical education candidates apply content and foundational knowledge to plan and implement developmentally appropriate learning experiences aligned with local, state and/or SHAPE America National Standards and Grade-Level Outcomes for K-12 Physical Education through the effective use of resources, accommodations and/or modifications, technology and metacognitive strategies to address the diverse needs of all students.</td>
<td></td>
</tr>
</tbody>
</table>

Components – Candidates will:
3.a Plan and implement appropriate (e.g., measureable, developmentally appropriate, performance-based) short- and long-term plan objectives that are aligned with local, state and/or SHAPE America National Standards and Grade-Level Outcomes for K-12 Physical Education.

3.b Plan and implement progressive and sequential content that aligns with short- and longterm plan objectives and that addresses the diverse needs of all students.

3.c Plan for and manage resources to provide active, fair and equitable learning experiences.

3.d Plan and implement individualized instruction for diverse student needs, adding specific accommodations and/or modifications for all students.
3.e Plan and implement learning experiences that require students to use technology appropriately in meeting one or more short- and long-term plan objective(s). 3.f Plan and implement learning experiences that engage students in using metacognitive strategies appropriately to analyze their own performance results.

<table>
<thead>
<tr>
<th>International Association for K-12 Online Learning (INACOL)</th>
<th>Standard A</th>
</tr>
</thead>
<tbody>
<tr>
<td>The online teacher knows the primary concepts and structures of effective online instruction and is able to create learning experiences to enable student success.</td>
<td></td>
</tr>
</tbody>
</table>

**Standard B**
The online teacher understands and is able to use a range of technologies, both existing and emerging, that effectively support student learning and engagement in the online environment.

**Standard C**
The online teacher plans, designs, and incorporates strategies to encourage active learning, application, interaction, participation, and collaboration in the online environment.

**Standard D**
The online teacher promotes student success through clear expectations, prompt responses, and regular feedback.

**Standard E**
The online teacher models, guides, and encourages legal, ethical, and safe behavior related to technology use.

**Standard F**
The online teacher is cognizant of the diversity of student academic needs and incorporates accommodations into the online environment.

**Standard G**
The online teacher demonstrates competencies in creating and implementing assessments in online learning environments in ways that ensure validity and reliability of the instruments and procedures.

**Standard H**
The online teacher develops and delivers assessments, projects, and assignments that meet standards-based learning goals and assesses learning progress by measuring student achievement of the learning goals.

**Standard I**
The online teacher demonstrates competency in using data from assessments and other data sources to modify content and to guide student learning.

**Standard J**
The online teacher interacts in a professional, effective manner with colleagues, parents, and other members of the community to support students’ success.

**Standard K**
The online teacher arranges media and content to help students and teachers transfer knowledge most effectively in the online environment.

<table>
<thead>
<tr>
<th>International Association for K-12 Online Learning (iNACOL) Framework for Blended Teaching Competencies</th>
<th>Mindsets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What</strong> Core values or beliefs that guide thinking, behaviors and actions that align with goals of educational change and mission</td>
<td><strong>How</strong> Understood, adopted, and committed to</td>
</tr>
</tbody>
</table>

| Qualities | **What** Personal characteristics and patterns of behavior that help an educator make the transition to new ways of teaching and learning | **How** Coached, encouraged, and reinforced |

| Adaptive Skills | **What** Higher complexity that are generalized across domain/jobs. Help people tackle problems and tasks where the solution might be unknown or that require organizational learning and innovation | **How** Developed through modeling, coaching, and reflective practice |

| Technical Skills | **What** Skills that are known and specific to task and domain. Observable “know-how” and basic mechanics and expertise helpful for execution and implementation of day-to-day job (for teachers’ instruction) | **How** Acquired and mastered through instruction, training, and practice |
APPENDIX B

NORTHERN ILLINOIS UNIVERSITY:
CONSENT TO PARTICIPATE IN A RESEARCH STUDY
Title of Study: **Student Ownership in Physical Education: A Blended Learning Approach**

Investigators
Name: ___________________________ Dept: ____________ Phone: ____________

Key Information
• This is a voluntary research study on student motivation in a blended physical education class.
• This semester-long study involves student interviews in three formats: semi-structure interviews, focus group discussions and vlogs.
• The benefits include student ownership of their overall fitness for a lifetime of healthy fitness choices; although there are no reasonably foreseeable risks, physical education is a performance class and injuries may occur.

Description of the Study
The purpose of the study is to determine what motivates blended physical education to meet personal fitness goals when they are in school and when they are performing independently, without a teacher. If you agree to be in this study, you will be asked to do the following things:

1. Complete your normal workout routines.
2. Participate in three types of interviews where you will be asked questions about your workouts: semi-structured interviews, focus group discussions and vlogs.

Risks and Benefits
The study has the following risk. As with performing any physical activity, there is a risk of injury (although this risk is not reasonably foreseeable.)

A benefit of participation is the potential to value physical fitness for a lifetime of healthy fitness choices, which can minimize the risks of acquiring chronic conditions like heart disease, diabetes, hypertension, and some cancers. This fact alone justifies the potential risks to the participants in this study.

Confidentiality
• This study is anonymous. I will not be collecting or retaining any information about your identity.
• The records of this study will be kept strictly confidential. Research records will be kept in a locked file, and all electronic information will be coded and secured using a password protected file. I will not include any information in any report I may publish that would make it possible to identify you.
• The videos from the vlogs will be stored on the password-protected, Google Classroom learning management system and will be deleted a year after the study is completed and the report is finalized.
• The videos from the focus group discussions will be transferred from the researcher’s cell phone to a password-protected electronic file and will be deleted a year after the study is completed and the report is finalized.
• The voice recordings from the semi-structured interviews will be transferred from the researcher’s cell phone to a password-protected electronic file and will be deleted a year after the study is completed and the report is finalized.
• The transcription documents will be stored in a password-protected electronic file and will be deleted a year after the study is completed and the report is finalized. The hard copies to the transcription files will be filed in a secure location.
• With your permission, your identity will be made known in written materials resulting from the study. However, you will be given the opportunity to review and approve any material that is published about you.
• It should be understood that, when participating in a focus group, confidentiality among the members of the group cannot be guaranteed.

Compensation
You will not receive compensation for your time.

Your Rights
The decision to participate in this study is entirely up to you. You may refuse to take part in the study at any time. Your decision will not result in any loss of benefits to which you are otherwise entitled. You have the right to skip any question or research activity, as well as to withdraw completely from participation at any point during the process.

You have the right to ask questions about this research study and to have those questions answered before, during, or after the research. If you have any further questions about the study, at any time feel free to contact the researcher, Soyini Chism at schism@jths.org or Dr. Elizabeth Wilkins at ewilkins@niu.edu. If you have any questions about your rights as a research participant that have not been answered by the investigators or if you have any problems or concerns that occur as a result of your participation, you may contact the Office of Research Compliance, Integrity, and Safety at (815)753-8588.

Northern Illinois University policy does not provide medical treatment or compensation for treatment of injuries that may occur as a result of participation in research activities. The preceding information shall not be construed as a waiver of any legal rights or redress which the participants may have.

Future Use of the Research Data
After removing all identifying information from your data, the information could be used for future research studies or distributed to another investigator for future research studies without additional informed consent from you.
Your signature below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigators.

________________________________________________           _____________________
Participant’s Signature                                    Date

I give my consent to be audio recorded during the semi-structured interview and video recorded during the focus group discussion and the vlogs.

________________________________________________           _____________________
Participant’s Signature                                    Date
APPENDIX C

NORTHERN ILLINOIS UNIVERSITY:
ASSENT TO PARTICIPATE IN A RESEARCH STUDY
Title of Study: **Student Ownership in Physical Education: A Blended Learning Approach**

**Investigators**
Name: ____________________________ Dept: _________ Phone: _________

**Key Information**
- This is a voluntary research study on student motivation in a blended physical education class.
- This semester-long study involves student interviews in three formats: semi-structured interviews, focus group discussions and vlogs.
- The benefits include student ownership of their overall fitness for a lifetime of healthy fitness choices; although there are no reasonably foreseeable risks, physical education is a performance class and injuries may occur.

**Description of the Study**
The purpose of the study is to determine what motivates blended physical education to meet personal fitness goals when they are in school and when they are performing independently, without a teacher. If you agree to be in this study, you will be asked to do the following things:

1. Complete your normal workout routines.
2. Participate in three types of interviews where you will be asked questions about your workouts: semi-structured interviews, focus group discussions and vlogs.

**Risks and Benefits**
The study has the following risk. As with performing any physical activity, there is a risk of injury (although this risk is not reasonably foreseeable.)

A benefit of participation is the potential to value physical fitness for a lifetime of healthy fitness choices, which can minimize the risks of acquiring chronic conditions like heart disease, diabetes, hypertension, and some cancers. This fact alone justifies the potential risks to the participants in this study.

**Confidentiality**
- This study is anonymous. I will not be collecting or retaining any information about your identity.
- The records of this study will be kept strictly confidential. Research records will be kept in a locked file, and all electronic information will be coded and secured using a password protected file. I will not include any information in any report I may publish that would make it possible to identify you.
• The videos from the vlogs will be stored on the password-protected, Google Classroom learning management system and will be deleted a year after the study is completed and the report is finalized.
• The videos from the focus group discussions will be transferred from the researcher’s cell phone to a password-protected electronic file and will be deleted a year after the study is completed and the report is finalized.
• The voice recordings from the semi-structured interviews will be transferred from the researcher’s cell phone to a password-protected electronic file and will be deleted a year after the study is completed and the report is finalized.
• The transcription documents will be stored in a password-protected electronic file and will be deleted a year after the study is completed and the report is finalized. The hard copies to the transcription files will be filed in a secure location.
• With your permission, your identity will be made known in written materials resulting from the study. However, you will be given the opportunity to review and approve any material that is published about you.
• It should be understood that, when participating in a focus group, confidentiality among the members of the group cannot be guaranteed.

Compensation
You will not receive compensation for your time.

Your Rights
The decision to participate in this study is entirely up to you. You may refuse to take part in the study at any time. Your decision will not result in any loss of benefits to which you are otherwise entitled. You have the right to skip any question or research activity, as well as to withdraw completely from participation at any point during the process.

You have the right to ask questions about this research study and to have those questions answered before, during, or after the research. If you have any further questions about the study, at any time feel free to contact the researcher, Soyini Chism at schism@jths.org or Dr. Elizabeth Wilkins at ewilkins@niu.edu. If you have any questions about your rights as a research participant that have not been answered by the investigators or if you have any problems or concerns that occur as a result of your participation, you may contact the Office of Research Compliance, Integrity, and Safety at (815)753-8588.

Northern Illinois University policy does not provide medical treatment or compensation for treatment of injuries that may occur as a result of participation in research activities. The preceding information shall not be construed as a waiver of any legal rights or redress which the participants may have.

Future Use of the Research Data
After removing all identifying information from your data, the information could be used for future research studies or distributed to another investigator for future research studies without additional informed consent from you.
Your signature below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigators.

________________________________________________           _____________________
Participant's Signature                                     Date

I give my consent to be audio recorded during the semi-structured interview and video recorded during the focus group discussion and the vlogs.

________________________________________________           _____________________
Participant’s Signature                                     Date
APPENDIX D

BASIC PSYCHOLOGICAL NEED SATISFACTION AND FRUSTRATION SCALE FOR PHYSICAL EDUCATION
3.2.2. Dutch version
3.2.2.1. Physical education

De volgende uitspraken gaan over je gevoelen tijdens de afgelopen LO-les. Geef voor elke uitspraak aan in welke mate de uitspraak waar is voor jou.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Helemaal niet waar</td>
<td>Eerder niet waar</td>
<td>Soms waar/ Soms niet waar</td>
<td>Eerder waar</td>
<td>Helemaal waar</td>
</tr>
</tbody>
</table>

Tijdens de afgelopen les L.O....

1. Had ik een gevoel van keuze en vrijheid in de dingen die ik deed.  
   1 2 3 4 5

2. Voelde ik me uitgesloten uit de groep waar ik bij wilde horen.  
   1 2 3 4 5

3. Voelde ik me gedwongen om veel oefeningen te doen waar ik zelf niet voor zou kiezen.  
   1 2 3 4 5

4. Had ik ernstige twijfels of ik oefeningen wel goed kon doen.  
   1 2 3 4 5

5. Voelde ik me nauw verbonden met klasgenoten die belangrijk voor me zijn.  
   1 2 3 4 5

6. Had ik het gevoel dat de oefeningen aansloten bij wat ik zelf zou willen.  
   1 2 3 4 5

7. Voelde ik me onzeker over mijn vaardigheden.  
   1 2 3 4 5

8. Had ik de indruk dat de klasgenoten waarmee ik tijd doorbracht een hekel aan me hadden.  
   1 2 3 4 5

9. Had ik er vertrouwen in dat ik de oefeningen goed kon doen.  
   1 2 3 4 5

10. Voelde ik me verplicht om te veel oefeningen te doen.  
    1 2 3 4 5

11. Voelde ik dat de klasgenoten waar ik om geef, ook geven om mij.  
    1 2 3 4 5

12. Voelde ik me in staat om mijn doelen te bereiken.  
    1 2 3 4 5

13. Had ik het gevoel dat de manier waarop ik les kreeg, was zoals ik zelf ook wil.  
    1 2 3 4 5

14. Voelde ik dat de relaties die ik met klasgenoten had slechts oppervlakkig
waren.

15. Voelde ik me bekwaam in wat ik deed. 

16. Voelde ik me onder druk gezet om bepaalde dingen te doen. 

17. Voelde ik me teleurgesteld in veel van mijn prestaties. 

18. Voelde ik me verbonden met de klasgenoten die om mij geven en waar ik ook om geef. 

19. Voelden de meeste oefeningen en opdrachten die ik deed aan alsof ‘ze moesten’. 

20. Voelde ik dat ik moeilijke taken met succes kon voltooien. 

21. Had ik het gevoel dat klasgenoten die belangrijk voor zijn koud en afstandelijk waren tegen mij. 

22. Voelde ik dat wat we deden in de les me oprecht interesseerde. 

23. Voelde ik me als een mislukkeling omwille van de fouten die ik maakte. 

24. Had ik een warm gevoel bij klasgenoten waarmee ik tijd doorbracht. 

Scoring information: 

Autonomy satisfaction: items 1, 6, 13, 22 
Autonomy frustration: items 3, 10, 16, 19 
Relatedness satisfaction: items 5, 11, 18, 24 
Relatedness frustration: items 2, 8, 14, 21 
Competence satisfaction: items 9, 12, 15, 20 
Competence frustration: items 4, 7, 17, 23 

Supportive reference: 


Contact person: 

Leen Haerens; Leen.Haerens@UGent.be.
Basic Psychological Need Satisfaction and Frustration Scale for Physical Education

English version

The following statements are about your feelings during the last LO class. Give for each Declaration to what extent the pronunciation is true to you.

1. I had a sense of choice and freedom in the things I did.
2. I felt excluded from the group with whom I wanted to work.
3. I felt compelled to do a lot of exercises that I did not choose.
4. I had serious doubts as to whether I could do exercises well.
5. I felt closely connected with classmates that matter to me.
6. I felt that the exercises matched what I would like.
7. I was not sure about my skills.
8. I had the impression that the classmates with whom I spent time hated me.
9. I was confident that I could do the exercises well.
10. I felt obliged to do too many exercises.
11. I felt that the classmates I care about also cared about me.
12. I felt able to achieve my goals.
13. I felt like the way I was taught matched what I wanted.
14. I felt like the relationships I had with classmates were superficial.
15. I felt capable of doing what I did.
16. I felt pressured to do certain things.
17. I was disappointed in many of my achievements.
18. I felt connected with the classmates who care about me.
19. I felt as if I *had* to do the exercises.
20. I felt I could complete difficult tasks with success.
21. I feel that classmates were cold and distant to me.
22. I felt that what we did in class really interested me.
23. I felt like a failure because of the mistakes I made.
24. I had a warm feeling with classmates during class time.
APPENDIX E

INTERVIEW GUIDE
Semi-Structured Interviews

The Warm-up

What does BPE mean to you?

How does BPE compare to your regular PE experience?

Describe a typical nonattendance school day when you must include a workout.

Take me through your BPE experience when you are at school.

Take me through your BPE experience when you are away from school.

RQ1: What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment meet their personal goals?

What is motivation and how does it apply in BPE?

What motivates you to participate in physical activity especially when you’re not at school?

Early in the semester you created personal fitness goals in four categories: cardiovascular endurance, muscular strength, muscular endurance, and flexibility. Describe ways in which being in a BPE class has helped you reach the goals that you have met.

How do you decide what exercises you want to perform when you are at school in BPE class?

How do you decide what exercises you want to perform when you are not in school?

What motivates you to perform the exercises you choose?

RQ2: How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?

A key component in a BPE environment is autonomy or free choice...

BPE classes have a considerable amount of free choice. What are your thoughts about the free choice you have in class? Outside of class?

Are there times when the amount of free choice in BPE is a challenge? If so, describe that challenge to me.

RQ3: How do competence-enhancing practices relate to 11th and 12th grade student motivation in a BPE class?

How confident are you in performing exercises on your own?

Describe times when you had doubts about performing exercises well.
Focus Group Discussion

Thank you for agreeing to participate in this focus group discussion. You are here because you are blended physical education students and I am interested in hearing your valuable opinion about blended physical education and what motivates you to meet personal fitness goals.

I will lead the discussion by asking questions. There are no wrong answers. Please feel free to share your point of view even if it differs from others. Keep in mind that I am just as interested in negative comments as I am positive comments. In fact, negative comments are sometimes the most helpful.

You’ve probably noticed that I am recording this session; I am doing this because I don’t want to miss any of your comments.

Although I will address you by your first name, I will not use your names in my report. I will use your pseudonym.

This session will last about 30 minutes. I have provided some snacks. Feel free to help yourself. I have a few simple ground rules:

1. Please turn off your cell phones.
2. Everyone should participate
3. Please do not have side conversations
4. Please keep the information provided in this discussion confidential (please don’t share with other students)
5. Have Fun!

Let’s begin.

Please introduce yourselves. Give me your first name, your year in school, and if this is your first or second year in BPE. If you want to add anything else, that’s fine.

The Warm-up

What does BPE mean to you?

How is BPE different from your regular PE experience?

What things do you like, and/or dislike, about BPE?

RQ1: What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment meet their personal goals?

Early in the semester you created personal fitness goals in four categories: cardiovascular endurance, muscular strength, muscular endurance, and flexibility.

How much success did you have in reaching your goals?

Describe ways in which being in a BPE class helped you reach your goals?

What motivates you to engage in exercises that are geared toward reaching your fitness goals?
RQ2: How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?

Talk about the free choice that you experience in BPE.

Are there times when free choice is a challenge? If so, describe that challenge to me.

How do you choose what exercises to perform when you’re at school?

What inspires you to workout when you’re not at school?

RQ3: How do competence-enhancing practices relate to 11th and 12th grade student motivation in a BPE class?

How do you decide which exercises will help you reach your personal fitness goals?

How did you overcome challenges when performing certain exercises?

Describe your experience with using the Fitbit. How has having a Fitbit changed your outlook on physical fitness? If so, how?

Identify some of your favorite fitness apps and share with us why you liked those apps.

VLOGS

RQ1: What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment meet their personal goals?

Topics:

What are the benefits of a BPE class?

What are the challenges of a BPE class?

Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal.

What motivates you to reach your fitness goals?

What advice would you give to other high school students thinking about taking BPE?

What is motivation and how does it apply in BPE?

RQ2: How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?

Topics:

What are your thoughts about exercising at school?

What motivates you work out when you are not at school?

Talk about the amount of free choice you have in BPE.
Are there times when free choice is a challenge? If so, describe that challenge to me.

Talk about the exercises that you typically choose to do in school?

Talk about the exercises that you typically choose to do when you are not at school.

*RQ3: How do competence-enhancing practices relate to 11th and 12th grade student motivation in a BPE class?*

Topics:

Describe your successes with meeting the weekly step goal. Describe any challenges that you may have faced.

Describe your successes with meeting the weekly heart rate goal. Describe any challenges that you may have faced.

Describe your successes with meeting the weekly frequency goal. Describe any challenges that you may have faced.

Talk about the technology you use to meet your performance goals.

How do you manage your fitness time when you are not at school?

Briefly describe the at least one exercise routine that you participated in this week. How did you feel when you finished? What did you like about it? What challenged you? What would you do different?

What type of exercise routines do you like and why?

What type of exercise routines do you dislike and why?
APPENDIX F

SELECTIVE CODING WITH THEME CONNECTIONS
**Selective Coding with Theme Connections**

**RQ1:** What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment help meet their personal goals?

<table>
<thead>
<tr>
<th>Theme I Connections</th>
<th>Theme II Connections</th>
<th>Theme III Connections</th>
<th>Theme IV Connections</th>
<th>Theme III Connections</th>
<th>Theme IV Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>Competence</td>
<td>Motivation</td>
<td>Responsibility</td>
<td>Class Schedule</td>
<td>Technology</td>
</tr>
</tbody>
</table>

**Q1:** Alo, Enya, Shelby, and Zoe convey that benefits of BPE include choosing their own workouts, choosing when to work out, and deciding what's best for them. Alo and Maria say a benefit is not having to follow the direction of a teacher. Alo and Shelby say one benefit of BPE is the opportunity to design their own workouts based on their needs. Maria talked about being responsible for her own exercises and being equipped to perform exercises without the guidance of a teacher. Alo agreed with Maria's second point by saying, "".

**Q2:** No comments about autonomy.

**Q3:** When listing their goals, Brianna, Paola, Shelby, and Zoe all talk about reaching their goals with focused, independent training.

**Q4:** No comments about competence.

**Q5:** When listing their goals, Brianna, Paola, Shelby, and Zoe all talk about reaching their goals with focused, independent training. Les talks about using clips from videos to design workouts that help her reach goals.

**Q6:** No comments about motivation.

**Q7:** Brianna and Zoe convey that a challenge in BPE is being unmotivated, not wanting to work out.

**Q8:** Brianna and Paolo, Shelby, Xiomara, and Zoe have all set goals that are specific to their identified needs in the BPE learning environment.

**Q9:** No comments about class schedule.

**Q10:** Xiomara is motivated by fitness videos to reach her fitness goals.
Q4: Enya and Xiomara say in order to be successful in BPE, students must be willing to perform independently, without the guidance of a teacher.

Q4: Enya and Xiomara talked about the importance of being able to take action when a teacher is not present.

Q4: Alo, Brianna, Enya, John, and Xiomara all agree that motivation is goal-driven (Xiomara, Enya, Elsy quotes). Alo, Brianna, Enya and Xiomara agree that motivation plays a huge role in BPE (Brianna, Enya, Xiomara quotes). Alo, Brianna, Elsy, Xiomara (quotes) agree that motivation is purposeful. Elsy and Xiomara agree that one must couple responsibility with motivation (Xiomara quote). Enya and Xiomara say that motivation plays a huge role in student ownership, specifically performing absent a teacher.

Q4: Elsy and Xiomara agree that one must couple responsibility with motivation in a BPE classroom.

Q4: No comments about class schedule

Q4: No comments about technology

Q5: Alo, Brianna, Elsy, Enya, Maria, Paola, Shelby, Xiomara, and Zoe all agree that motivation is goal-driven (Xiomara, Enya, Elsy quotes). Alo, Brianna, Enya and Xiomara agree that motivation plays a huge role in BPE (Brianna, Enya, Xiomara quotes). Alo, Brianna, Elsy, Xiomara (quotes) agree that motivation is purposeful. Elsy and Xiomara agree that one must couple responsibility with motivation (Xiomara quote). Enya and Xiomara say that motivation plays a huge role in student ownership, specifically performing absent a teacher.

Q5: No comments about class schedule

Q5: No comments about technology

Q5: The COVID pandemic is motivating Brianna and Enya to meet their fitness goals. Brianna does not want to gain the COVID 15. Enya recognizes the importance of "staying healthy in...these tough times". David, Elsy and Les are motivated by technology. (Elsy and David)

Q5: No comments about class schedule

Q5: No comments about technology

Q5: David, Elsy, and Les are motivated by technology to reach their fitness goals. David enjoys watching transformation videos on YouTube, Elsy checks in with her Fitbit, and Les appreciates social media influencers.

**Theme Connections**

Autonomy connects to four of the six themes (Autonomy, Competence, Motivation, and Responsibility). Eight students (Alo, Brianna, Enya, Maria, Paola, Shelby, Xiomara, and Zoe) identify choice, student ownership, the ability to design workouts based on specific needs, and independent training as motivating factors and key components to reaching personal fitness goals. Five of the eight students (Brittany, Enya, Maria, Nani, and Zoe) talk about a sense of responsibility gained and needed in a BPE class.

Competence connects to five of the six themes (Autonomy, Competence, Motivation, Responsibility, and Technology). Eight students (Alo, Brianna, Enya, Maria, Paola, Shelby, Xiomara, and Zoe) talk about how the knowledge gained in BPE allows them to design their own workouts for focused, independent training that will help them meet their personal fitness goals. Alo and Maria talk about how being equipped with the knowledge to perform exercises helps them be more responsible for their workouts.

Motivation connects to five of the six themes (Autonomy, Competence, Motivation, Responsibility, and Technology). Eleven students (Alo, Brianna, David, Elsy, Enya, John, Les, Paola, Shelby, Xiomara, and Zoe) talk about how free choice and knowledge gained in a BPE class motivates them to meet their fitness goals. Enya and Brianna talk about how the COVID-19 pandemic motivates them to keep up with their fitness. David, Elsy, and Les express how technology motivates them to complete their independent workouts. Brianna and Zoeo confess that there are times when they are unmotivated to work out.

Responsibility connects with all six themes. Ten students (Brianna, Brittany, Elsy, Enya, Maria, Nani, Paola, Shelby, Xiomara, and Zoe) talk about being responsible for designing their workouts, meeting personal fitness goals, working independently, gaining a better sense of responsibility, attending class during scheduled BPE days, and wearing the Fitbit.

Class Schedule connects with two of the six themes (Responsibility and Class Schedule). Five students (Alo, Enya, Maria, Shelby, and Zoe) all agree that the class schedule is a key benefit in BPE, although Alo reveals that it can be a challenge to attend scheduled BPE class days when she doesn't have to go to class but two days per week. Alo admits that when she does not have to go to class every day, it is harder to be responsible for attendance.

Technology connects to four of the 6 themes (Competence, Motivation, Responsibility, and Technology). Six students (David, Elsy, Enya, Les, Shelby, and Xiomara) talk about how knowing how to incorporate technology helps them design their workouts, how they are motivated by the technology, how they responsibly use technology to meet their fitness goals, how the Fitbit is a benefit to BPE, and how wearing the Fitbit can sometimes pose a challenge (in Enya's case... and in David's case....).
APPENDIX G

QUALITATIVE DATA SUMMARY FOR EACH QUALITATIVE TOOL
### CASE STUDY METHODOLOGY: FOCUS GROUP DISCUSSIONS

<table>
<thead>
<tr>
<th>Theme</th>
<th>Definitions</th>
<th>RQ1: What do 11th and 12th grade students say about their motivation in a BPE class? In what ways does a BPE learning environment help meet their personal goals?</th>
<th>RQ2: How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?</th>
<th>RQ3: How do competence-enhancing practices relate to 11th and 12th grade student motivation in a BPE class?</th>
</tr>
</thead>
</table>
| Autonomy      | • Autonomy is simply “self-direction, self-determination” (Carver & Scheier, 2000, p. 284).  
• Autonomy “represents an inner endorsement of one’s actions [and] emerge[s] from internally locusced and volitional sources of motivation rather than from an externally locusced causality” (Reeve & Jang, 2006, p. 209). | *#** | **%** | Theme Connections | # | % | Theme Connections | # | % | Theme Connections |
|               |                                                                                           | 21 | 17 | Autonomy  | 11 | 13 | Competence  | 7 | 7 | Motivation  |
|               |                                                                                           |   |   | Competence |   |   | Motivation  |   |   | Responsibility |
|               |                                                                                           |   |   | Motivation |   |   | Responsibility |   |   | Class Schedule |
|               |                                                                                           |   |   | Responsibility |   |   | Class Schedule |   |   | Technology |
| Competence    | • One’s need to experience mastery (Deci & Ryan, 2004).  
• An innate feeling of confidence and effectance within a social environment (Deci & Ryan, 2004). | 35 | 29 | Autonomy | 16 | 19 | Competence  | 25 | 24 | Motivation  |
|               |                                                                                           |   |   | Competence |   |   | Motivation  |   |   | Responsibility |
|               |                                                                                           |   |   | Motivation |   |   | Responsibility |   |   | Technology |
| Motivation    | • Hartnett (2012) links motivation to cognitive and affective development when “thoughts, belief, [and] goals” (p. 439) are emphasized in the learning environment.  
• Suaromana (2013) makes the case that a critical aspect of acquiring and retaining knowledge is motivation, as it “defines the extent of a student’s involvement in learning, originating with his/her wish to achieve a goal and the effort he/she is willing to put forth to achieve it” (p. 142). | 27 | 22 | Autonomy | 31 | 37 | Competence  | 20 | 19 | Motivation  |
|               |                                                                                           |   |   | Competence |   |   | Motivation  |   |   | Responsibility |
|               |                                                                                           |   |   | Motivation |   |   | Responsibility |   |   | Technology |
| Responsibility| “To be responsible is to be answerable or accountable for something within one’s power, control, or management; it is to be able to make sense of and respond within one’s sphere of association; it is to take action based on one’s sense of connection and answerability to the self and to others” (Cook-Sather, 2010, p. 2). | 26 | 21 | Autonomy | 15 | 18 | Competence  | 15 | 14 | Autonomy  |
|               |                                                                                           |   |   | Competence |   |   | Competence  |   |   | Responsibility |
|               |                                                                                           |   |   | Competence |   |   | Competence  |   |   | Responsibility |
| Class Schedule| Class schedule is the days per week students are required to attend BPE. | 8 | 7 | Motivation | 5 | 6 | No comments | 0 | 0 | No comments |
| Technology    | Digital teaching and learning tools to support curricula during face-to-face and online instruction and may include synchronous and asynchronous modalities. | 5 | 3 | Motivation | 6 | 7 | No comments | 39 | 37 | Competence  |
|               |                                                                                           |   |   | Responsibility |   |   | Motivation  |   |   | Technology |

*Number of times students commented on or alluded to theme when answering questions.  **Percentage of times theme was mentioned or alluded when answering questions.
## CASE STUDY METHODOLOGY: SEMI-STRUCTURED INTERVIEWS

<table>
<thead>
<tr>
<th>Theme</th>
<th>Definitions</th>
<th>RQ1: What do 11th and 12th grade students say about their motivation in a BPE class?</th>
<th>RQ2: How do autonomy-supportive practices relate to 11th and 12th grade student motivation in a BPE class?</th>
<th>RQ3: How do competence-enhancing practices relate to 11th and 12th grade student motivation in a BPE class?</th>
</tr>
</thead>
</table>
- Autonomy “represents an inner endorsement of one’s actions [and] emerge[s] from internally focused and volitional sources of motivation rather than from an externally focused causality” (Reeve & Jang, 2006, p. 209). | 10 26 Autonomy Motivation 14 50 Autonomy Competence Motivation Responsibility | 1 8 Motivation Technology |  |  |
| **Competence**      | - One’s need to experience mastery (Deci & Ryan, 2004).  
- An innate feeling of confidence and effectance within a social environment (Deci & Ryan, 2004). | 6 16 Autonomy Competence Motivation 4 14 Autonomy Competence Responsibility | 10 83 Motivation Technology |  |  |
| **Motivation**      | - Hartnett (2012) links motivation to cognitive and affective development when “thoughts, belief, [and] goals” (p. 439) are emphasized in the learning environment.  
- Sucaromana (2013) makes the case that a critical aspect of acquiring and retaining knowledge is motivation, as it “defines the extent of a student’s involvement in learning, originating with his/her wish to achieve a goal and the effort he/she is willing to put forth to achieve it” (p. 142). | 14 37 Autonomy Competence Motivation Technology 8 29 Autonomy Motivation | 0 0 No comments |  |  |
| **Responsibility**  | “To be responsible is to be answerable or accountable for something within one’s power, control, or management; it is to be able to make sense of and respond within one’s sphere of association; it is to take action based on one’s sense of connection and answerability to the self and to others” (Cook-Sather, 2010, p. 2). | 2 5 Autonomy Responsibility 2 7 Autonomy Responsibility | 0 0 No comments |  |  |
| **Class Schedule**  | Class schedule is the days per week students are required to attend BPE. | 2 5 Class Schedule 0 0 No comments | 0 0 No comments |  |  |
| **Technology**      | Digital teaching and learning tools to support curricula during face-to-face and online instruction and may include synchronous and asynchronous modalities. | 4 11 Motivation Technology 0 0 No comments | 1 8 Competence Technology |  |  |

*Number of times students commented on or alluded to theme when answering questions. **Percentage of times theme was mentioned or alluded when answering questions.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Definitions</th>
</tr>
</thead>
</table>
| Autonomy | ▪ Autonomy is simply “self-direction, self-determination” (Carver & Scheier, 2000, p. 284).  
▪ Autonomy "represents an inner endorsement of one’s actions [and] emerge[s] from internally focused and volitional sources of motivation rather than from an externally focused causality" (Reeve & Jang, 2006, p. 209). |
| Competence | ▪ One’s need to experience mastery (Deci & Ryan, 2004).  
▪ An innate feeling of confidence and effectance within a social environment (Deci & Ryan, 2004). |
| Motivation | ▪ Hartnett (2012) links motivation to cognitive and affective development when “thoughts, belief, [and] goals” (p. 439) are emphasized in the learning environment.  
▪ Sucaromana (2013) makes the case that a critical aspect of acquiring and retaining knowledge is motivation, as it “defines the extent of a student’s involvement in learning, originating with his/her wish to achieve a goal and the effort he/she is willing to put forth to achieve it” (p. 142). |
| Responsibility | “To be responsible is to be answerable or accountable for something within one’s power, control, or management; it is to be able to make sense of and respond within one’s sphere of association; it is to take action based on one’s sense of connection and answerability to the self and to others” (Cook-Sather, 2010, p. 2). |
| Class Schedule | Class schedule is the days per week students are required to attend BPE. |
| Technology | Digital teaching and learning tools to support curricula during face-to-face and online instruction and may include synchronous and asynchronous modalities. |

<table>
<thead>
<tr>
<th>Theme Connections</th>
<th>#</th>
<th>%</th>
<th>Theme Connections</th>
<th>#</th>
<th>%</th>
<th>Theme Connections</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td></td>
<td></td>
<td>Competence</td>
<td></td>
<td></td>
<td>Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>16</td>
<td></td>
<td>12</td>
<td>28</td>
<td></td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Competence</td>
<td></td>
<td></td>
<td>Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>15</td>
<td></td>
<td>16</td>
<td>37</td>
<td></td>
<td>31</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Competence</td>
<td></td>
<td></td>
<td>Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>35</td>
<td></td>
<td>6</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Competence</td>
<td></td>
<td></td>
<td>Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>18</td>
<td></td>
<td>4</td>
<td>9</td>
<td>Competence</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Competence</td>
<td></td>
<td></td>
<td>Responsibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>7</td>
<td>Responsibility</td>
<td>0</td>
<td>0</td>
<td>No comments</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Class Schedule</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>9</td>
<td>Autonomy</td>
<td></td>
<td></td>
<td>Competence</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Competence</td>
<td></td>
<td></td>
<td>Motivation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Number of times students commented on or alluded to theme when answering questions.  **Percentage of times theme was mentioned or alluded when answering questions.
<table>
<thead>
<tr>
<th>Supplemental Files</th>
<th>Student</th>
<th>Vlog</th>
<th>Vlog Question</th>
<th>YouTube Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplemental File A</td>
<td>Enya</td>
<td>2</td>
<td>Why did you enroll in Blended Physical Education?</td>
<td><a href="https://tinyurl.com/y3sdp9ld">https://tinyurl.com/y3sdp9ld</a></td>
</tr>
<tr>
<td>Supplemental File B</td>
<td>Zoe</td>
<td>2</td>
<td>Why did you enroll in Blended Physical Education?</td>
<td><a href="https://tinyurl.com/yxoepopxx">https://tinyurl.com/yxoepopxx</a></td>
</tr>
<tr>
<td>Supplemental File C</td>
<td>Shelby</td>
<td>2</td>
<td>What are the challenges of a BPE class?</td>
<td><a href="https://tinyurl.com/y52cncx8u">https://tinyurl.com/y52cncx8u</a></td>
</tr>
<tr>
<td>Supplemental File D</td>
<td>Victoria</td>
<td>2</td>
<td>What are the challenges of a BPE class?</td>
<td><a href="https://tinyurl.com/y342355g">https://tinyurl.com/y342355g</a></td>
</tr>
<tr>
<td>Supplemental File E</td>
<td>Alo</td>
<td>10</td>
<td>What are the challenges of a BPE class?</td>
<td><a href="https://tinyurl.com/y3vqx8vd">https://tinyurl.com/y3vqx8vd</a></td>
</tr>
<tr>
<td>Supplemental File F</td>
<td>Maria</td>
<td>9</td>
<td>Talk about the amount of free choice you have in BPE.</td>
<td><a href="https://tinyurl.com/yyybohayg">https://tinyurl.com/yyybohayg</a></td>
</tr>
<tr>
<td>Supplemental File G</td>
<td>Enya</td>
<td>10</td>
<td>Talk about the amount of free choice you have in BPE.</td>
<td><a href="https://tinyurl.com/yynpvtfk">https://tinyurl.com/yynpvtfk</a></td>
</tr>
<tr>
<td>Supplemental File H</td>
<td>Zoe</td>
<td>9</td>
<td>What is motivation and how does it apply to blended physical education?</td>
<td><a href="https://tinyurl.com/yysz4ab8">https://tinyurl.com/yysz4ab8</a></td>
</tr>
<tr>
<td>Supplemental File I</td>
<td>Brianna</td>
<td>15</td>
<td>What motivates you to work out when you are not at school?</td>
<td><a href="https://tinyurl.com/y43ta52c">https://tinyurl.com/y43ta52c</a></td>
</tr>
<tr>
<td>Supplemental File J</td>
<td>Xiomara</td>
<td>3</td>
<td>Describe your successes with meeting the weekly step goal. Describe any challenges that you may have faced.</td>
<td><a href="https://tinyurl.com/y6sape5o">https://tinyurl.com/y6sape5o</a> <a href="https://tinyurl.com/y4yljdwm">https://tinyurl.com/y4yljdwm</a></td>
</tr>
<tr>
<td>Supplemental File K</td>
<td>Zoe</td>
<td>17</td>
<td>What motivates you to work out when you are not at school?</td>
<td><a href="https://tinyurl.com/y6eehrp9">https://tinyurl.com/y6eehrp9</a></td>
</tr>
<tr>
<td>Supplemental File L</td>
<td>Shelby</td>
<td>8</td>
<td>What are your thoughts about exercising at school?</td>
<td><a href="https://tinyurl.com/y4ajfbc9">https://tinyurl.com/y4ajfbc9</a></td>
</tr>
<tr>
<td>Supplemental File M</td>
<td>Brianna</td>
<td>16</td>
<td>What motivates you to meet your fitness goals?</td>
<td><a href="https://tinyurl.com/y2ktddx3">https://tinyurl.com/y2ktddx3</a></td>
</tr>
<tr>
<td>Supplemental File N</td>
<td>Zoe</td>
<td>10</td>
<td>What are the challenges of a BPE class?</td>
<td><a href="https://tinyurl.com/y65678c4">https://tinyurl.com/y65678c4</a></td>
</tr>
<tr>
<td>Supplemental File O</td>
<td>Brianna</td>
<td>12</td>
<td>Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal.</td>
<td><a href="https://tinyurl.com/y5vodgk3">https://tinyurl.com/y5vodgk3</a></td>
</tr>
<tr>
<td>Supplemental File Q</td>
<td>Shelby</td>
<td>5</td>
<td>What type of exercise routines do you like and why?</td>
<td><a href="https://tinyurl.com/y5famati">https://tinyurl.com/y5famati</a></td>
</tr>
<tr>
<td>Supplemental File R</td>
<td>Zoe</td>
<td>5</td>
<td>Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal.</td>
<td><a href="https://tinyurl.com/yxrumev">https://tinyurl.com/yxrumev</a></td>
</tr>
<tr>
<td>Supplemental File S</td>
<td>Maria</td>
<td>5</td>
<td>Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal.</td>
<td><a href="https://tinyurl.com/y2qwm2gc">https://tinyurl.com/y2qwm2gc</a></td>
</tr>
<tr>
<td>Supplemental File T</td>
<td>David</td>
<td>14</td>
<td>Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal.</td>
<td><a href="https://tinyurl.com/y33xl3vj">https://tinyurl.com/y33xl3vj</a></td>
</tr>
<tr>
<td>Supplemental File U</td>
<td>Enya</td>
<td>14</td>
<td>Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal.</td>
<td><a href="https://tinyurl.com/yxum4ce">https://tinyurl.com/yxum4ce</a></td>
</tr>
<tr>
<td>Supplemental File V</td>
<td>Laura</td>
<td>14</td>
<td>Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal.</td>
<td><a href="https://tinyurl.com/y2zgasxs">https://tinyurl.com/y2zgasxs</a></td>
</tr>
<tr>
<td>Supplemental File V</td>
<td>Xiomara</td>
<td>14</td>
<td>Briefly discuss at least one of your personal fitness goals and describe your plan to meet that goal.</td>
<td><a href="https://tinyurl.com/y3q7zngj">https://tinyurl.com/y3q7zngj</a> <a href="https://tinyurl.com/y65a493b">https://tinyurl.com/y65a493b</a></td>
</tr>
</tbody>
</table>