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Review

Impact of The Fitness Challenge on The Kinesiology Student Experience

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Abstract

This article is a follow-up to a previous manuscript that shares the student perspective of a teaching tool developed in KINES 432 Conditioning Procedures called the Fitness Challenge with the larger educational community. This thematic analysis explores the experiences and insights gained from students who participated in the Fitness Challenge. The findings underscore the importance of tailoring learning so students get real-life experiences to deepen their knowledge and understanding of the concepts. Student feedback highlighted how crucial the hands-on experience was for their learning to solidify the textbook knowledge into long-term information. Once they recognize their ownership, their confidence grows, enabling them to tailor their specific program design by leveraging particular course information to effectively promote a culture of health and fitness on campus.

Introduction

As my time spent in college comes to a close, I have found a rare opportunity at the end of the semester to reflect on the effectiveness of a course based on the university and course-specific learning outcomes outlined in the syllabus. While key objectives are generally shared on day one, professors and students should consider if they have accomplished these goals by term's end. The importance of adhering to course objectives should be a universal standard for university courses. However, in my experience, there is often a disparity between the stated learning outcomes, the pedagogical choices of professors through their courses, and the actual learning that takes place. This disparity can have costly effects on students, making it difficult to achieve learning outcomes, increasing frustration, and reducing motivation. As a student, I have seen firsthand what happens when an instructor's good intentions lack proper course structure to facilitate appropriate student learning.

A prime example of this disparity in a college classroom relates to a class I took with a traditional lecture-based structure that taught a crucial topic for my major. The course was required to graduate, so I, along with roughly three hundred students, was expected to passively absorb the content via listening to a lecture by a professor using a slideshow with mostly text. Each lengthy lecture displayed the instructor's expertise, but no opportunities

were offered for students to interact with the concepts via hands-on activities or collaborative assignments. I struggled to teach myself the concepts by reading the textbook to prepare for the bi-weekly exams. Unsurprisingly, this course had the lowest passing rate of any class on campus. So many students did not pass the course that the Dean lowered the passing grade from a C- to a D+ just for this course to allow more students to receive credit. This approach of lowering the bar for students in college courses fails students in the long term. Universities should respond to the lack of student understanding by providing alternative teaching practices rather than accepting defeat. Dynamic teaching practices can and will foster better student understanding and success, which is what the goal of college education should be. It took until my senior year to find this kind of opportunity in a Kinesiology class.

According to the course syllabus, KINES 432 Conditioning Procedures is an application of conditioning principles with the intent to aid the student in designing and implementing conditioning programs to enhance their ability as a practitioner in athletic training, physiology, coaching, exercise science, personal training, physical education, and for those considering medical school, positions in the biomedical and biotechnology fields, and planning to conduct research. While students learn new content, they also apply what they had previously learned in their kinesiology courses. The focus is on program planning, objectives,

exercise analysis, prescription, and the theories, rationale, and research supporting these theories. Students create their conditioning programs and develop the ability to think critically about conditioning programs. Application of concepts occurs via projects, service-learning, and the attached laboratory course. The course learning outcomes are listed in Table 1.

Table 1. University learning outcomes (1 – 4) and course-specific learning outcomes (5 – 7) for KINES 432 Conditioning Procedures [11]

1. Write effectively in multiple contexts for a variety of audiences.
2. Communicate effectively in speech, both as a speaker and listener.
3. Engage in effective critical inquiry by defining problems, gathering and evaluating evidence, and determining the adequacy of argumentative discourse.
4. Think creatively about complex problems in order to produce, evaluate, and implement innovative possible solutions, often as a member of a team.
After this course, the student will be able to:
5. Develop and implement safe and effective evidence-based prescriptions to train athletes and clients to improve athletic performance and fitness, including Energy systems, Speed and Power, Strength, Flexibility, Agility, Injury rehabilitation and prevention, and Physical appearance.
6. Analyze and evaluate exercise prescriptions prepared by self and others.
7. Discuss nutrition and performance-enhancing substances.

Students learn course material best when they engage hands-on with case studies, where they apply their knowledge and solve problems [5]. This article highlights a potentially high-impact learning experience through involvement in the Fitness Challenge as part of Boise State’s KINES 432 Conditioning Procedures course. The Fitness Challenge is intended to create an environment that promotes student interest and engagement while instilling course concepts and learning.

The Fitness Challenge has been described elsewhere and is a friendly competition between Boise State employees to see who can improve their health and fitness the most across a semester [11]. Faculty and staff volunteer to participate as clients, and KINES 432 Conditioning Principles students serve as personal trainers. Clients and personal trainers meet a minimum of two times per week for ten weeks. Student personal trainers develop and guide clients through an exercise routine to help them meet their health and fitness goals. Before/after data is compared: height, weight, body mass index (BMI), % body fat, and resting heart rate and blood pressure. For students with personal training experience, service-learning opportunities with the Fitness for Life (older adult strength training) program are provided instead. This experience is evaluated via reflections, group discussions, supervisor feedback, client feedback, and a summary statement of the experience. Each student is expected to accomplish 20 contact hours per semester, and the Fitness Challenge accounts for 15% of the course grade.

To determine if students believe that they are achieving the course learning outcomes through participating in the Fitness Challenge, a thematic analysis of student final reflections was performed. A thematic analysis was selected because this meth-

od is an effective tool for finding critical themes in qualitative research. Braun and Clarke promote a six-step process that this study adhered to (Table 2) [4].

Table 2. Application of Braun & Clarke’s phases for the thematic analysis for qualitative data [4]

1. Data Familiarization: import data into an artificial intelligence platform and read through student responses.
2. Generate data codes: correlate recurring themes emerging from the data.
3. Key themes search patterns and number of responses identified by artificial intelligence platform.
4. Review themes: coordinate codes to themes.
5. Interpret & name themes: Ensure each has enough responses (15%) to support it.
6. Produce the report: write a narrative to tell a cohesive story.

This thematic analysis explores the experiences and insights gained from students who participated as personal trainers in the Fitness Challenge. The lens for this investigation focuses on the effectiveness of the Fitness Challenge in implementing the principles of conditioning to improve the physical activity of campus employees while also imparting professional and personal interaction skills to the student participants. This study will address whether the student trainers in the Fitness Challenge perceive that they achieve the stated learning outcomes. A thematic analysis used a qualitative lens to objectively and subjectively review student trainer feedback on their experience. The goal was to shed light on the effectiveness of the challenge to “help others improve their health and fitness, to address the physical inactivity epidemic, and to provide students with more experiential learning than they were currently getting” [11]. This experience is intended to enable students to connect their work in the course activities with the learning outcomes and to take ownership and responsibility for their learning.

Hypothesis

Based on my experience with the Fitness Challenge, it was hypothesized that other students agree that KINES 432 Conditioning Procedures met the learning outcomes. Specifically, three:

- 1) to write effectively in multiple contexts for various audiences,
- 2) to communicate effectively in speech, both as a speaker and listener, and
- 3) to develop and implement safe and effective evidence-based prescriptions to train athletes and clients to improve athletic performance and fitness.

Materials and Methods

IRB approval was obtained before collecting previous KINES 432 student responses (IRB24-081). Three hundred-eleven students participated in this course between Fall 2021 and Fall 2023 (demographic data can be found in Table 3). The fourth and final Fitness Challenge student reflections were downloaded from Canvas. As they were downloaded, all identifying information was removed. A thematic analysis for themes related to the stated course objectives of content retention and developing professionalism was conducted; Table 1 provides all of the course

Table 3. Instructions for the final reflection activity #4/wrap-up [1]

Describe your experience objectively:
• What?
• When?
• Where?
• Who?
• Why?
Examine your experience:
• What course concepts applied to this experience?
• How was your experience the same as discussed in class?
• How was your experience different from what has been discussed in class?
• What concepts do you need to rethink? How?
Articulate Learning:
• What have you learned?
• How did you learn it?
• Why is it important?
• What will you do because of it?

learning outcomes. Quotes from student statements were pulled during the thematic analysis as supportive statements.

At the end of the KINES 432 Conditioning Procedures course, every student is asked to reflect on their experiences taking the class (Table 3) [1]. These are submitted to Canvas as a written reflection, a text entry box, a media recording, or a file upload and graded by the instructor through the online course site. Three hundred eleven student reflections were downloaded from Fall 2021 through Fall 2023, and 345 Boise State employees (demographic data can be found in Table 4) participated in the Fitness Challenge (some students received two clients to train). The rationale for selecting student responses across several semesters was to be able to determine any prevailing and long-established

Table 4. Demographic data for the general Boise State University population.

Identity	Kinesiology Students (%)	Faculty/Staff (%)
Female	56	54
Male	44	45
American Indian	>1	<1
Amind+	2.3	
Asian	>1	5
Asian+	3.8	
Black	1.3	1
Black+	1.4	
Hisp	2.8	8
Hisp+	11.5	
Pacific Islander	>1	<1
Pacific+	>1	
White	70	78
Resident Alien		1
More than one ethnicity		4
Unknown	2.6	2

themes.

Even though the Fitness Challenge has been in place since 2017, Boise State University’s learning management system changed from Blackboard to Canvas in the fall of 2021, and student responses from Blackboard are no longer available. No responses from current students were reviewed or included because this analysis occurred before the semester reflection was completed and to preserve anonymity. The first author was enrolled in the course during the Spring of 2024 and may have been able to correlate current student responses to peers.

To perform this thematic analysis, artificial intelligence (AI) platforms (Gemini, Version 2024.03.04, Google, Large Language Model and Delve, Version v1.22.1, Sidewalk Labs, Large Language Model) were used to identify the main themes and prevailing ideas in student responses. The data in the form of a spreadsheet were inputted into the AI tools and processed under the following prompt: “What themes emerge from this data discussing the benefits of this course in achieving its learning outcomes?” Ten students submitted a video recording for their response, and these did not fit the inclusion criteria for responses as the AI tools do not analyze video. Additionally, in this group, 16 students with previous experience in personal training were filtered into a different challenge called “Fitness for Life,” and those responses were omitted from the dataset. Twelve responses were omitted because they did not fully respond to the prompt. In total, 273 student responses were processed directly through the AI tools for evaluation.

To understand what defines a theme, Braun and Clarke spoke about finding what percentage of recurring phrases or ideas in qualitative data would elicit a theme for thematic analysis. There is no gold standard for assigning themes to data collection regarding prevalence percentage [4]. Delve counted each time a theme or keyword appeared in the responses, and themes were formed based on prevalence, with the higher number being recorded first. For this paper, a keyword was identified if it was present in more than 15% (41 total) of student responses. The Delve tool generalized the keyword search, so for example, if the student wrote “hands-on,” hands-on,” “real-life,” or “real life,” these were all considered to be under one umbrella theme.

The AI tools were explicitly asked to perform the following: keyword search, repeating quotes, predominant themes, and overall response similarities. Due to the uniformity of the assignment, a keyword search was deemed useful to understand the general sentiment of the students. These words were used to prove and offer support in favor or against the proposed outcomes from the manuscript. The relevant repeated words are found in Table 5.

Results

Using the commonly repeated words of the data collected, the key themes are listed in Table 6.

Discussion

When taking this course, it becomes apparent that it is set up differently, so students must work hard to successfully and effectively learn and apply the content. Drawing from my experience training a client in the Fitness Challenge, it was hypothesized that other students would agree that KINES 432 effectively met the intended learning outcomes. Specifically, three: 1) to write

Table 5. Frequency of keywords in student responses

Commonly Repeated Words:	Number (%)
Improvement:	85 (31)
Real World / Hands-On:	82 (30)
Professionalism:	67 (25)
Confidence:	64 (23)
Motivation / Motivated:	56 (21)
“Learned a lot”:	44 (16)

Table 6. Frequency of themes in student responses (students' responses may have included more than one theme; thus, the total number of occurrences is greater than the number of students, and the total percentage is greater than 100%).

Commonly Repeated Themes:	Number of occurrences (%)
Increased Application of Conditioning Principles	118 (43)
Sense of Ownership / Confidence / Developing Professionalism	111 (40)
Real-Life / Hands-On Learning Experience	88 (32)
Relationship Building / Community	28 (10)
Improvement in Physical Outcomes	21 (7)

effectively in multiple contexts for various audiences, 2) to communicate effectively in speech, both as a speaker and listener, and 3) to develop and implement safe and effective evidence-based prescriptions to train athletes and clients to improve athletic performance and fitness. Based on the thematic analysis and the data collected, it can be concluded that the hypothesis was supported. Most student responses demonstrated that the course successfully achieved what it set out to do by increasing the application of course content, fostering confidence and developing professionalism, providing students with hands-on experience, etc.

Increased application of conditioning principles

The most prevalent theme throughout the Fitness Challenge was the increased application of conditioning procedures which was mentioned by 43% of the students taking the course. Research shows that when students engage in experiential learning opportunities course content is reinforced [9]. This course made students increasingly aware of course concepts by allowing them to apply the conditioning principles in the weight room. Students were expected to “plan a program, analyze specific physical activity, and prescribe exercise for their client.” The instructor set out to do all these when creating this challenge. One student remarked, “I feel this class forces students to face what many of us are preparing for. The knowledge needed to succeed in this class is important to all planning to enter any exercise-related field.” The way knowledge is gained from this course through the Fitness Challenge lays a foundation for students that they would not have had access to in an online or traditional classroom lecture course. Research shows that when learners apply their knowledge to real-life situations, as known as “learning by action”, they are better able to recall what they have been taught [8]. The Delve AI returned that 43% of students felt that the application of course content occurred through the hands-on experience provided through the training sessions. This highlights the success of

the Fitness Challenge to support student understanding of course concepts.

Sense of ownership / confidence & motivation / developing professionalism

The second most common theme was the development of several important skills: ownership, confidence, and professionalism, which was seen in 40% of the student responses. As students witnessed their clients improve over the ten weeks, their confidence grew, demonstrating a sense of understanding of what the course meant to teach. Research suggests that in an experiential learning environment, such as the Fitness Challenge, motivation grows because students feel empowered by a sense of ownership of their contributions [8]. KINES 432 provided this opportunity, as students had a personal stake in their learning and had to be accountable to their clients, without the option to hide behind a computer screen. As Kong, et al. put it, in a “participative learning atmosphere, educational organizations are orienting toward learning approaches that cultivate students’ involvement, interest, and dynamic participation” [8]. When students are taught via experiential learning, a sense of ownership, confidence, and professionalism naturally follow.

One student stated that their “experience with this service-learning has given me confidence in my ability to deliver a workout program and interact in a professional relationship with a client.” Students recognized that no other traditional teaching method provided this growth in self-confidence, which is significant in a world where the opposite dominates education. This perspective aligns with Kolb’s finding that says a traditional teacher-centered pedagogy does not foster a holistic education because it hinders students from becoming independent learners [7]. Furthermore, studies show that a more self-confident student is better able to communicate and make decisions when solving real-world problems [2]. We saw this in the 23% of students who spoke about how their confidence increased throughout the Fitness Challenge. This confidence gained through experiential learning has proven to carry over into professional settings showing how this course achieved what it set out to do.

The Fitness Challenge aims to “help students learn exercise prescription, teaching, professionalism, and leadership” [11]. Substantial evidence supports these goals, and a common one is professionalism, which can be seen in 25% of student responses. While helping their clients reach their goals, students spoke about how they were expected to demonstrate high levels of professionalism when interacting with their clients. Professionalism is undoubtedly a very important trait successful future clinicians need [3]. One commented, “I have learned broad workplace skills such as professionalism and communicating, in combination with specific skills tailored to Kinesiology.” The best time for students to gain foundational workplace skills that will set them up for success in any future career is in the classroom. A sign of a successful educational experience that promotes professionalism, is when errors are made in the learning stages of development, students can grow from that experience. As one student put it, “it was absolutely trial and error that I learned by.” The skills they gleaned from this experience are what one student said they “will need in the professional workplace.” The Fitness Challenge provided a crucial opportunity for these future

clinicians to develop skills necessary for success in the workplace such as professionalism, a sense of ownership, and confidence and motivation.

Real-life / hands-on learning experience

The third most widely found theme was the real-life and hands-on experience that nearly a third of students reported they benefited from. The content is the basis for future clinicians' careers, so a deep understanding demonstrates effective education. This idea is supported by Kolb, who said that for future clinicians a "traditional lecture-based instruction is [...] deficient where the measurement focus is on retention of knowledge itself, problem-solving skills, or ability to transfer the newly acquired knowledge to a clinical situation" [7]. Following this idea, to best set students up for success in their future careers, schools should focus on providing opportunities that facilitate maximal learning. I believe that the KINES 432 course accomplishes this.

As one student put it, the Fitness Challenge "forces students to face what many of us are preparing for." Most students spoke about how they could solidify and learn more through hands-on time with their clients than any lecture-based course they have taken in college. As one student put it, "I learned this concept in my Exercise Psychology class previously; however, seeing the actual application of this notion when including my client in various decisions solidified this knowledge for me." Not only have students found great benefit at this stage in their career, they even remarked how they would continue to "seek hands-on experience through internships and work to develop my knowledge further" because they saw value in the real-life application. We found that in 30% of responses, students used the phrase "real-world" and "hands-on" in their description of their experience during the challenge. This is significant and demonstrates how the experience solidified course concepts by providing an environment that simulated personal training.

This key theme of a real-world and hands-on experience illustrates the students' appreciation of the unique opportunity. If real-world experiences were commonly offered in college, it would not be discussed this extensively. However, because it is rare, students spoke heavily about their positive experiences throughout the Fitness Challenge by noting both their improvements and what they observed in their clients. Notably, 31% of students specifically said that they witnessed "improvements" due to the hands-on experience and its importance to their development. One student wrote, "I learned a lot about how I am as an instructor. I learned it through experience and practice better than any class could teach me."

Although the course structure was the same for students who met with their faculty client twice weekly, there were many varying takeaways from the trainers in training. Some students said they had to push and motivate their clients during the sessions, whereas others felt they needed no convincing. As a result, 21% of student responses mentioned motivation, reflecting both scenarios. Some students shared their struggle with clients missing training and needing to make up for lost time. Varying personalities were discussed by students as an obstacle to be overcome, and even barriers in age or gender made each student's experience distinct. Despite the differences in experiences, themes emerged that painted a picture of everyone's strengths

and weaknesses in the Fitness Challenge.

Relationship building / community

As expected, the primary insight gained from the thematic analysis was an overwhelming sense of accomplishment from students who have completed this course. Something unexpected during the investigation was how the developing community did not appear as a keyword in the overall search. Even though this word specifically was not present, the overall sentiment of relationship building was - which still allows for the acceptance of the hypothesis that it would be a key theme. Fifolt et al. discuss how experiential learning oftentimes brings a community of people together, and this was the case for the Fitness Challenge [6].

The subtheme of relationship building and community development was present in 10% of student reflections. The weight room became significant through the many hours we spent together. It was evident that most trainers and trainees formed a special relationship built on asking questions and caring for each other throughout the Fitness Challenge. One student commented, "The biggest thing I learned in this challenge that I could not have learned online was just being able to build both a personal and professional relationship with a client." This relational development strengthens students' self-view by increasing their confidence and helping them realize their potential. This skill can be transferred to all professions, which highlights the importance and effectiveness of the Fitness Challenge in developing strong adults entering the workforce.

Improvement in physical outcomes

Data analysis found another prevalent sub-theme tied heavily to the heart behind the challenge: increasing activity levels on campus, which 7% of students commented on. With the support of Boise State, the instructor set out to address the "inactivity epidemic" while providing an enriching environment for students to learn conditioning procedures. The student responses affirm my hypothesis, as well as the instructor's, that faculty participants of the Fitness Challenge experienced improvements in their health. Table 7 illustrates a decrease in each health parameter measure, indicated by the mean percent change. As described in the manuscript, client data is used to assess the progress outlined by the

Table 7. A representative semester's mean % change \pm standard deviation of common client health and fitness parameters throughout the Fitness Challenge.

Measurement	Mean % Change \pm Standard Deviation
Body Mass Index	-11.58 \pm 31.5632744
Systolic Blood Pressure (mmHg)	-8.79 \pm 23.81465658
Diastolic Blood Pressure (mmHg)	-8.40 \pm 24.86275416
Body Composition (%Fat)	-5.74 \pm 24.48080659
Heart Rate (bpm)	-5.29 \pm 26.7506865
Weight (Pounds)	-2.08 \pm 30.48318529

ACSM health screening measures [10]. The most significant change was a decrease in body mass index by 11.58% and we saw an almost 9% decrease for both systolic and diastolic blood pressures. Given that these are average changes of a represen-

tative semester and, even though there is significant variability, one can conclude that the Fitness Challenge is successful in helping clients meet their fitness goals.

In addition to adopting a new exercise program, one student observed how their client “was able to improve so much from the beginning, which further allowed me to build confidence in my abilities.” By implementing hands-on experiences into courses, students can witness how what they are learning can cause change for the good of their community. That is a powerful realization to equip students with before sending them into the real world: what they learn in the classroom should be something that can create positive, lasting change in their lives and jobs one day.

One reason physical outcome improvements only emerged as a subtheme can be related to the nature of the assignment instructions, as seen in Table 3. Students were asked to focus on themselves, and the instructor emphasized subjectivity. Despite this, Table 7 highlights significant physical changes that were evident even though they were only a subtheme from student reflections.

Accountability

Accountability was a hypothesized keyword that was not present in the data. Students spoke modestly about how the challenge facilitated accountability for their trainees, not about how they developed accountability. I suspect that the trainers were unaware of the way that the challenge forced them to stay accountable and show up because attendance was graded. That aside, at least 2% of trainers dealt with last-minute cancellations when a client poorly communicated an absence ahead of time. Even though several students encountered this roadblock, it may have been more beneficial than harmful because they experienced and had to deal with a common real-life situation. Even when training was skipped or had to be made up, student outcomes remained the same. One remarked, “It was important for me to learn this lesson to be better prepared for when it happens to me in a professional setting. Learning to set expectations and boundaries during initial visits will help set the level of professionalism I want to portray. It also helped me communicate more professionally to determine the reason for the no-show or cancellation instead of just accepting it and being walked over.” The 10-week Fitness Challenge did not see very many cancellations, however, so this proved to be a small sub-theme.

Conclusion

Themes from the data emerged, highlighting the importance of experiential learning. The course content was solidified because of the “real world” application provided through the Fitness Challenge. For a generation that seems “inadequately prepared for the realities of a career in a field focused on people,” this opportunity equips students to enter into their job prepared. Students commonly expressed a similar sentiment: “It gave me hands-on experience of how to interact and train clients than I would not have learned in class,” or “I gained hands-on experience that I couldn't have gotten through the textbook or in a lecture course.” The very design and execution of the course provide invaluable hands-on learning for students, and they even agree that it taught them more than a traditional lecture setting.

The findings of this thematic analysis emphasize the im-

portance of enabling students to connect their work in the course activities with the learning outcomes and to take ownership and responsibility for their learning. Student participant feedback highlighted how crucial the hands-on experience was for their learning and solidifying the textbook knowledge into long-term information. Once students developed this sense of ownership, their confidence grew, enabling them to better tailor their specific program design by leveraging particular course information to effectively promote a culture of health and fitness on campus. Specifically, the learning outcomes that were met were to teach students to communicate effectively and develop and implement safe and effective evidence-based prescriptions to train clients to improve fitness. One can see that this course was successful in locally addressing the physical inactivity epidemic and even more successful in providing students with practical experiential learning.

The question remains: Why are more of these course styles not offered for college students? As a recent college graduate, I hope that this paper will encourage other instructors to see the value of providing hands-on learning experiences for their students, which will promote learning and set students up for success in their careers in the long term.

Abbreviations

FC: Fitness Challenge; EL: Experiential Learning; KINES: Kinesiology

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Conflicts of Interest

The authors declare no conflict of interest.

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