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Regular physical activity (PA) can reduce the risk of chronic diseases and improve cognitive function and emotional health. A significant portion of college students are inactive and at risk for chronic diseases and mental health conditions. Innovative exercise interventions that promote PA and its benefits in this population are needed. PA adherence is enhanced when the experience promotes positive affect and intrinsic factors drive participants. Zumba fitness is a popular group exercise class that provides a unique experience to participants in which intrinsic motivation and positive affect are reinforced. The purpose of this study was to implement and evaluate a Zumba fitness college course as a potentially effective way to promote PA among college students. The study encompassed online surveys completed throughout the semester that measured participants' affective experiences and acute feelings of PA, intrinsic motivation, and PA participation. Results indicated an overall positive trend showing an improvement in participants' feelings from the start to end of the semester and within individual Zumba sessions. Intrinsic motivation did not significantly increase from pre to post-test, but there was a significant increase in self-reported PA. Students perceived that the Zumba course increased their motivation to exercise and enjoyed aspects of the class such as the upbeat music, fun moves, and informative lectures. Findings from this study can offer strategies that other kinesiology departments can adopt in their PA courses to provide enjoyable PA experiences that may promote students' continued PA participation in the future.

PROMOTING COLLEGE STUDENTS' PHYSICAL ACTIVITY ENJOYMENT AND MOTIVATION IN A SEMESTER-LONG ZUMBA FITNESS COURSE

by

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Approved by

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DEDICATION

I would like to dedicate my work to my dear husband who has supported me throughout the process of completing this program and writing this paper. I am very grateful for his patience and confidence in my abilities and skills.

APPROVAL PAGE

This dissertation written by Isabel Woelfel has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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Physical activity behaviors adopted in college are prone to be continued throughout adulthood, enhancing lifelong health (Keating et al., 2005). For example, Keating et al. (2005) found that 84.7% of senior college students who exercised regularly continued to be active 5 or 10 years later. On the other hand, 81.3% of inactive senior college students stayed sedentary (Keating et al., 2005). Universities offer instructional physical activity courses (PACs) that students can take for academic credit (Annesi et al., 2017). A 2010 study on the prevalence of PACs found that 87% of 4-year universities offered these courses (Strand et al., 2010). Additionally, students can choose from courses focused on specific types of physical activity such as weight training, yoga, physical conditioning, or sport (Annesi et al., 2017). These courses have been found to promote physical activity after graduation; research with college alumni show those who took more PACs had better exercise habits than those who took fewer physical activity courses (Adams & Bryntenson, 1992).

With the recent coronavirus (COVID-19) pandemic, countries worldwide have experienced a dramatic increase in physical inactivity and a sedentary lifestyle (Ricci et al., 2020). The confinement policies to control COVID-19 have negatively affected individuals' mental and physical health (Ricci et al., 2020). At the same time, virtual education has become increasingly popular. More than ever, there is a need for innovative exercise interventions to promote physical activity and adherence by focusing on intrinsic motivation and positive affect in a virtual environment. Individuals whose motivation is internally and self-endorsed have more interest and excitement for the activity, enhancing performance and self-esteem (Ryan & Deci, 2000). Enjoyment, perceptions of competence, and intrinsic factors for physical activity play a significant role in exercise adherence. Furthermore, research on affect indicates that positive and

pleasurable experiences during physical activity promote continued engagement (Ekkekakis & Brand, 2019). A virtual, educational Zumba fitness college course that targets intrinsic motivation and positive affect through physical activity offers a practical strategy for increasing exercise adherence among college students and can provide a framework that other Kinesiology instructors can use to design and deliver their fitness courses to promote physical activity and enhance college students' quality of life.

Background and Rationale

Physical activity plays a vital role in preventing chronic diseases and mental health conditions, with extensive research supporting its benefits. For example, according to the U.S. Department of Health and Human Services (U.S. DHHS; U.S. DHHS, 2018), regular physical activity can reduce the risk of certain cancers, improve cognitive function, reduce the risk of anxiety and depression, and improve sleep and overall quality of life. Additionally, regular physical activity can reduce the risk of mortality and improve physical function (U.S. DHHS, 2018). Conversely, lack of physical activity has been correlated with depression in young adults (De Moor et al., 2006). As a result, the Physical Activity Guidelines for Americans from the U.S DHHS (2018) recommends individuals participate in at least 150–300 minutes of moderate-intensity aerobic physical activity or 75–150 minutes of vigorous-intensity aerobic physical activity per week.

However, college students encompass a group at risk for insufficient physical activity and related health concerns. According to the American College Health Association (2021), 39.7% of college students meet the recommended PA guidelines for "Active Adults" including meeting the guidelines for strength training and aerobic exercise. About 1 in 5 reported being diagnosed with both anxiety and depression (17.8%) (American College Health Association, 2021). With the

recent COVID-19 pandemic, there has been a significant increase in sedentary behavior and detrimental effects on mental health (Ricci et al., 2020)

The development of interventions to promote physical activity among college students is needed. Group exercise classes have been shown to successfully promote physical activity within adults (Vendramin et al., 2016). These activities have been perceived as pleasant and positively influenced participants to continue exercising (Vendramin et al., 2016). They have also been shown to enhance psychological well-being. For example, Yorks et al. (2017) found that participants in a 12-week group fitness program had significantly reduced perceived stress and improvement in physical, mental, and emotional quality of life compared to participants who exercised on their own or did not participate in regular exercise. Zumba is one popular group exercise class that has been widely enjoyed by individuals (Toscano et al., 2014). With the current COVID-19 pandemic, Zumba fitness has become a great option to exercise at home because it does not require exercise equipment. Participants only need an internet connection and computer or phone access. Recently, there has been a dramatic increase in online Zumba fitness classes, with nearly 1 million people taking Zumba classes each week (Cheddar, 2020). Furthermore, Neves et al. (2015) found that Zumba in a virtual environment, using the Kinetic-based virtual reality system for the XBOX 360, could produce acute cardiovascular responses and help participants meet the American College of Sports Medicine guidelines for cardiovascular exercise. By design, Zumba provides a unique experience to participants in which intrinsic motivation and positive feelings are reinforced (Nieri & Hughes, 2016), which can be vital to fostering exercise adherence.

Promoting Intrinsic Motivation, Positive Affect, and Enjoyment

Exercise adherence in individuals participating in fitness classes can be increased when the primary motivation comes from intrinsic motives related to enjoyment and efficacy rather than extrinsic outcomes as the primary motivation (Silva et al., 2008). Intrinsic motivation reflects individuals' interest in participating in physical activity due to the enjoyment of the activity (Teixeira et al., 2012). These individuals engage in physical activity because of its inherent satisfaction and the personal accomplishment they get (Teixeira et al., 2012). Individuals whose motivation is internally and self-endorsed have more interest and excitement for the activity, enhancing performance and self-esteem (Ryan & Deci, 2000). According to Self-Determination Theory (Ryan & Deci, 2000), intrinsic motivation is fostered when basic psychological needs (i.e., autonomy, competence, and relatedness) are met. Autonomy relates to the power to choose activities that align with their integrated self (Ball et al., 2017). Competence relates to the experience of mastery of a behavior (Ball et al., 2017). Positive performance feedback encourages competence in individuals, increasing their intrinsic motivation (Ryan & Deci, 2000). Positive performance feedback is related to the surrounding environment where the behavior is happening and involves an environment that promotes positive feelings and enjoyment (Ryan & Deci, 2000). Relatedness refers to building meaningful connections with others, which consists of creating an empathetic and positive environment for the behavior to take place. Social settings promote intrinsic motivation by supporting autonomy and competence (Ryan & Deci, 2000).

Affect encompasses psychological states involving emotions, feelings, and moods; it is a dynamic process that describes an individual's emotional state (Kyral et al., 2019). Positive experiences trigger a positive emotional reaction that encourages individuals to participate in the

activity (Brand et al., 2018). Individuals who experience positive affect are more likely to accept any counter feelings related to exercise. In contrast, individuals who experience negative affect will be less likely to participate in physical activity (Brand et al., 2018). Kiviniemi et al. (2007) found that current positive feelings about exercise were a better predictor of physical activity than cognitive variables such as attitudes, perceived behavioral control, and intentions to exercise. Kwan and Bryan (2010) found that participants who experienced positive affect while exercising on a treadmill for 30 minutes continued to exercise after three months. Additionally, they discovered that the intentions to exercise among participants who had positive feelings during and after exercise were a better predictor for subsequent exercise than participants who did not have positive feelings during and after exercise (Kwan & Bryan, 2010). Moderate intensity exercise has been known to elicit a positive affective response and a pleasurable experience (Ekkekakis et al., 2005). While high-intensity exercise has been shown to elicit stress after exercise (Steptoe & Bolton, 1988), Kilpatrick et al. (2015) found that interval workouts with periods of high and low intensities elicited positive affective responses similar to continuous moderate-intensity exercise.

Given the research demonstrating the important role of intrinsic motivation and positive affective experiences in exercise promotion, a Zumba fitness course can offer a promising strategy for enhancing the enjoyment of physical activity and positive affect in college students and increase intrinsic motivation for participating in physical activity. Zumba provides a unique experience where having fun is the main focus. Zumba follows the motto of "Ditch the workout, Join the party" (Nieri & Hughes, 2016, p. 136). Instructors motivate their students to have fun while dancing, encouraging them to focus on the process instead of the outcome (Nieri & Hughes, 2016).

Research has demonstrated that exercise that is enjoyable and helps people feel good is more motivating than working on a goal to improve health (Segar, 2017). The immediate rewards predict perseverance toward a goal; therefore, individuals make time for experiences that help them feel good (Segar, 2017). In Zumba fitness, instructors are trained to modify the movement as needed. In this way, they help participants ease the stress of learning new steps and "just have fun with it" (Nieri & Hughes, 2016, p. 141). While the emphasis is not on conforming strictly to the preset choreography, this preset choreography allows participants the opportunity to repeat and master the steps (Nieri & Hughes, 2016). When individuals acknowledge the direct effects of moving their bodies and notice how their feeling better enhances their performance in the activities they care the most about, they are motivated to continue to perform these activities (Segar, 2017).

When individuals engage in physical activity to improve their mood or energy, they receive immediate positive feedback when exercising and want to continue to do so (Segar, 2017). In this way, noticing these real-time positive effects from exercising causes a reciprocal cycle of enjoying how they feel when moving, thus, increasing intrinsic motivation and exercise adherence (Segar, 2017). At the same time, the exercise intensity of a typical Zumba class encompasses bouts of moderate to high intensity, which can elicit positive affect. As a result, a Zumba virtual educational fitness college course can be a promising course-based physical activity promotion strategy that focuses on enhancing intrinsic motivation and positive affect, promoting exercise adherence among college students.

Purpose and Aims

Using a framework that integrates promotion of intrinsic motivation and positive affect, the purpose of this study was to implement and evaluate a virtual educational Zumba fitness

college course as a potentially effective intervention to promote physical activity among college students.

Aim 1: To evaluate how an online synchronous Zumba fitness college course affects students' motivation and enjoyment of physical activity.

Aim 2: To evaluate the extent to which participating in a semester Zumba fitness college course increases physical activity participation.

Participating in the Zumba virtual educational fitness course was expected to enhance students' intrinsic motivation and enjoyment of physical activity, positive affect, and overall physical activity participation.

Methods

A 15-week virtual educational Zumba fitness college course was implemented during Fall 2021 at a university in California. Physical activity participation, intrinsic motivation, and affect-related measures were assessed at the beginning and end of the course, with acute feelings assessed at multiple time points during the semester. A modified version of the procedures was piloted at a community college in Spring 2021, which helped refine the current procedures.

Participants and Procedures

Participants included current students enrolled in the Zumba fitness course offered in Fall 2021. A total of 18 students agreed to participate in the study, but two were removed from the analysis due to missing several surveys, resulting in a final sample of 16 female participants. Fifteen participants identified as Hispanic (n=15) and most were between the ages of 18-24 (n=14). Ten participants reported taking other physical activity courses within the Kinesiology department, while six were only enrolled in the Zumba fitness course. Thirteen participants were non-Kinesiology majors (n=13) and three were Kinesiology majors (n=3). Most participants had

never experienced Zumba fitness (*n*=9), but others had some experience (*n*=7). Additionally, participants indicated their reason for taking the course was to be healthier (*n*=8), needed an extra unit to be a full-time student (*n*=4), or to learn something new (*n*=3).

Participants completed surveys and Zoom polls for credit as part of the course. At the start of the semester, participants completed an informed consent form asking for permission to use their deidentified course data for research purposes (Appendix A). The PI, the course instructor, did not know who consented until after the final grades were posted. At that point, students who elected not to participate were removed from the data set. The Institutional Review Boards at UNCG and the university where the course was offered approved the study procedures.

Course Components

The Zumba fitness course is an elective one-unit physical activity course with educational components. The class was instructed by the PI, who is a Zumba fitness certified instructor. The 15-week course was held once per week virtually via Zoom and was scheduled to last 100 minutes. For the first 60 minutes of class, participants completed a Zumba workout. Each Zumba session included a warm-up that lasted approximately 5-8 minutes, a conditioning section that lasted about 50 minutes, and a 5- to 8-minute cool-down. The Zumba sessions were designed with an interval training format with periods of higher and lower intensities. Some songs required moderate to vigorous intensities, followed by lighter intensity songs. The music and choreography were provided by Zumba fitness.

For the next 30-40 minutes of each class, there were online lectures to educate students on goal setting (i.e., “SMART” goals), nutrition, fitness, and cardiorespiratory exercise. As part of the course, participants completed pre- and post-fitness assessments, online discussions, and a

reflection paper. Additionally, part of these assignments included setting two SMART goals for the semester and reflecting on progress at the end of the semester. The online discussions were designed to educate on fitness concepts and promote interaction among students. The written assignment encompassed a reflection on participants' experience exercising independently and logging their diet intake once per week for 4 weeks.

Measures

Survey measures are included in Appendix B. The pre- and post-assessments were completed at the start and end of the semester. Additionally, brief end-of-session surveys were administered six times throughout the semester at the end of the Zumba workout. See Figure 1 for timing of the various surveys.

Figure 1. Survey Delivery Schedule

Note. W=week, ESS=end of session survey.

Pre- and Post-Assessments

The pre- and post-surveys included the Godin-Shepard Leisure-Time Exercise Questionnaire (LTEQ), the Intrinsic Motivation Inventory (IMI), and the Affective Exercise Experiences (AFFEXX) questionnaire. The pre-assessment survey also included demographic questions such as age, gender, race, and previous experience with Zumba fitness. The pre-assessment survey was delivered at the start of the semester during week 2 while the post-assessment survey was delivered at the end of the semester during week 15.

IMI. The IMI (Ryan, 1982) is a self-report measure that assesses participants' subjective experiences of an activity. Specifically, the subscale of interest/enjoyment was included to measure intrinsic motivation. Participants were asked to rate each item on a scale of 1 (*not at all true*) to 7 (*very true*), with some items being reverse scored. Then, each subscale item is totaled and averaged.

AFFEXX. Twelve items from the AFFEXX corresponding to "core affective experiences" were used in this study, including three subscales (pleasure vs. displeasure, energy vs. tiredness, calmness vs. tension). Each statement uses a seven-point scale that is presented as pairs of opposites, such as "Exercise feels terrible" versus "Exercise feels wonderful." Each of the items is scored and averaged according to its respective subscale. Participants are asked to choose the rating that best matches their views, attitudes, and experiences with exercise (Ekkekakis & Brand, 2019).

LTEQ. The LTEQ (Godin, 2011) measures self-reported weekly physical activity participation. The frequency of physical activity participation is reported in three categories: strenuous, moderate, and mild and multiplied by 9, 5, and 3, respectively. The numerical values for each category correspond to the MET values that each represents. The total score is calculated by adding each category value. For this study, only the moderate and strenuous physical activity scores were used to calculate physical activity participation, with 24 units or more classified as *active* and 23 units or less classified as *insufficiently active* (Amireault & Godin, 2015).

End of Zumba Session Surveys

The end of Zumba session surveys were administered at six time points across the semester including the Physical Activity Affect Scale (PAAS), which assessed acute feelings

immediately following a Zumba session. These end of session surveys were administered during weeks 3, 5, 8, 9, 11, and 14 of the semester. The PAAS consists of 12 items classified into four different subscales: positive affect, negative affect, fatigue, and tranquility. Participants rated each item on a scale of 0 (*do not feel*) to 4 (*feel very strongly*). The scores are calculated by averaging responses to corresponding items of each subscale (Lox et al., 2000). Three Likert ratings adapted from items within IMI subscales (Needs et al., n.d.) were also included in the end-of-session survey to measure psychological needs satisfaction during the Zumba workout. These items included competence ("I think I am pretty good at this activity [Zumba]"), autonomy ("I think I am pretty good at this activity [Zumba]"), and relatedness ("The relationships with people [in Zumba fitness] are friendly and supportive." Additionally, a one-item measure of enjoyment ("I enjoyed this Zumba exercise session)" and a rating of perceived exertion (Borg, 1998) for that Zumba session were also included in the survey.

Participants also completed three Zoom polls on the same days as the end-of-session surveys. These polls included an adapted version of the Feelings Scale (FS; Hardy & Rajeski, 1989) to measure immediate feelings while doing Zumba. These polls were completed before, during, and after the Zumba workout.

Course Evaluation Questions

The Post-Assessment survey included Likert ratings and open-ended questions related to what was enjoyed about the Zumba fitness course, what areas would motivate participants to continue to exercise, and any recommendations or additional comments about the course.

Data Analysis

Survey data were collected via Qualtrics® and downloaded to SPSS Statistics 25 for data cleaning, scoring, and analysis. Responses from the class polls were downloaded from Zoom and

added to the data set. A repeated measures design was utilized for the IMI, AFFEXX, and LTEQ. The baseline and post-measures were compared using paired *t*-tests. The PAAS, needs ratings, enjoyment, and feeling states were analyzed descriptively at each time point. The program evaluation rating questions were analyzed descriptively, and the open-ended questions were analyzed by grouping similar responses.

Results

A primary aim of this study was to assess whether an online synchronous Zumba fitness course increased motivation and enjoyment of physical activity. A secondary aim for this study was to analyze changes in physical activity participation.

Motivation and Enjoyment of Physical Activity

When assessing acute feelings related to physical activity, participants reflected overall positive feelings following the Zumba sessions and low levels of negative affect (Table 1).

Table 1. Session Evaluations of Acute Feelings of Physical Activity

	Session 1		Session 2		Session 3		Session 4		Session 5		Session 6	
	N	*M*±*SD*	*N*	*M*±*SD*	*N*	*M*±*SD*	*N*	*M*±*SD*	*N*	*M*±*SD*	*N*	*M*±*SD*
PAAS Positive Affect	15	2.95± 0.88	15	2.55± 0.67	14	2.83± 0.72	13	2.54± 0.74	13	2.59± 0.86	14	2.74± 0.69
PAAS Negative Affect	15	0.27± 0.46	15	0.37± 0.71	14	0.07± 0.14	13	0.26± 0.51	13	0.46± 0.78	14	0.26± 0.72
PAAS Fatigue	15	1.42± 1.07	15	1.44± 0.86	14	1.19± 0.59	13	1.38± 0.64	13	1.26± 0.93	14	1.05± 0.97
PAAS Tranquility	15	2.42± 0.96	15	2.40± 0.83	14	2.21± 0.56	13	2.28± 0.54	13	2.38± 0.68	14	2.71± 0.66

Note. 4-point Likert (0 = Do not feel, 4 = Feel very strongly)

The responses for basic psychological needs support (i.e., autonomy, competence, relatedness) and enjoyment completed at the end of the six Zumba sessions also reflected overall positive effects (Table 2). Average scores ranged from 5.8±1.3 to 6.2±1.1 for autonomy, 4.1±1.1

to 5.0±1.1 for competence, and from 6.1±1.1 to 6.4±1.0 for relatedness. Average enjoyment scores were consistently in the "very much" range (i.e., score of 6). Additionally, the participants' mean RPE for each session was in the moderate to somewhat hard intensity range (12-13).

Table 2. Evaluations of Basic Psychological Needs Support, Enjoyment, and Ratings of Perceived Exertion (RPE) in the Zumba Fitness Sessions

	Session 1 (*M*) *n*=15	Session 2 (*M*) *n*=15	Session 3 (*M*) *n*=14	Session 4 (*M*) *n*=13	Session 5 (*M*) *n*=13	Session 6 (*M*) *n*=14
Autonomy	6.00± 1.19	6.20± 1.15	5.86 ± 1.17	5.92± 1.11	5.77± 1.30	6.07± 1.21
Competence	4.47± 1.25	4.13± 1.12	4.64± 0.84	4.92± 0.95	5.00± 1.08	4.71± 1.27
Relatedness	6.20± 1.15	6.33± 1.29	6.43± 1.02	6.08± 1.11	6.23± 1.01	6.14± 1.03
Enjoyment	6.07± 0.96	6.00± 1.41	6.21± 0.97	6.00± 0.91	6.00± 0.91	6.00± 1.62
RPE Scale	12.73± 1.16	12.67± 1.79	13.07± 1.59	12.54± 1.89	13.15± 1.21	12.29± 1.14

Note. Basic needs and enjoyment ratings are based on a 7-point Likert (1=No at all, 7=Very true or extremely); RPE was rated on the Borg (2017) scale (6=not exertion at all, 20=maximum exertion)

Moreover, the Feeling Scale responses administered before, during, and after the six Zumba sessions reflected, descriptively, an improvement in participants' average feelings before the Zumba sessions started to when the sessions ended (Table 3). The lowest average rating for the pre-Zumba session was 0.6. During that session, the mean rating increased to 1.4 during the session and 2.0 post-session. Overall, the means ratings during and post sessions ranged within the "fairly good" to "good" range.

Table 3. Feeling Scale Ratings Before, During, and After the Zumba Sessions

	Session 1 (*M*) *n*=14	Session 2 (*M*) *n*=13	Session 3 (*M*) *n*= 11	Session 4 (*M*) *n*=10	Session 5 (*M*) *n*=11	Session 6 (*M*) *n*=11
Before	1.71±0.99	1.62±1.19	1.09±1.30	0.60±0.97	1.27±0.65	1.45±0.93
During	2.36±0.63	1.85±0.80	2.09±0.94	1.40±0.70	2.00±0.00	2.27±0.47
After	2.46±0.65	2.17±1.14	2.55±0.52	2.00±0.94	2.18±0.40	2.27±0.65

Note. Means are based on participants who completed all 3 polls per session. Ratings were modified to a 7-point scale (+3 = Very good, 0 = neutral, -3 = Very bad) to accommodate Zoom polling features.

Participants reported an overall enjoyment of the course as reflected by the post-assessment course evaluation statements. At the end of the semester, of the 15 participants who responded to the question, all strongly agreed that they enjoyed the Zumba course. In open-ended responses, participants mentioned enjoying specific aspects of the course such as upbeat music, fun moves, and informative lectures (see Table 4).

Table 4. Participants Statements of What Was Most Enjoyed

Quote	Aspect
"Fun and upbeat, I added a lot of songs to my personal playlist after hearing them in class."	Upbeat music
"The music made me have more fun."	Upbeat music
"Some of the moves were so fun. I would catch myself doing them while cooking or messing around with my siblings."	Fun moves
"I enjoyed the dance moves because they weren't that difficult to do."	Fun moves
"The lectures were interesting, and I learned a lot about the benefits of exercise, which will help me in life."	Informative lectures
"The lectures were engaging as well as informative."	Informative lectures

When asked if participating in the Zumba course increased participants' motivation to be physically active, the average rating was between the *agree* and *strongly agree* rating (Table 5).

Table 5. Increased Motivation to be Physically Active

Evaluation Component	Strongly Agree (*n*)	Agree (*n*)	Mean (*M*)	*SD*
Participating in this Zumba fitness course increased my motivation to be physically active	11	5	3.69	±0.48

Note. 4-point Likert (1=strongly disagree, 4 = Strongly agree)

When asked what specifically about the Zumba course would motivate participants to exercise, participants expressed enjoyment of the upbeat music, the educational component of the course, and finding that exercise could be fun. The following quotes summarized these responses:

> Having fun while exercising was amazing, music and songs were great, and the professor is so nice.
>
> The lectures and discussions about how exercising helps our brain, body, heart, and so much more is what's helping me continue to exercise.
>
> The fact that exercise can be fun and interesting and be a community thing!

Though participants reflected positive experiences towards the Zumba sessions and stated an increased motivation to be physically active, the AFFEXX pre- and post-scores showed no significant changes (Table 6). The core affective scale of pleasure and energy showed small improvements and the calmness scale reflected a medium effect (d=0.35, d=0.12, and d=0.65, respectively). Similarly, there was no significant change in intrinsic motivation on the pre- and post-scores, with an estimated small effect (d=0.29).

Table 6. Comparison of Pre- and Post-Course IMI and AFFEXX

	Pre-program		Post-program				
Measure	Total *M*	*SD*	Total *M*	*SD*	*t*	*p*	*d*
IMI	5.28	0.98	5.57	1.16	-1.12	0.279	0.29
AFFEXX Pleasure	5.78	1.12	6.17	0.97	-1.14	0.271	0.35
AFFEXX Energy	5.29	1.46	5.47	1.39	-0.38	0.710	0.12
AFFEXX Calmness	4.92	1.01	5.58	1.24	-1.79	0.092	0.65

Note. IMI 7-point Likert (1 = No at all true, 7 =Very true); AFFEXX 7-point bipolar scale (opposites)

Changes in Physical Activity Participation

Participants' self-reported moderate-to-vigorous intensity physical activity demonstrated a large and significant change from the start of the Zumba course compared to its conclusion (p=0.001, d=1.05; see Table 7). At the start of the semester, two participants met the sufficiently active threshold (i.e., >24*)* while at the end of the semester, eight participants met this threshold.

Table 7. Self-Report of Moderate to Vigorous Physical Activity

	Pre-program		Post-program				
	M	*SD*	*M*	*SD*	*t*	*p*	*d*
Godin MVPA	11.06	11.62	23.31	12.48	-4.016	0.001	1.05

Note. 24 units or more=active, less than 24 units=insufficiently active

Discussion

The present study analyzed the effects of a 15-week virtual educational Zumba fitness college course on motivation and enjoyment of physical activity. Although not all changes were significant, it is important to note that they were quite positive even at week 1 and for pre scores on most variables. There were significant improvements in weekly self-reported physical activity participation. This increase in physical activity at the end of the semester could have been due to the participants using the Zumba exercise as part of their physical activity. At the same time, the

course included lectures and online activities that educated participants on the benefits and importance of regular physical activity. The academic portion could also have influenced participants to engage in more physical activity. Still, the average score suggests that the sample was considered insufficiently active (i.e., < 24) overall, though more participants did meet the threshold at post-test.

Participants reported an overall enjoyment of the course as reflected by the post-assessment course evaluation statements. These responses are reflected in previous Zumba studies. Araneta and Tanori (2015) found that exercise adherence in their research was attributed to perceiving Zumba as a fun activity, feelings of the camaraderie of exercising together as a group, and cheerful music. As a participant in that study explained: "Zumba was fun and didn't feel like exercise" (Araneta & Tanori, 2015, p. 1231). Similarly, Nieri et al. (2016) found that participants reflected positive subjective experiences towards Zumba. Nearly all of their study participants used the word "fun" to describe Zumba. One factor that this was attributed to was the focus on process rather than an outcome in that participants were encouraged to have fun, modify the steps as needed, and keep on moving (Nieri et al., 2016).

As previously discussed, exercise adherence can be increased when the primary motives to engage in physical activity derive from intrinsic factors (Silva et al., 2008). Self-determination theory explains that intrinsic motivation is enhanced when the basic psychological needs of autonomy, competence, and relatedness are met (Ryan & Deci, 2000). As shown in Table 2, the participants' responses for this study suggested that these psychological needs were met, with mean responses ranging from the "somewhat true" to "true" ratings. Importantly, the course was also designed to promote autonomy beyond the Zumba sessions through the fitness assessments and the written assignment. The fitness assessments asked participants to set two SMART fitness

goals for the semester, and for the written assignment participants engaged in an exercise activity they enjoyed once per week for four weeks. Participants were allowed to make individual choices that provided freedom and independence to choose an activity that was most satisfying; thus, encouraging autonomy. Competence was enhanced during the Zumba sessions by encouraging positive performance feedback. The environment of the Zumba sessions encompassed positive feelings and enjoyment. The upbeat music, simple choreography, and emphasis on having fun may have helped participants feel more competent in the Zumba sessions. Relatedness was promoted through creating a welcoming and supportive environment. The instructor often reminded participants that everyone is welcomed in the class and encouraged participants to ask questions and express their opinions. At the same time, online discussions encouraged participants to communicate with one another and share their opinions on topics related to fitness and health.

It is known that positive exercise experiences can enhance individuals to participate in the activity (Brand et al., 2018). Furthermore, these positive experiences can trigger positive emotional reactions that contribute to exercise adherence (Brand et al., 2018). The participants' responses to the PAAS questionnaires and open-ended questions reflected overall positive feelings and enjoyment of the Zumba sessions (Table 1).

The exercise intensity of the Zumba program was designed to be mainly within moderate intensity, which can contribute to a feeling of mastery and participants feeling comfortable following the dance steps. As reflected in Table 2, the average RPE scale for the six end-of-Zumba session surveys delivered across the semester ranged consistently between 12-13 score falling under the moderate to somewhat hard intensity, moderate intensity has been known to elicit positive affect among participants (Ekkekakis et al., 2005). The intensity of the Zumba

sessions stayed consistent throughout the semester which may indicate that the instructor did an adequate job managing the intensity of the Zumba workouts. At the same time, more enjoyable exercise increases motivation (Segar, 2017). These factors were shared in this Zumba course; however, a larger sample size and more frequency of the weekly sessions may be needed to detect significant changes in intrinsic motivation and affective experiences.

Zumba fitness can provide a unique opportunity to promote physical activity among the Hispanic female population. In this study, most participants identified as Hispanic females. Due to Zumba playing Latin rhythms, Hispanic individuals may feel more inclined to try the class due to identifying with Latin music that reflects the Spanish language and culture. Nieri et. al (2016) stated that Zumba can provide a sense of nostalgia to the Hispanic population by allowing participants to dance to rhythms that they grew up with. In their study, participants mentioned that having the chance to dance to Latin music and among other "Latinos" reminded them of their family and roots (Nieri et al., 2016). Due to the dance nature of Zumba, women tend to be more inclined to participate, which was reflected in this study sample as all participants identified as female.

With the increased popularity of online education, offering the course online can provide a great option for participants who may not feel as comfortable to exercise with other individuals due to feeling self-conscious or worry of being watched by others. In this course, turning on cameras was optional, and most participants chose to keep their cameras off. It can also be convenient for some participants in that they can exercise at home without the need to drive to campus. Students who work full time or who live far away from campus may have a better chance of taking an online option than if it would be offered face to face.

Limitations and Future Directions

There were several limitations to this study. First, the sample size was small, and findings should be interpreted cautiously. It was previously expected that the PI would instruct two Zumba classes, but one of the classes was canceled due to low enrollment. Second, the course was taken for credit which could have influenced how participants responded to the surveys. Participants may have felt more inclined to provide positive responses and feedback even though the content of their responses had no impact on their grades. Third, the Zumba course was scheduled to meet once per week which may not be sufficient to enhance intrinsic motivation. Future studies could increase the frequency of course meetings (e.g., twice per week).

Finally, due to being an online course, the results may differ from a face-to-face course. Privacy reasons did not allow the instructor to require all the participants to turn on their cameras so there was no certain way to know if all the participants were dancing the whole time. In a face-to-face class, participants are not likely to sit and watch the sessions since the instructor can see them and remind them to follow along.

In sum, findings from this study are promising, but more research is needed to evaluate the effects of a Zumba course like the one examined in this study. Further research can focus on a longitudinal framework that would analyze the effects of this course after the conclusion of the semester and reflect on the possible effects of the course on sustaining physical activity. Enhancing intrinsic motivation and providing enjoyable physical activity experiences to participants through the Zumba course could, in turn, promote college students' future participation in physical activity. Findings may provide a blueprint for a novel physical activity course that other kinesiology programs can adopt.

CHAPTER II: DISSEMINATION

This research will be disseminated by presenting the findings in a PowerPoint Presentation (Appendix D) to the Department Chair and the Physical Activity Coordinator at the university where the study was conducted. The goal is to use the Zumba course as an example of effective strategies to promote students' enjoyment of physical activity that can be adapted in other physical activity courses to increase physical activity participation and create consistency among the courses. Sharing the elements of the Zumba course can encourage discussion around improving the physical activity program curriculum within the Kinesiology department (Slide 1).

Introduction and Background (Slide 2)

Good morning! I have been instructing the department's physical activity and lecture courses for the past 6 years. One of the courses that I hold dearly in my heart is Zumba fitness. It is a course that often fills close to the 30-student capacity. Since I started teaching Zumba at this school in Spring 2017, my class enrollment average has been 24 students. Some of the positive things that students mention when taking the course are that they have a lot of fun and love the music and welcoming environment. Not surprisingly, it is common to see students retaking the course in later semesters. As with other physical activity courses, non-Kinesiology majors also enroll in Zumba, which makes this course an excellent opportunity to reach a wider student base. Our Kinesiology department is constantly growing. The Physical Activity Program offers more than 100 exercise courses each semester, reaching a student population of both Kinesiology and non-Kinesiology majors. We can play an essential role in helping our students be more physically active. Especially in the middle of this pandemic, students have become more sedentary, and for some, it has not been easy to get back into regular exercise. At the same time, online modes of instruction have become increasingly popular which allows students to exercise

at the comfort of their homes. This presentation aims to share findings from my recent study evaluating my online synchronous Zumba course with you to provide more guidance on effective curriculum strategies that could promote the enjoyment of physical activity in other activity courses and increase students' participation in physical activity. My study focused on an online Zumba fitness course; however, these strategies could also be applied to face-to-face classes.

Physical activity plays a vital role in preventing chronic diseases and mental health conditions, with extensive research supporting its benefits (Health and Human Services, 2018). Physical activity behaviors adopted in college are prone to be continued throughout adulthood, enhancing lifelong health (Keating et al., 2005). However, with the recent COVID-19 pandemic, sedentary behavior has significantly increased and has detrimental effects on mental health (Ricci et al., 2020). More than ever, it is essential to implement innovative and practical strategies that could motivate students to be, and continue to be, physically active.

Motivating Students to Exercise (Slide 3)

One of the ways to increase exercise adherence is through fostering intrinsic motivation and positive affect. Exercise adherence in individuals participating in fitness classes can be improved when the primary motivation comes from intrinsic motives related to enjoyment and efficacy rather than extrinsic outcomes as the primary motivation (Silva et al., 2008). Intrinsic motivation reflects individuals' interest in participating in physical activity due to the enjoyment of the activity (Teixeira et al., 2012). Affect encompasses psychological states involving emotions, feelings, and moods; it is a dynamic process that describes an individual's emotional state (Kyral et al., 2019). Exercise's positive experiences trigger a positive emotional reaction that encourages individuals to participate in the activity (Brand et al., 2018). Research has

demonstrated that exercise that is enjoyable and helps people feel good is more motivating than working on a goal to improve health (Segar, 2017).

Zumba fitness is a popular group exercise class (Nieri & Hughes, 2016) that provides a unique experience to participants in which intrinsic motivation and positive affect are reinforced. Using a framework that integrates promotion of intrinsic motivation and positive affect, the purpose of this study was to implement and evaluate a Zumba fitness college course as a potentially effective way to promote physical activity among college students. I wanted to know how an online synchronous Zumba college course could affect students' motivation and enjoyment of physical activity and the extent to which this course could increase their physical activity participation.

Study Design (Slide 4)

The study encompassed the completion of eight online surveys and Zoom polls delivered throughout the semester. The pre- and post-assessment surveys were provided at the start and end of the semester, while the other six follow-up surveys were offered throughout the semester. The Zoom polls were delivered on the same days as the follow-up surveys before, during, and after the Zumba workout. In this study, I measured and analyzed intrinsic motivation, affect, enjoyment of the course, physical activity participation, and course evaluations. The completion of the surveys was included as part of the course. Participants were asked for permission to use their responses as part of the study.

Intervention (Slide 5)

The Zumba course encompassed the Zumba sessions, online lectures, and online activities/assignments. It was scheduled to meet once per week virtually via Zoom and to last 100 minutes. For the first 60 minutes of class, I taught Zumba, and the rest of the time was used

to lecture and discuss class assignments. The online lectures included topics such as goal setting (i.e., “SMART” goals), nutrition, fitness, and cardiorespiratory exercise. Additionally, I used Zumba choreography and music, designed to be in an interval training format with higher and lower intensity periods.

Study Participants and Results (Slide 6 & 7)

Participants encompassed current students enrolled in the Zumba fitness course offered in Fall 2021. The final sample size included 16 female participants. When assessing acute feelings related to physical activity throughout the semester, participants reflected overall positive feelings associated with the Zumba sessions. At the end of the six Zumba sessions that were evaluated, students consistently rated their feelings of autonomy, competence, relatedness, and overall enjoyment of the session highly. Autonomy relates to the power to choose activities that align with their integrated self (Ball et al., 2017). Competence relates to the experience of mastery of a behavior (Ball et al., 2017). Relatedness refers to building meaningful connections with others, which consists of creating an empathetic and positive environment for the behavior to take place. Social settings promote intrinsic motivation by supporting autonomy and competence (Ryan & Deci, 2000). These results are consistent with the responses to the end-of-course open-ended questions, which reflected an overall enjoyment of the course.

Nevertheless, there was no significant change in the Affective Exercise Experiences (AFFEXX) questionnaire pre and post scores or the intrinsic motivation scores. Interestingly though, when asked if participating in the Zumba course increased their motivation to be physically active, most participants strongly agreed that the Zumba course motivated them to be physically active. Table 4 shows some of the comments shared by the students on why the course increased their motivation.

Participants' self-reported physical activity demonstrated a significant change from the start of the Zumba course compared to its conclusion. Even though the sample average reflected that participants were still considered insufficiently active, there was a noticeable improvement in physical activity participation. At the start of the semester, there were only two participants who met the sufficiently active threshold while at the end of the semester, there were eight participants who met this threshold.

The Zumba Course Design and Theoretical Framework (Slide 8)

Self-Determination Theory explains that intrinsic motivation is enhanced when the basic psychological needs of autonomy, competence, and relatedness are met (Ryan & Deci, 2000). The Zumba course has been designed to promote intrinsic motivation by enhancing these basic psychological needs. At the same time, the course design focuses on creating an environment where positive affect and enjoyment are promoted. Positive experiences in exercise can trigger a positive emotional reaction that encourages individuals to participate in the activity (Brand et al., 2018).

Course Components (Slide 9)

The course assignments included pre- and post-fitness assessments, online discussions, and a reflection paper to enhance health and fitness knowledge, intrinsic motivation, and positive affect. Table 8 demonstrates how the course components and strategies were designed to enhance basic psychological needs and positive affect.

Table 8. Zumba Fitness Course Components and Strategies

Components	Objectives	Strategies
Self-determined motivation: Autonomy	Encourage independence and individual choice for exercise behavior.	Students complete an aerobic and diet log assignment. Students choose the type of aerobic physical activity and log for four days during four weeks their physical activity according to the ACSM guidelines and their food intake. Students are encouraged to choose a manageable pace during the Zumba exercise portion.
Self-determined motivation: Competence	Develop new physical activity skills.	Each Zumba session includes easy-to-follow steps with modifications that are repeated over time. Students are encouraged to have fun and keep on moving. As the weeks pass, students develop mastery by becoming more familiar with the steps and learning the choreographies.
	Educate students on practical goal setting and assess their aerobic fitness capacity.	Students are educated on effective SMART goal strategies and the importance of assessing their aerobic fitness. Students then assess their aerobic fitness levels via the Rockport or Cooper Tests. Students are further asked to develop an action plan to target their goals for the semester. Pre and Post assessment measures are completed to document personal improvements. Students are also educated on basic nutrition, fitness, and cardiorespiratory exercise concepts to raise awareness and understand what encompasses a healthy lifestyle.
Self-determined motivation: Relatedness	Encourage social support and a sense of community to increase self-determined motivation.	Online discussion activities are designed to educate on fitness concepts and promote interaction among students. Students share their thoughts and feelings related to physical activity and health. A final dance demonstration emphasizes a sense of community and support between students.

Components	Objectives	Strategies
Positive affect	Encourage positive experiences that trigger positive emotional reactions.	Each Zumba session is designed and delivered with the focus of having fun and creating an exciting and welcoming environment. The music is upbeat and energetic. The atmosphere is supportive and respectful. The Zumba portion is designed in an interval training format with higher and lower intensities periods. Students are encouraged to pace themselves, listen to their bodies, and stop if they need a break.

As shown in Table 8, the design of the Zumba exercise session along with the online lectures and course assignments may have impacted students' positive perceptions of physical activity. The online lessons were designed to provide concise and practical information that students could use and apply to their personal lives. The lectures were not extensive and encompassed essential health and fitness knowledge. As a one-unit activity course, the lecture component should not be the main focus. Students should be encouraged to learn basic health and fitness information, but the emphasis should be on the exercise portion.

Application to Other Physical Activity Courses (Slide 10)

How can we use this information in our Physical Activity Curriculum? I will be sharing some of my recommendations and steps that can be taken. First, I think it is essential to share these study results with the Physical Activity instructors and explain the importance of fostering intrinsic motivation to exercise and help them understand the critical role their courses can play in promoting exercise adherence.

Second, the physical activity curriculum should be reviewed to develop a consensus of core activities and assignments that all physical activity courses could share. As a result, this would create uniformity within the course and keep each instructor accountable for what they are teaching. I propose the following suggestions, as shown in Table 9.

Table 9. Curriculum Suggestions (Slide 11)

Components	Objectives	Instructional Strategies
Self-determined motivation: Autonomy	Encourage independence and individual choice for exercise behavior.	● Design an assignment that encourages students to exercise independently and choose an activity they enjoy. ● Encourage students to choose a manageable pace while exercising in their classes.
Self-determined motivation: Competence	Develop new physical activity skills and educate students on essential health and fitness concepts, goal setting, and fitness assessments	● Easy-to-follow exercises and activities ● Provide modifications that are repeated over time. ● Educate students on SMART goal strategies & the importance of fitness assessments ● Include Pre and Post assessments and SMART goals as part of the assignments ● Provide educational and practical lectures on basic concepts related to nutrition, fitness, benefits of exercise, and leading a healthy lifestyle. Content should be simple and easy to grasp.
Self-determined motivation: Relatedness	Encourage social support and a sense of community to increase self-determined motivation.	● Include online discussions or in-class discussions to educate on fitness concepts and promote student interaction.
Positive affect	Encourage positive experiences that trigger positive emotional reactions.	● Encourage a fun environment! ● Use upbeat and energetic music. ● Foster an inclusive and welcoming community where everyone feels free to share opinions and ask questions. ● Encourage pacing and water breaks as needed

Third (Slide 12), I propose that we offer an educational lecture for physical activity instructors in which we teach them strategies to review course learning objectives and how their assignments would need to be designed to follow these objectives. We can ask the Center of Effective Teaching and Learning (CETL) to share their expertise and possibly present to the instructors on this topic. Afterward, physical activity instructors should submit their course syllabi for review to the PA coordinator and department chair to ensure their curriculum follows

the learning objectives. Now, I know this would be an extensive task. However, this task could be completed in more than one semester.

Fourth, with the increased popularity of remote learning, the Kinesiology department could benefit from providing options to students by offering online physical activity courses in addition to the face-to-face formats. Some students may not feel comfortable dancing/exercising among other students in an in-person setting and would rather do so in the comfort of their home with no one else watching. Students have mentioned to me that they appreciated the option of not turning on their cameras because they felt embarrassed to be seen dancing or making mistakes while dancing. At the same time, some students may prefer exercising at home rather than driving to campus especially now with the high gas prices. Students who work full time or who live far away from campus may have a better chance of taking an online physical activity course than a face-to-face course.

Our students must get the best education and college experience when they take our Kinesiology courses. I think physical activity instructors play a crucial role in changing students' lives for the better. We can make a difference in their lives and provide them with knowledge and skills to use throughout their lives. Living a healthy lifestyle is a journey that takes time and commitment, and instructors can shape our students to start or continue this journey successfully. Thank you for your time, and I am more than willing to assist you through this process. I will now invite any questions that you may have (Slides 13-14).

CHAPTER III: ACTION PLAN

My action plan is organized in two sections that include my short- and long-term goals. As a college faculty member, I have discovered that teaching is an influential tool to reach out to my community and help others. Thus, my combined purpose and high value for fitness and education have led me to believe that I can inspire students and motivate them to become healthy and physically active. Additionally, I enjoy working with college students. They encompass a critical age in which the habits they establish can be carried throughout their lives.

Short-Term Plans

I am planning on presenting my findings to support the need for effective online fitness classes that students can enjoy. I would like to meet with the Physical Activities Coordinator and the Kinesiology Department Chair at my current institution to discuss the study findings and provide support of a successful online Zumba course. At the same time, I want to provide a case that online modes of physical activity instruction can be conducted successfully. I want to emphasize the importance of providing different modes of instruction to students so the department can expand its student population for physical activity courses. With this presentation, I also want to raise awareness that the Zumba course can be used as a model to help design physical activity curriculum within the Kinesiology program.

As of the Fall 2022 semester, courses such as Zumba, Pilates, and Cardio Kickboxing will be offered online at the institution. I plan to use my project findings to encourage the PA coordinator to continue to offer these classes on the schedule. Additionally, I plan to reach out to organizations on my current campus, such as the Health Center and Campus Library to create a workshop that discusses the online Zumba course as a great option to stay active at home and increase physical activity enjoyment. In this presentation, I would provide the most important

findings of my study in a clear and concise manner so students are able to understand it. I would provide information on the importance of physical activity and how Zumba fitness can be a fun option to stay active.

My second goal is to publish my findings in a Kinesiology journal. After submitting my dissertation with UNCG, I plan to submit my research as a manuscript for publication in a relevant professional-focused physical education journal such as the *Journal of Physical Education, Recreation, and Dance (JOPERD)* from the SHAPE America organization. My study could provide teaching strategies that other physical activity instructors could apply on their courses. Another journal of my interest is the *International Journal of Kinesiology in Higher Education (IJKHE)* from The National Association of Kinesiology in Higher Education (NAKHE). The journal welcomes manuscripts from Doctoral Dissertation work. My manuscript could contribute to best teaching practices at the college level.

My third goal is to present my findings at a fitness conference. I am interested in presenting to the IDEA, the National Academy of Health, and Physical Literacy (NAHPL), or The National Association of Kinesiology in Higher Education (NAKHE). The IDEA fitness conference is held once a year and provides education and training for group exercise instructors, personal trainers, fitness directors, business owners, college educators, and more. The NAHPL is an organization that provides education on health and physical literacy through applied research and professional development. It will be hosting a summit in February 2023. I am considering submitting the abstract of my study for the potential opportunity to present at the summit next year. The NAKHE is an organization for Kinesiology professionals in higher education that promotes networking, mentoring, and scholarly work within the field through annual conferences and publications. The next conference is on January 4, 2023.

Long-Term Plans

In terms of my long-term goals, I would like to get a full-time teaching position at a local community college, and I plan to use my dissertation and EdD studies as evidence of my professional development and commitment to improving my skills as an instructor. Very importantly, I would like to assist with the development and improvement of physical activity curriculum through ongoing evaluation of the courses that may need to be updated. My goal is to assist the kinesiology department(s) where I'll work full-time to design effective curriculum that is student centered. If needed, I will assist in the development of a consensus of core activities and assignments that all of the physical activity courses could share.

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APPENDIX A: INFORMED CONSENT

CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: "Promoting College Students' Physical Activity Enjoyment and Motivation in a Semester-Long Zumba Fitness Course"
Principal Investigator and Faculty Advisor: Isabel Woelfel, PI; Erin Reifsteck, Advisor

Participant's Name: KIN XXXX college students

What are some general things you should know about research studies?
You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This further information may help people in the future. There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher or the University of XXXXX.
Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is below.

What is the study about?
This is a research project. Your participation is voluntary. The purpose of this study is to analyze the effects of a semester virtual synchronous Zumba fitness college course on increasing enjoyment of physical activity and motivation.

Why are you asking me?
You have been selected because you are an enrolled KIN XXXX Zumba Fitness student. Students must be 18 years or older to participate in the research study.

What will you ask me to do if I agree to be in the study?
The Zumba fitness sessions and surveys are part of the course. You will complete 8 brief (5-10 minutes) online surveys related to your participation in the course. The Pre-Assessment survey will be completed early on the semester while the post-assessment survey will be completed at the end of the semester. The other 6 surveys will be administered throughout the semester. Surveys will include questions about your physical activity and related feelings, demographic information, and your experience in the course. These surveys are required as part of the course. I am requesting permission to use your responses to the surveys and in-class Zoom polls as data

for the study. Choosing not to have your responses be used as part of the study will have no impact on your grade in the course or your relationship with the course instructor.
Your responses to this informed consent are saved in a Google form that the instructor does not have access. When completing this form, you will be asked to provide your name and the last 4 digits of XXXX to identify your survey submissions. This 4-digit number will be asked in the surveys in order to track your responses and give you credit for your submission.

The instructor will not know who agreed to participate in the study until grades have been posted. At that point, students who elected not to participate will have their information removed from the data set.

Is there any audio/video recording?
Yes, there will be video recording. The Zoom sessions will be recorded as part of the course, so students can review any content presented in the class.

What are the risks to me?
The Institutional Review Board at the University of XXXXXX has determined that participation in this study poses minimal risk to participants. Questions regarding your mood/affect are included in the surveys. Please refer to the National Institute of Mental Health website (https://www.nimh.nih.gov/health/find-help/index.shtml) or check the Academic Support and Student Services' page under the Help and Support Module for mental health resources.

If you have questions, want more information or have suggestions, please contact Isabel Woelfel, Principal Investigator, at ilwoelfe@uncg.edu, or Erin Reifsteck, Faculty Advisor at ejreifst@uncg.edu. If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at XXXX toll-free at (XXX)-XXX-XXXX.

Are there any benefits to society as a result of me taking part in this research?
The results of this study can be used to expand on the research related to college students and physical activity and help create effective strategies to promote physical activity within this group**.**

Are there any benefits to *me* for taking part in this research study?
There are no direct benefits to participating in the study itself. However, the main benefits of completing the associated course assignments may include gaining a better understanding of your experience with physical activity and Zumba fitness, which may motivate you to continue to exercise.

Will I get paid for being in the study? Will it cost me anything?
There are no costs to you or payments made for participating in this study.

How will you keep my information confidential?
All information obtained in this study is strictly confidential unless disclosure is required by law. Any information obtained from this study will be kept confidential. Data will be collected and stored in Qualtrics®, which is a secure online survey collection and storage program. Some data

will also be collected through Zoom polls. Data will be stored in a password-protected computer and/or secure file-sharing program called Box only accessible by the research team. The list of student names and ID numbers will be kept separate from the data. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.

The survey data will be tracked by an identification number; no names will be listed in the surveys. The data derived from this study could be used in reports, presentations, and publications, but you will not be referred to by name or identification number.

Will my de-identified data be used in future studies?
All of our participants' de-identified data may be kept indefinitely and may be posted to an online repository so other scientists can analyze the data and check our results. Your de-identified data may be kept indefinitely and used for future research without your additional consent.

What if I want to leave the study?
You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

What about new information/changes in the study?
If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:
By checking "yes" below, you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By clicking "yes, I choose to participate by having my course data used for research purposes," you are agreeing that you are 18 years of age or older and are agreeing to participate in this study described to you by Isabel Woelfel.

___Yes, I choose to participate by having my course data used for research purposes

___No, I choose not to participate. I do not want my course data used for research purposes.

APPENDIX B: MEASURES

Demographics (pre-test only)

What is your gender?

- ○ Male
- ○ Female
- ○ Other _____
- ○ Prefer not to answer

What is your race/ethnicity? Choose all that apply

- ○ White
- ○ Black or African American
- ○ American Indian or Alaska Native
- ○ Asian
- ○ Native Hawaiian or Pacific Islander
- ○ Hispanic or Latino
- ○ Other _____
- ○ Prefer not to answer

What is your age?

- ○ 18-24 years old
- ○ 25-34 years old
- ○ 35-44 years old
- ○ 45-54 years old
- ○ 55-64 years old
- ○ 65-74 years old
- ○ 75 years or older
- ○ Prefer not to answer

Please state what describes you the best from the following?

- ○ Freshmen
- ○ Sophomore
- ○ Junior
- ○ Senior
- ○ Graduate
- ○ Part-time matriculated
- ○ Other (Please specify): _____

What is your major? if none, type “undecided”

_____

Are you taking any other physical activity course within the XXX KIN department?

- ○ Yes, which course (s)? _____
- ○ No

What is your experience with Zumba fitness?

- ○ Never participated at all
- ○ Some experience: e.g., have participated in Zumba at a local gym or taken some Zumba classes
- ○ A lot of experience: e.g., have participated in Zumba classes 1-2 times per week for 6 months or longer

---

Why are you taking this course?

- ○ Be more healthy
- ○ Learn something new
- ○ Need extra unit to be full-time
- ○ Required
- ○ Other (please specify): _____

Pre- and Post-Survey Measures

During a typical 7-Day period (a week), how **many times** on average do you do the following kinds of exercise for **more than 15 minutes** during your free time.

Please enter a number in each space below. For example, if you run for 30 minutes three times per week as strenuous exercise, you will enter "3" for strenuous exercise; if you ride a bike as moderate exercise for 20 mins two times per week, you will write "2" for moderate exercise; if you do not do any physical activity, you can enter "0" in the corresponding space(s).

STRENUOUS EXERCISE (Heart beats rapidly) (e.g., running, jogging, hockey, football, soccer,

squash, basketball, vigorous swimming, vigorous long-distance bicycling)

- ○ # of times per week _____

MODERATE EXERCISE (not exhausting) (e.g., fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing)

○ # of times per week _____

MILD/LIGHT EXERCISE (minimal effort) (e.g., yoga, archery, fishing from river bank, bowling, horseshoes, golf, snowmobiling, easy walking)

○ # of times per week _____

The following items concern your experience with **physical activity.** Please answer all items. For each item, please indicate how true the statement is for you, using the following scale as a guide.

	1 not at all true	2	3	4 somewhat true	5	6	7 very true
I enjoy engaging in physical activity very much	○	○	○	○	○	○	○
Physical activity is fun to do	○	○	○	○	○	○	○
I think physical activity is boring	○	○	○	○	○	○	○
Physical activity does not hold my attention at all	○	○	○	○	○	○	○
I would describe physical activity as very interesting	○	○	○	○	○	○	○
I think physical activity is quite enjoyable	○	○	○	○	○	○	○
While I participate in physical activity, I think about how much I enjoy it	○	○	○	○	○	○	○

Below, you will find a series of statements that people have used to describe their views, attitudes, and experiences with exercise. The statements are presented as pairs of more-or-less opposites (e.g., “I love exercise” versus “I hate exercise”), separated by a seven-point scale. If the statement on the left is closer to your own views, attitudes, and experiences with exercise, mark 1 (if the statement perfectly matches what you would say), 2, or 3. If the statement on the right is closer to your own views, attitudes, and experiences with exercise, mark 7 (if the statement perfectly matches what you would say), 6, or 5. If your own views, attitudes, and experiences with exercise are in-between these two opposites, mark the mid-point, 4. Remember that the questionnaire asks for your own views, attitudes, and experiences with exercise, not what you think “the right thing to say” is. So, do not be concerned with what others may think or the fact that exercise is recommended as a behavior that promotes health. There is no “right” or “wrong” answer. So, try to be as honest as possible in describing your own views, attitudes, and experiences. Do not spend too much time on any one question. Often, your first, spontaneous response is the one that best describes you.

	1	2	3	4	5	6	7	
Exercise makes me feel worse	○	○	○	○	○	○	○	Exercise makes me feel better
The feeling I get from exercise is awful	○	○	○	○	○	○	○	The feeling I get from exercise is fantastic
Exercise worsens my mood	○	○	○	○	○	○	○	Exercise improves my mood
Exercise feels terrible	○	○	○	○	○	○	○	Exercise feels wonderful

	1	2	3	4	5	6	7	
Exercise leaves me feeling exhausted	○	○	○	○	○	○	○	Exercise leaves me feeling energized
I feel drained after exercise	○	○	○	○	○	○	○	I feel revitalized after exercise
Exercise is very tiring	○	○	○	○	○	○	○	Exercise is very invigorating
Exercise makes me feel drowsy	○	○	○	○	○	○	○	Exercise makes me feel refreshed
For me, exercise is a relaxing activity	○	○	○	○	○	○	○	For me, exercise is a stressful activity
Exercise gives me serenity	○	○	○	○	○	○	○	Exercise stresses me out
Exercise soothes me	○	○	○	○	○	○	○	Exercise makes me feel tense
Exercise makes me feel peaceful	○	○	○	○	○	○	○	Exercise makes me feel aggravated

Follow-Up Survey Measures

Use the following scale to indicate the extent to which each word below describes how you feel at this moment in time. Record your responses by choosing the appropriate response:

	0 Do Not Feel	1 Feel Slightly	2 Feel Moderately	3 Feel Strongly	4 Feel Very Strongly
Upbeat	◯	◯	◯	◯	◯
Calm	◯	◯	◯	◯	◯
Energetic	◯	◯	◯	◯	◯
Tired	◯	◯	◯	◯	◯
Peaceful	◯	◯	◯	◯	◯
Miserable	◯	◯	◯	◯	◯
Worn-out	◯	◯	◯	◯	◯
Relaxed	◯	◯	◯	◯	◯
Fatigued	◯	◯	◯	◯	◯
Discouraged	◯	◯	◯	◯	◯
Enthusiastic	◯	◯	◯	◯	◯
Crummy	◯	◯	◯	◯	◯

Please choose the statement that most clearly describes your current experience in this session.

	1 not at all true	2	3	4 somewhat true	5	6	7 very true
I think I am pretty good at this activity (Zumba fitness)	○	○	○	○	○	○	○
I do this activity (Zumba fitness) because I want to	○	○	○	○	○	○	○
The relationships with people (in Zumba fitness) are friendly and supportive	○	○	○	○	○	○	○

Use the following scale to indicate how much you enjoyed this Zumba exercise session.

	not at all	2 very little	3 slightly	4 moderately	5 quite a bit	6 very much	7 extremely
I enjoyed this Zumba exercise session	○	○	○	○	○	○	○

Estimate how hard this Zumba exercise session was.

- ○ 6 not exertion at all
- ○ 7 extremely light
- ○ 8
- ○ 9 very light
- ○ 10
- ○ 11 light
- ○ 12
- ○ 13 somewhat hard
- ○ 14
- ○ 15 hard (heavy)
- ○ 16
- ○ 17 very hard
- ○ 18
- ○ 19 very, very hard
- ○ 20 maximum exertion

Zoom Poll Question

How do you currently feel?

+3 (very good)

+2 (good)

+1 (fairly good)

0 (neutral)

-1 (fairly bad)

-2 (bad)

-3 (very bad)

Course Evaluation

Overall, I enjoyed this Zumba course

- ○ Strongly agree
- ○ Agree
- ○ Disagree
- ○ Strongly disagree

What did you enjoy about this KIN XXXX Zumba fitness course (choose all that apply)? Explain on the open text entry box.

- [ ] Music _____
- [ ] Dance moves _____
- [ ] Instructor style_____
- [ ] The online lectures_____
- [ ] The scheduled class time
- [ ] Prefer not to answer
- [ ] Other _____

Overall, participating in this Zumba fitness course, increased my motivation to be physically active.

- ○ Strongly agree
- ○ Agree
- ○ Disagree
- ○ Strongly disagree

What specifically about this KIN 1540 Zumba fitness course may motivate you to continue to exercise?

Please provide any suggestions you have for improving the KIN XXXX Zumba fitness course:

Please add any other comments about your experience in the KIN XXXX Zumba fitness course:

APPENDIX C: COURSE DESCRIPTION

Course Description: Introduction and exploration of the fundamental skills of Zumba Fitness. Skill progression, conditioning, individual fitness development, and safety are emphasized. May be repeated to a maximum of 8 units (Activity 2 hours)

A. **Instructor's Name:** Isabel Woelfel
B. **Office Number:** Online
C. **Office Hours:**
D. **E-Mail Address:** iwoelfe@xxxxx.edu
E. **Term: Fall 2021**
F. **Class Meeting Times:** **Tuesdays** 4:00-5:40pm
G. **Class Location: Online**
H. **Expected Student Learning Outcomes:**
    a. Identify the basic components of physical fitness: cardiovascular endurance, muscle strength and endurance, flexibility and body composition.
    b. Demonstrate knowledge of fundamental skills, technique, and safety rules appropriate to Zumba classes.
    c. Demonstrate the development and the application of motor skills appropriate to Zumba fitness.
    d. Recognize and modify lifestyle management behavior to improve wellness and performance.
    e. Demonstrate an understanding of the benefits of Zumba fitness as it relates to physical and mental health.
I. **Required Course Materials: Required Course Materials: Required Course Materials:** All students must wear athletic type clothing (shorts, t-shirts, tank top, sweats, leotards, etc.), NO BARE FEET, NO JEANS, NO EXTENSIVE JEWERLY OR ANYTHING THAT WILL PREVENT YOU FROM EXERCISING. HAVE WATER! Make sure that you use your phone or computer to attend the live-streams.

J. Optional Reading: Naternicola, N. L. (2015). *Fitness Steps to Success*. Illinois: Human Kinetics. OR Handouts and other pertinent information (articles, links, etc.) will be provided by the instructor on **Canvas**

K. Attendance Policy: Due to the Coronavirus pandemic, classes will be held online via Zoom. Roll will be taken via Zoom. Please inform the instructor if you are late to class so you can receive credit for the day. If you need to leave class early for any reason, please inform the instructor at the beginning of class. Each student is allowed **2** free absences before attendance starts to drop. **You can use these absences in case of emergencies or sickness. Please note that because I give you 2 free absences, I will not excuse more than these absences even if you have a doctor's note.**

L. Course Content: This course will cover many physical techniques that form the basis of Zumba fitness. It will further focus on group exercise to music, using large, continuous, rhythmic movements to elevate the heart rate and produce a training effect, enhancing cardiorespiratory endurance, caloric consumption, and total body toning.

a. **Physical Component:**
   i. Pre & Post cardiovascular assessment
   ii. Safe and effective warm up & cool down
   iii. Participation and proper execution of Zumba choreography utilizing the core/basic steps for Merengue, Salsa, Cumbia, and Reggaeton

b. **Cognitive Component: Zumba**
   i. Safety Guidelines
   ii. Terminology of major components of Zumba: warm-up, core steps, muscle conditioning, and cool down.
   iii. Relationship of muscle groups to Zumba as they relate to fitness
   iv. Benefits of cardio exercise and Zumba
   v. Guidelines for aerobic fitness

c. **Cognitive Component: Fitness**
   i. Guidelines for aerobic fitness
   ii. 5 components
   iii. SMART goals
   iv. Cardiorespiratory exercise definition

M. Types of Assignments

a. **Pre & Post Cardiovascular and SMART Goal Assessments (10%)**

i. There will be a pre & post assessment to measure the students' cardiovascular endurance. The amount of improvement will not be graded, but the idea is that students should see improvement. Participation of these assessments will count for a total of **20 points.**

ii. Survey Completion **(21pts):** Students will be completing eight online surveys throughout the semester**.** The purpose of these surveys is for you to gain a better understanding on your experience with physical activity and Zumba fitness**.** The surveys will be completed during class time**. Students will receive 2 points for completing each survey. Please note, you will need to attend class to complete the surveys; otherwise, you won't be able to receive credit. After completion of the 8 surveys (2pts each), students will complete an online quiz to reflect on the experience (5pts)**.

b. **Attendance/participation (35 %):**

i. **Attendance and participation are crucial in this class. I will be taking roll after each Zoom session.** If you need to leave early or arrive early for any reason, please inform the instructor at the beginning of class. Please make sure you attend class on time. Joining class 15-20 minutes after we have started does not make it on time. This is not safe for you. There will be **2 FREE** absences for the semester. If you know you will miss more than two classes, you can arrange with the instructor to attend another activity class she instructs to make it up.

c. **Group Performance-Zumba combination (10%):**

i. Towards the end of the semester, students will work in groups and create a short 20- to 30-second dance. Students will receive points for attending class and working with their groups during class time. They will receive points for performing in front of the class.

d. **Online Canvas Discussions (20%):**

i. Throughout the semester, there will be **three online discussions** set on XXXX related to health and fitness topics. The instructor will share YouTube videos; students will answer specific questions and share their opinions on the topic. Please be respectful of your responses when communicating with other students.

e. **Aerobic Exercise and Diet Log Assignment (1-2pages) (15%):**

i. For four weeks, students will log once a week their aerobic activity according to the ACSM guidelines and their food intake for a total of 4 days. They will write a reflection paper about their experience. Students will also submit proof of workout completion. Students are encouraged to use technology to track diet and exercise, such as myfitnesspal app, NTC app, track my run app, and Apps suggestions posted on canvas. It will account for 20 points.

f. **Final (10%)**

i. The final exam will consist of multiple-choice, True/False & short answer. It will be cumulative and open book to be completed on Canvas. The final date is scheduled according to the college final exam schedule; please check on XXX and plan your schedule accordingly. **If you experience any time-conflict, please inform the instructor to schedule another time.**

N. Sequence of Assignments-Tentative Schedule

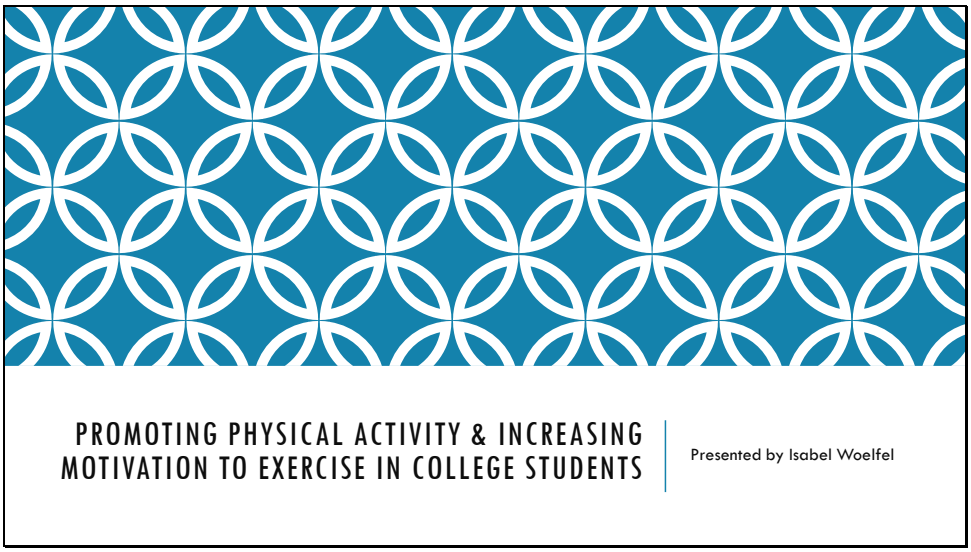
Week	Course content: activities	Assignments, Readings, Quizzes, Exams
Week 1	Introduction & Syllabus **Lecture on "Smart Goals"** Pre-Fitness, SMART goal assessment form	**Submit "Introduce yourself online discussion"** **Pre-Assessments** **Submit PARQ 8/31**
Week 2	**Pre-Assessment Survey** Zumba Class	

Week	Course content: activities	Assignments, Readings, Quizzes, Exams
Week 3	Zumba class Zumba class **Discuss Aerobic and Diet Log Assignment** **Survey Follow-up #1**	**Aerobic Exercise & Diet Log Assignment**
Week 4	Zumba class. **Lecture on "Nutrition"**	
Week 5	Zumba class **Survey Follow-up #2**	
Week 6	Zumba Class	**Canvas Discussion: "What Happens to Your Body When You Exercise?"**
Week 7	Zumba class	
Week 8	Zumba class **Survey Follow-up #3**	
Week 9	Zumba class **Survey Follow-up #4**	**Canvas Discussion: "The Brain Changing Effects of Exercise"**
Week 10	Zumba class. **Lecture on "Overview of Fitness"** Zumba class	
Week 11	Zumba class **Survey Follow-up #5**	
Week 12	Zumba class	**Aerobic and Diet Log Assignment due**
Week 13	**Lecture on "Cardiorespiratory Exercise"** **Explain Dance Performance** Zumba Class	
	FALL RECESS	
Week 14	**Discuss Post-Assessment** & **Survey Reflection quiz** Zumba class	**Post-Assessments Survey Reflection quiz**

Week	Course content: activities	Assignments, Readings, Quizzes, Exams
	Survey Follow-up #6	
Week 15	Zumba class **Post-Assessment survey** **Zumba Dance Performance**	
	FINAL	

APPENDIX D: POWERPOINT SLIDES

Slide 1



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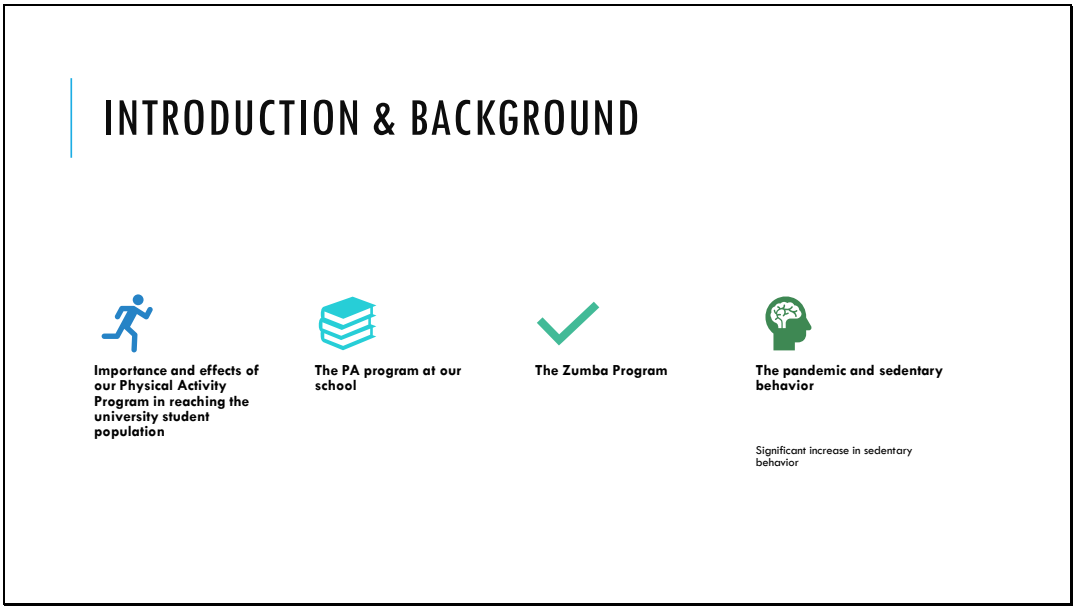

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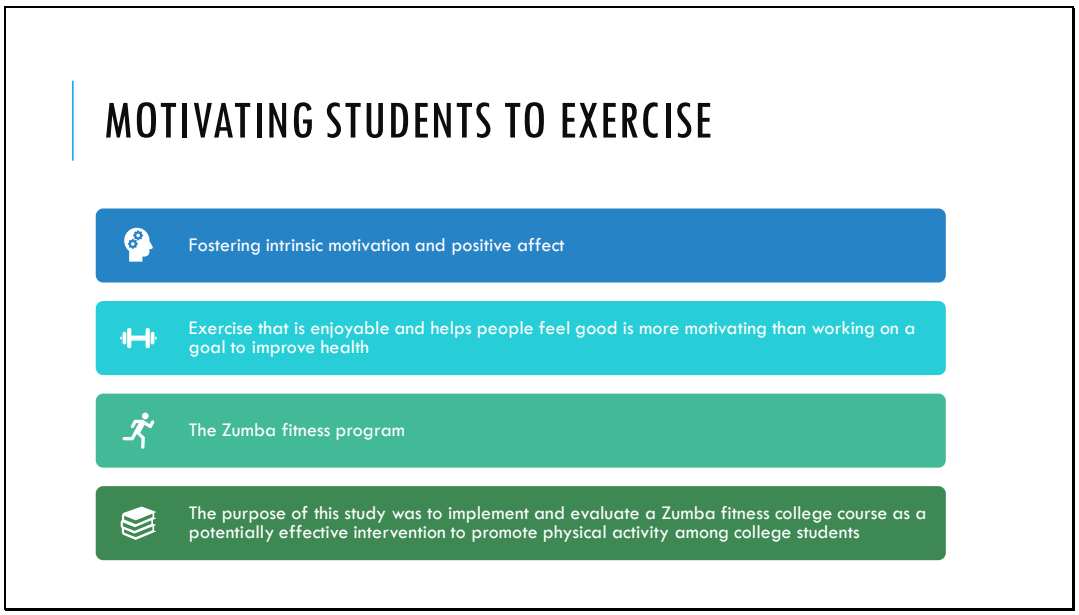

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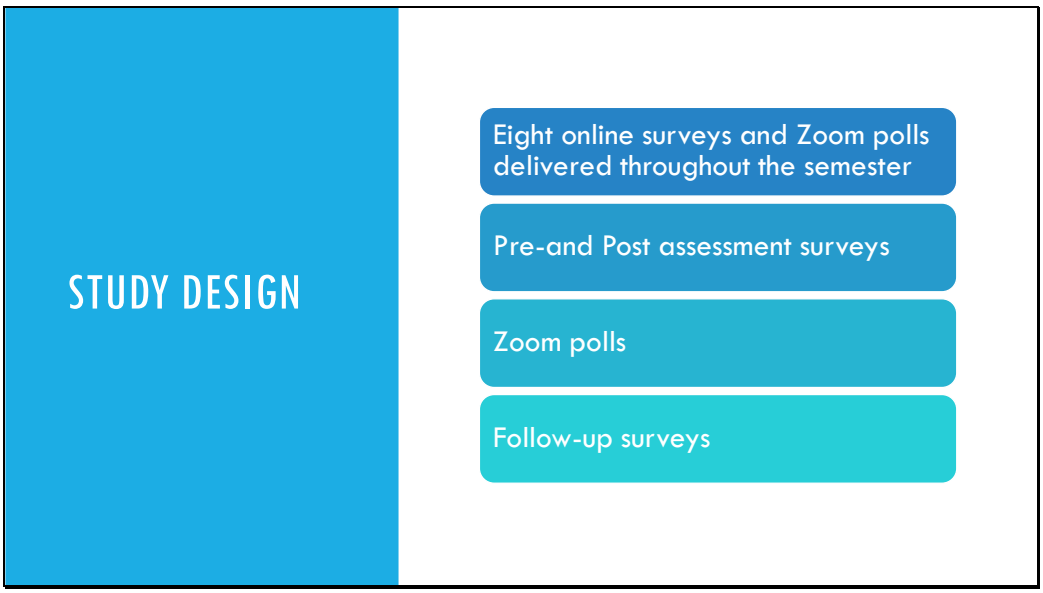

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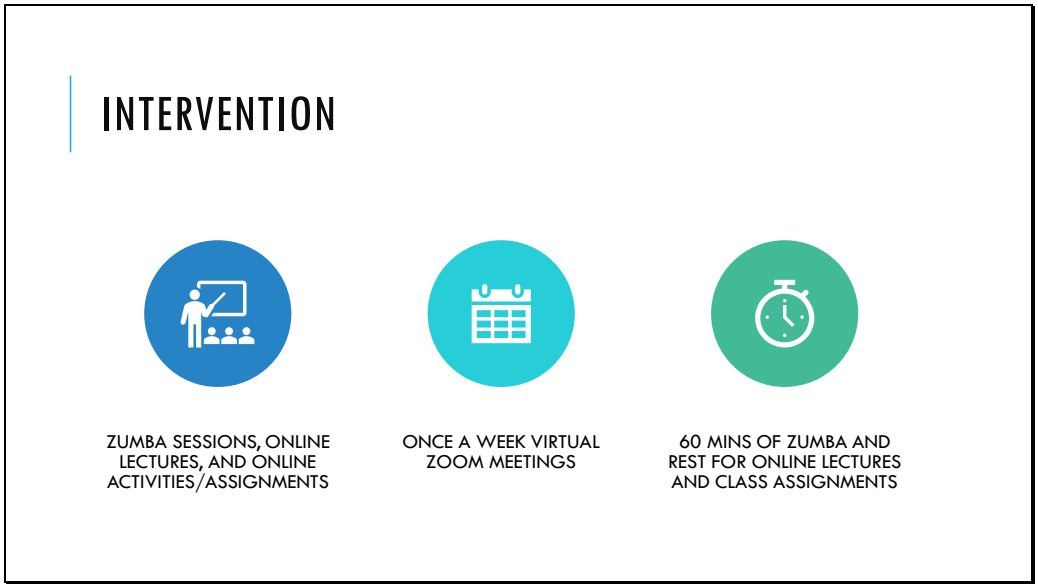

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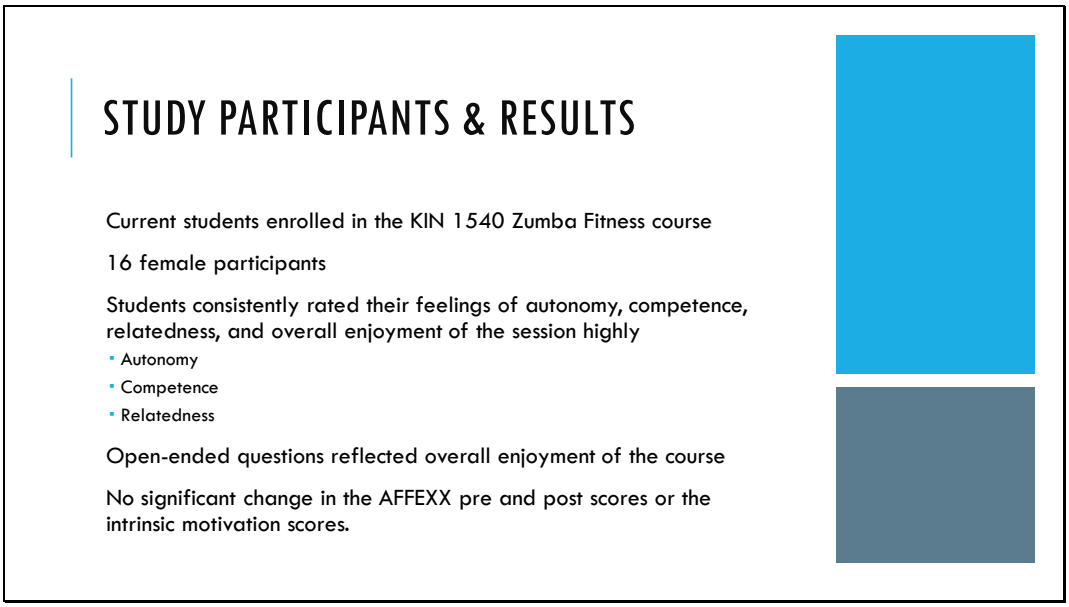

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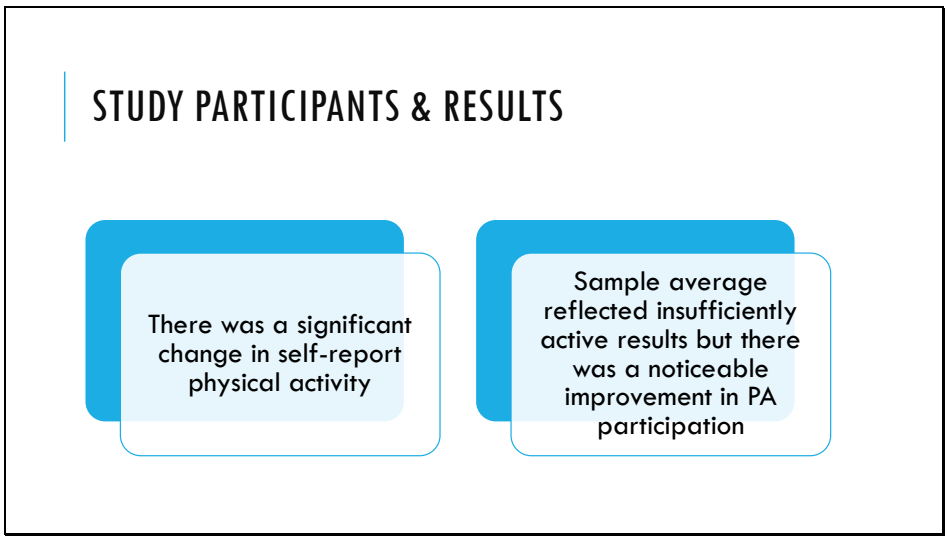
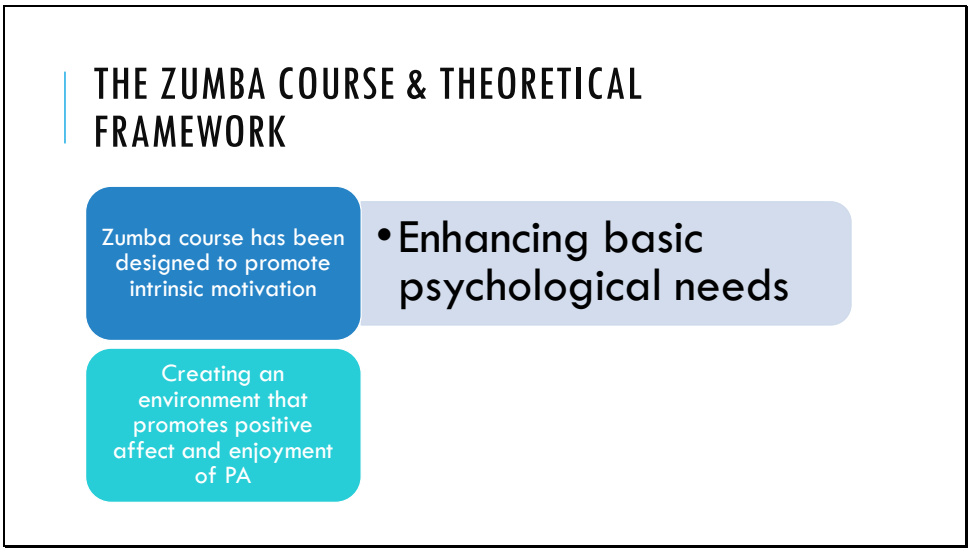


Slide 8



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Components	Objectives	Strategies
Self-determined motivation: Autonomy	Encourage independence and individual choice for exercise behavior.	• Aerobic and diet log assignment. • Choose a manageable pace during the Zumba exercise portion.
Self-determined motivation: Competence	Develop new physical activity skills.	• Easy-to-follow steps with modifications that are repeated over time. • Have fun and keep on moving! • Build mastery through repetition
	Educate students on practical goal setting and assess their aerobic fitness capacity.	• SMART goal strategies & aerobic fitness assessments • Pre and Post assessments and SMART goals • Online lectures on basic concepts related to nutrition, fitness, and cardiorespiratory exercise, & leading a healthy lifestyle.
Self-determined motivation: Relatedness	Encourage social support and a sense of community to increase self-determined motivation.	• Online discussions to educate on fitness concepts and promote interaction among students. • Dance demonstration & sense of community
Positive affect	Encourage positive experiences that trigger positive emotional reactions.	• Zumba is all about having fun! • Upbeat & energetic music. • Fostering an inclusive & welcoming community • Interval training class. • Pacing & water breaks as needed

COURSE COMPONENTS

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APPLICATION TO OTHER PA COURSES

FIRST, SHARE RESULTS WITH OTHER PA FACULTY

SECOND, PA CURRICULUM TO BE REVIEWED WITH THE GOAL TO CREATE A CONSENSUS OF CORE ACTIVITIES & ASSIGNMENTS

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CURRICULUM SUGGESTIONS

COMPONENTS	OBJECTIVES	STRATEGIES THAT INSTRUCTORS WOULD USE
Self-determined motivation: Autonomy	Encourage independence and individual choice for exercise behavior.	• Design an assignment that encourages students to exercise on their own and choose an activity that they enjoy. • Encourage students to choose a manageable pace while exercising in their classes.
Self-determined motivation: Competence	Develop new physical activity skills & educate students on basic health and fitness concepts, SMART goal setting, and fitness assessments	• Easy-to-follow exercises and activities • Provide modifications that are repeated over time. • While exercising, encourage a fun environment and encourage students to take breaks as needed.
		• Educate students on SMART goal strategies & the importance of fitness assessments • Include Pre and Post assessments and SMART goals as part of the assignments • Provide educational and practical lectures on basic concepts related to nutrition, fitness, benefits of exercise, & leading a healthy lifestyle. Content should be simple and easy to grasp.
Self-determined motivation: Relatedness	Encourage social support and a sense of community to increase self-determined motivation.	• Include online discussions or in-class discussions to educate on fitness concepts and promote interaction among students.
Positive affect	Encourage positive experiences that trigger positive emotional reactions.	• Encourage a fun environment! • Use upbeat & energetic music. • Foster an inclusive & welcoming community where everyone feels free to share opinions and ask questions. • Encourage pacing & water breaks as needed

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APPLICATION TO OTHER PA COURSES & CONCLUSION

Third, offer an educational lecture for other PA faculty

Big step, but our students deserve it!

We can make a difference in their lives and provide them with knowledge and skills to use throughout their lives

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