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The Influence of Instructional Design on Physical Activity Motivation

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Abstract

Background: Effective instructional approaches include understanding students and creating classroom environment that enrich students' motivation to learn or behave in specific ways. Using interest and self-determination theories, the purpose of this study was to investigate situational interest and basic psychological needs among college students enrolled in health and kinesiology lab courses.

Methods: This was quasi-experimental study carried out on 256 undergraduate students. Two groups (team and individual task) participated in assigned tasks. At the end of the task, participants responded to situational interest (24 items) and basic psychological needs (15-items) questionnaires. IBM SPSS version 26 statistical software was used for data analysis. Tests conducted were Cronbach's alpha reliability, descriptive, and inferential statistics (Pearson correlation, analysis of variance (ANOVA), and multiple regression).

Results: Situational interest is correlated with autonomy, competence, and relatedness. In comparison to individual tasks, participants in team tasks reported significantly higher situational interest. There was no significant difference in situational interest between male and female participants. Five indicators (novelty, exploration intention, attention demand, instant enjoyment, and optimal challenge) predicted significant amount of variance in overall situational interest ($F(4, 251) = 186.58, p < .001, R^2 = .75$). Instant enjoyment was leading predictor of overall situational interest. Instant enjoyment does not mediate relationship between indicators and overall situational interest.

Conclusion: Educators should be aware of the effect of pedagogy on student motivation. Instructional approaches that elicit situational interest, task design, and basic psychological needs satisfaction help create motivation and increases engagement.

Key words: Situational interest, pedagogies, educators, task design, psychological needs

Introduction

There is mounting evidence that college students are at higher risk of sedentary lifestyle. More often, decline in physical activity (PA) engagement has been associated with a motivation (Burcin et al., 2019). For that reason, situational interest and basic psychological needs are important motivational approaches associated with engagement. Researchers have broadly discussed the concept of situational interest as a motivation state that emerges from individual-task interaction in PA context (Zhu & Chen, 2019; Ding et al., 2013). These studies have explored six indicators of situational interest and its relationship to students participating in individual and team tasks. The six indicators of situational interest are novelty, attention demand, exploration intention, optimal challenge, instant enjoyment, and overall situational interest. Besides, it has also been hypothesized that the high correlation between instant enjoyment and situational interest might suggest that instant enjoyment is a mediator between situational interest and other indicators (Chen, 2001).

Findings of association between gender and situational interest are mixed. For instance, researchers identified a link between task and gender (Shen et al., 2003). Accordingly, girls reported higher situational interest in dance task. While controlling for task skills, scientists (Chen & Darts, 2002) have demonstrated a significant difference in situational interest, with boys reporting higher levels.

Further, there are positive links between situational interest and gender, with male college students engaged in PA task reporting higher levels of situational interest (Mir & Shrivastava, 2019). In contrast, other scientists exploring situational interest have reported insignificant difference in gender. In a mixed methods study with college students enrolled in PA courses, Otundo and McGregor (2019) reported statistically insignificant relationship between gender and PA. Nevertheless, there are researchers whose findings point to insignificant relationship between situational interest and gender. Recently, scientists (McGovern et al., 2019) could not establish statistically significant relationship between situational interest and gender. Even though there is association between situational interest and task design, examination of the role of gender seems insignificant (Huang & Gao, 2013). Task design forms the core of situational interest. In other words, the extent to which situational interest is triggered and maintained is dependent on course design and pedagogical approaches used by course instructors (Curran & Standage, 2017).

Scientists have also explored relationship between instant enjoyment and other indicators of situational interest. In a study exploring enjoyment in active dance task, it was revealed that intrinsic motivation is a predictor of instant enjoyment (Gao et al., 2013). That is, students that are intrinsically motivated are likely to experience enjoyment. Evidence points to instant enjoyment as a mediator in the relationship between the other indicators and overall situational interest¹³.

Theory informing this study

Interest theory was selected for this study as it aligns with research purpose, which is investigating association between pedagogy, motivation, and engagement in PA setting. Even though proponents of interest theory categorize interest into personal and situational (Roure & Pasco, 2018), this research focuses on the latter. To that end, situational interest is a temporary motivation that emerges from temporary person-task interaction between (Krapp, 1999). Primarily, situational interest is a construct that is solely established and maintained by the instructor³ via pedagogical knowledge and application. Thus, the extent to which situational interest resonates in learning environment is under the control of the course instructors. Because of this, it is no surprise tasks performed in-group and team setting is associated with increased engagement (Ding et al., 2013; Rotgans & Schmidt, 2011). In addition, evidence points to significant association between a supportive environment with situational interest and engagement (Mouratidis et al., 2011). Even though scientists point to six indicators of situational interest, a study with students enrolled in physical education established instant enjoyment as a mediator between individual indicators and overall situational interest (Roure & Pasco, 2018).

In the meantime, it has been hypothesized that basic psychological needs (BPN) has positive effect on situational interest. Recently, other scientists have linked BPN support to situational interest. For instance, it has been suggested that teaching strategies that support BPN are more likely to help establish and sustain situational interest (Ryan & Deci, 2017). According to BPN theory, there are three needs that must be met to achieve self-determined motivation: autonomy, competence, and relatedness (Costa et al., 2017). Autonomy is the need to experience behavior as emerging from within, competence is the innate belief to master tasks, and relatedness is the desire to create close bonds with significant others (Curran & Standage, 2017). Also, situational interest is higher among students reporting higher perceived autonomous need (Mouratidis et al., 2011).

In summary, literature points to six indicators of situational interest (instant enjoyment, exploration intention, attention demand, novelty, optimal challenge, and overall situational interest). Situational interest is linked to task design. In the meantime, instant enjoyment might be a mediator in the relationship between each indicator of situational interest with overall situational interest. Based on above literature, this study investigated relationship between situational interest, task design, and BPN in PA setting.

The present Study

Using interest theory, the purpose of this study was to explore the relationship between overall situational interest and BPN. Secondly, the study investigated indicators of situational interest. Thirdly, this study investigated situational interest in the context of gender and task design. Finally, researchers explored mediation effect of instant enjoyment in the relationship between indicators of situational interest and overall situational interest.

It was hypothesized that there is relationship between situational interest and BPN. Secondly, it is hypothesized that there six indicators of overall situational interest. Thirdly, gender has effect on situational interest. Fourthly, participants in team task will report higher situational interest than individual task. Finally, instant enjoyment is a mediator between five indicators and overall situational interest.

Materials and Methods

Study population and sampling

This was a quasi-experimental study examining impact of task design on motivation. A convenience sample ($N = 256$) was selected from students enrolled in kinesiology lab (physical activity) courses at a four year-college in Southeastern United Sates. Sample comprised 37.5% male and 62.5% female. The average age was 21.37 ($SD = 4.752$). Majority of the participants were Caucasian (77%) and female (63%).

2.1. Research Design

Measures

Situational interest was measured with a 24-item questionnaire (Chen et al, 1999).An example of item that measures “situational interest” states: “This activity is complicated.” Basic psychological needs were measured using three sub-scales: 6-item Autonomy support scale(Standage et al., 2006);4-item Competence scale(Standage et al., 2005); and 5-item Relatedness scale(Standage et lal., 2005). Surveys were modified to test for PA. For instance, the term ‘teacher’ was replaced with ‘instructor’. ‘Physical education’ was replaced with ‘activity.’ An example of item measuring “autonomy support” is “I felt that the instructor provided me with choices and options.” An item measuring competence is “The instructor made me feel like I was able to do the activity in class.” Finally, an example of item measuring relatedness states: “The instructor encouraged me to work with other students.” All items were measured on 5-point Likert-scale. Range was from (1) very untrue to (5) very true.

Procedures

Institution Review board at the research university granted permission to conduct this study. The survey research was conducted at a four-year university. Participants were informed about the study and those who consented participated in the study. This was a quasi- experimental design. Researchers established two groups (team task and individual task). Participants were purposively placed in either individual or team task, depending on the courses they were enrolled. Individual task group had swimming, water aerobics, and martial arts. Team task group comprised weightlifting, tennis, and walking. After signing consent form, each participant was asked to participate in the assigned interventional task. Data were collected via questionnaires that were administered at the end of the tasks. Participants took approximately 15 minutes to respond to the surveys.

Data analysis

A power analysis, using the G-power computer program (Faul et al., 2007), indicated that for multiple regression, a total sample of 89 participants would be needed to detect large effects ($d=.95$) with 95% power and alpha at .05. A sample of 256 participants in this study is above the recommended number. SPSS 26 software (IBM, 2019) was used for statistical data analysis. Questionnaires used for data collection were examined for reliability using Cronbach’s alpha (Cronbach, 1951)internal consistency approach. reforming reliability test ensures that the scores are consistent(Tavakol et al., 2011). Situational interest scale had Cronbach’s alpha $\alpha = .92$. BPN scale internal reliability output is presented in Table 1. Measurement scales were internally reliable. To address hypothesis, Pearson Correlation, Analysis of Variance (ANOVA), and Multiple Regression inferential statistics were conducted.

Table 1 Cronbach’s alpha results

Scale	Cronbach's Alpha	N of Items
Autonomy Support	.863	6
Competence Support	.901	4
Relatedness Support	.921	5

Results

Descriptive Results

Descriptive results show that 39% of the participants engaged in team tasks whereas 61% engaged in individual tasks. Mean score for the indicators of situational interest is reported in Table 2. The scale is 1-5 (1 being the least and five being the highest).

Table 2 Mean score for indicators of situational interest

	Mean	Std. Deviation	N
OSI	4.2422	.66121	256
Enj	4.2676	.62676	256
Opt	2.9336	1.05927	256
Exp	4.2090	.66663	256
Nov	3.3958	.96109	256
Att	4.2090	.66663	256

Note: OSI=Overall situational interest; Enj= instant enjoyment; Opt=optimal challenge; Exp=exploration intention; Nov=Novelty; Att=attention demand.

Pearson's Correlation

Two correlation tests were done to determine association between situational interest and BPN. Results revealed moderate correlation between overall situational interest and autonomy ($r = .413$), competence ($r = .416$), and Relatedness ($r = .438$). Second correlation results (Table 3) established association between overall situational interest and each indicator. Highest correlation is between overall situational interest and instant enjoyment ($r = .843$), whereas the least correlation is between overall situational interest and optimal challenge ($r = .274$).

Table 3 Correlation among indicators of situational interest

		Overall SI	Instant Enj	Opt Chall	Ex Intent	Novelty	Att Demand
Pearson Correlation	Overall SI	1.000	.843	.274	.641	.436	.641
	InstantEnj	.843	1.000	.159	.626	.353	.626
	Opt Chall	.274	.159	1.000	.267	.582	.267
	Ex Intent	.641	.626	.267	1.000	.385	1.000
	Novelty	.436	.353	.582	.385	1.000	.385
	AttDemand	.641	.626	.267	1.000	.385	1.000

ANOVA Results

Prior to conducting ANOVA analysis, a Levene test revealed that the assumption of homogeneity of variance was met, $p = .31$. ANOVA test was carried out and the results are in Table 4. Overall situational interest in individual task ($N = 157$) had a mean of 4.1 ($SD = 0.7$) and the team task ($N = 95$) had a mean of 4.4 ($SD = 0.5$).

Table 4 ANOVA results

		Sum of Squares	df	Mean Square	F	Sig.
Situational Interest	Between Groups	4.362	1	4.362	10.342	.001
	Within Groups	107.123	254	.422		
	Total	111.484	255			
Instant Enjoyment	Between Groups	2.088	1	2.088	5.408	.021
	Within Groups	98.083	254	.386		
	Total	100.171	255			

A One-way ANOVA showed task design has statistically significant effect on situational interest $F(1, 254) = 10.34$, $P = 0.001$. Participants reported higher situational interest in team tasks ($M = 4.41$, $SD = .555$) than individual tasks ($M = 4.14$, $SD = .702$). In addition, a one-way analysis of variance (ANOVA) was conducted on participants' perceived instant enjoyment based on type of task. The analysis was statistically significant, $F(1, 254) = 5.41$, $p = .02$. Participants reported higher instant enjoyment in team tasks ($M = 4.38$, $SD = .622$) than individual tasks ($M = 4.22$, $SD = .621$).

Multiple Regression

A simple linear regression was calculated to predict overall interest based on 5 indicators of situational interest. Results of the multiple linear regression (Table 5) indicated a collective significant effect of instant enjoyment, attention demand, exploration intention, novelty, and overall interest ($F(4, 251) = 186.58, p < .001, R^2 = .75$).

Table 5 Multiple regression results

Model	R	R Square	Change Statistics				Sig. Change	F	
			Adjusted Square	R Std. Error of the Estimate	Square Change	F Change			df1
1	.865 ^a	.748	.744	.33434	.748	186.579	4	251	.000

Notes: Predictors are Attention demand, challenge, instant enjoyment, novelty, exploration intention

Individual predictors were further examined. With the exception of optimal challenge ($p < .07$), the rest of the predictors were statistically significant predictors in the model: Novelty ($t = 7.72, p = .001$); Exploration Intention ($t = 7.70, p = .001$); Attention Demand ($t = 7.70, p = 0.001$); Optimal Challenge ($t = 31.85, p = 0.001$); and Instant Enjoyment ($t = 2.92, p = 0.001$).

Lastly, two subsequent regression tests were conducted to test for mediation effect. Hence, analysis of mediation effect of enjoyment was done with each predictor and instant enjoyment added in subsequent models. Results revealed that enjoyment is not a mediator in all the subsequent regression results. Specifically, the initial predictor remained statistically significant even after adding instant enjoyment. Table 6 shows the results for mediation effect.

Table 6 Regression model with single predictor

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.566	.204		7.695	.000
	AD	.636	.048	.641	13.309	.000
2	(Constant)	.196	.159		1.231	.219
	AD	.185	.041	.187	4.469	.000
	Enj	.765	.044	.726	17.358	.000

Note: Independent variables: AD = Attention demand; Enj = Instant enjoyment. Dependent Variable: overall situational interest

Discussion

The purpose of this study was fourfold. First, it examined the association between overall situational interest and BPN. Secondly, the study investigated effect of gender on situational interest. Thirdly, the study explored prediction of overall situational interest from five indicators. Finally, researchers investigated instant enjoyment as a mediator of the relationship between indicators of situational interest and overall situational interest.

In response to hypothesis one, present data found significant association between BPN and overall situational interest. Our findings support Krapp's (1999) hypothesis of potential link between BPN and situational interest. Likewise, situational interest is directly influenced by learning environment that support autonomy, competence, and relatedness. Specifically, numerous researchers show how students provided with autonomy report higher amounts of perceived situational interest (Ding et al., 2013; Rotgans & Schmidt, 2011; Mouratidis et al., 2013; Ryan & Deci, 2017). However, it is worth knowing that situational interest is solely in the hands of the instructor. By the same token, evidence indicate significant effect of social support on PA (Zhu & Chen, 2017). Therefore, when instructors create learning environment that support autonomy, competence, and relatedness, it is likely to trigger and maintain situational interest.

Findings from this study partially support hypothesis 2. Results support previous studies that point to six indicators of situational interest (Chen et al., 2019). Despite the fact indicators collectively predicting overall situational interest, individual regression tests found novelty to be insignificant. In this sample, it is evident "instant enjoyment" is the single most leading predictor of overall situational interest.

In the same token, these results back other findings showing insignificant relationship between situational interest and some of the indicators (Otundo JO, MacGregor, 2019). Contrary to hypothesis 3, this study did not establish significant relationship between situational interest and gender. Research findings on the connection between situational interest and gender have provided mixed results. For instance, scientists have shown gender difference in situational interest (Mir & Shrivastava, 2019). At least one study revealed that boys report higher amounts of situational interest than girls (Zhu et al., 2014). Notwithstanding, other studies have shown no connection between gender and PA motivation (Rintaugu & Ngetich, 2012). To that end, these results suggest that there are other factors that may be impacting situational interest other than gender. As observed in other studies, social factors such as autonomy support might play a role (Zamarripa et al., 2020). As revealed in this study, task design is among factors that impact situational interest.

Results from ANOVA analysis support hypothesis 4 by showing link between situational interest and task design. Outcomes further affirm one of the tenets of interest theory that situational interest is fully determined by the task type and design (Chen & Darst, 2002). A possible explanation for these findings is related to the role played by instructors in selection and designing of course tasks. In a study examining situational interest, (Rotgans & Schmidt, 2011) researchers found association between teamwork and situational interest. Seemingly task designs that encompass team activities triggers situational interest. Scientists posit that students are more engaged when teachers customize the learning environment to capture learners' individual interests, learning abilities, and room for exploration (Chepsiror, 2018). Hence, participants are motivated to towards PA engagement. In this study, individual tasks had lower scores than team tasks. For example, students that engaged in doubles tennis task might have experiences higher situational interest than students that engaged in jogging. In addition, students are likely to report higher amounts situational with instant feedback, whether from peers or course instructor.

Findings from this study support recent studies showing positive relationship between situational interest and instant enjoyment (Roure & Pasco, 2018). Nevertheless, results contrast hypothesis 5. Results from this study found insignificant relationship, suggesting that instant enjoyment does not mediate the association between overall situational interest and other indicators. Therefore, from our findings the indirect relationships between indicators and overall situational interest does not exist. Notwithstanding, the strong association between instant enjoyment and situational interest suggests that there could be a point of convergence.

Based on study results, there are several recommendations that are relevant to health and kinesiology educators, sports coaches, and researchers in several ways. First, it is suggested that health & kinesiology faculty should use pedagogical content knowledge to promote situational interest. Bearing in mind that participants in this study are Health and Kinesiology majors, educating them on pedagogical content knowledge is important. Among the issues to be taught are content mastery and how to impart knowledge in a way that elicit situational interest.

Secondly, it is recommended that educators incorporate autonomy in a broader sense. This can be achieved by establishing learning environment that encourages and supports students to participate in decision making. To illustrate, course topic or tasks can be built on students' prior knowledge. Also, instructors can provide optional tasks and design group tasks. Critically, autonomy motivation and situational interest should be engrained health and kinesiology undergraduate training and education (Behzadnia et al., 2018; Maldonado, 2019).

Competence is an important BNP nutriment to be incorporated in professional development for educators. Competence mediates task goal orientation and intention to engage in PA (Li et al., 2011). To enhance skill competence, instructors should be pedagogically competent. Science shows that teachers' pedagogical knowledge, skills, and motivation predict professional wellbeing and attainment (Lauermaann et al., 2016). Thus, competent instructors can convey knowledge and skills in a way that students can understand, remember, and apply. Therefore, it is recommended that health and kinesiology educators learn and utilize teaching strategies that motivate and boost student engagement. On the contrary, any form of pedagogy that result into loss of interest should be eliminated.

Likewise, it is recommended that educators use pedagogies that support content and task mastery. With evidence pointing to association between competence and confidence, enjoyment, and situational interest, it is advisable for educators to design courses in a way to promote skill mastery.

Recent study revealed connection between competence, situational interest, and PA engagement (Ryan & Deci, 2017). Thus, it is important to identify the specific characteristics of task design that structure the learning environment to instill competences among students. Even more, a student may develop competence in physical exercises by being allowed to take carry portable exercise equipment home (Escalié et al., 2019).

It is recommended that educators establish learning environment that upholds relatedness. Educators may encourage interpersonal connection among students, respect by and for others, and a feeling of belonging to the team. Students be provided with opportunities to interact with the teachers and be a part of team activities. Moreover, educators should pursue ways to understand students' levels of satisfaction and frustrations. Scientist have shown that integration of BPN in educators' professional development is associated with increase in student confidence (Ryan & Deci, 2017; Escalié et al., 2017). In summary, it is recommended that situational interest and BPN be incorporated in health and kinesiology curriculum at college level.

Based on results from this study, it is recommended that sports coaches develop coaching and training environment that support situational interest and BPN. For instance, coaches are encouraged to upgrade their knowledge and bring up new strategies (novelty). Also, sports coaches should ensure players master specific technique (competence) before being tested. In addition, it is suggested that sports coaches provide options (autonomy) to athletes and encourage teamwork (relatedness).

Finally, study findings provide researchers with a framework to understand and explore impact of pedagogy on motivation in PA setting. Results affirm that there is connection between situational interest and BPN. To that end, further studies might pursue the complex relationship between interest and BPN. Thus, it is recommended that further studies be done to determine how BPN impacts situational interest as a form of motivation.

Limitations

This study had several strengths and limitations. First, use of intervention helped evaluate the direct impact of task design on situational interest. Secondly, this has more external validity and is generalizable to other populations with similar characteristics. Also, this study has large sample size. Having a large sample size ensured large power effect, use applicability of appropriate statistical methods such as multiple regression, and inference of the results.

Nevertheless, being a quasi-experimental study, it limits the ability to conclude a causal association between an intervention and an outcome. However, this design is utilized in studies whereby it is not logistically feasible to conduct randomized control trial. In this study, participants were students enrolled in specific kinesiology courses and thus not logical and ethical to randomly assign them to courses they are not enrolled.

Conclusion

Motivation directs behavior towards specific goal, and it increases initiation, engagement, and persistence. This study has identified situational interest and BPN as the main source of motivation among participants in this study. Secondly, this study confirmed five predictors of overall situational interest, namely: attention demand; exploration intention; instant enjoyment; novelty; and optimal challenge. It is likely that teaching pedagogies that support five predictors and BPN enhances students' motivation. The present research also provides more support for task selection and design in the teaching context. Accordingly, creating and encouraging team tasks is effective for situational interest, which in turn increase students' motivation and engagement. Therefore, educators with relevant pedagogical knowledge and skills are likely utilize aspects of the immediate learning environment enhance motivation.

Without doubt, future research is needed on other ways to increase motivation. More specifically, it is recommended experimental study be done to determine how task design affects engagement. Further research that considers teaching experience and qualifications could lead to understanding of any difference emerging from qualifications. In summary, researchers posit that findings from this study increases understanding of relationship between pedagogy and student motivation in PA setting.

Authors' contributions

JOO designed the study, collected data, analyzed data, and contributed to drafting the manuscript; BP contributed to interpretation of results, and significantly contributed to drafting of the manuscript. All authors have read and approved the final version of the manuscript and agree with the order of presentation of the authors.

Competing interests

The authors have no competing interests.

References

- [1] Behzadnia, B., Adachi, P. J., Deci, E. L., & Mohammadzadeh, H. (2018). Associations between students' perceptions of physical education teachers' interpersonal styles and students' wellness, knowledge, performance, and intentions to persist at physical activity: A self-determination theory approach. *Psychology of Sport and Exercise, 39*, 10-19.
- [2] Burcin, M. M., Armstrong, S. N., Early, J. O., & Godwin, H. (2019). Optimizing college health promotion in the digital age: Comparing perceived well-being, and health behaviors, health education needs and preferences between college students enrolled in fully online versus campus-based programs. *Health promotion perspectives, 9*(4), 270-278.
- [3] Chen, A., Darst, P. W., & Pangrazi, R. P. (1999). What constitutes situational interest? Validating a construct in physical education. *Measurement in physical education and exercise science, 3*(3), 157-180.
- [4] Chen, A. (2001). A theoretical conceptualization for motivation research in physical education: An integrated perspective. *Quest, 53*(1), 35-58.
- [5] Chen, A., & Darst, P. W. (2002). Individual and situational interest: The role of gender and skill. *Contemporary Educational Psychology, 27*(2), 250-269.
- [6] Chen, S., Sun, H., Zhu, X., Chen, A., & Ennis, C. D. (2019). Learners' motivational response to the Science, PE, & Me! curriculum: A situational interest perspective. *Journal of Sport and Health Science*. doi.org/10.1016/j.jshs.2019.11.001
- [7] Costa, L. C. A. D., Maroco, J., & Vieira, L. F. (2017). Validation of the basic psychological needs in exercise scale (BPNES). *Journal of physical Education, 28*.
- [8] Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *psychometrika, 16*(3), 297-334.
- [9] Curran, T., & Standage, M. (2017). Psychological needs and the quality of student engagement in physical education: Teachers as key facilitators. *Journal of Teaching in Physical Education, 36*(3), 262-276.
- [10] Ding, H., Sun, H., & Chen, A. (2013). Impact of expectancy-value and situational interest motivation specificity on physical education outcomes. *Journal of Teaching in Physical Education, 32*(3), 253-269.
- [11] Escalié, G., Recoules, N., Chaliès, S., & Legrain, P. (2019). Helping students build competences in physical education: theoretical proposals and illustrations. *Sport, Education and Society, 24*(4), 390-403.
- [12] Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods, 39*(2), 175-191.
- [13] Gao, Z., Podlog, L., & Huang, C. (2013). Associations among children's situational motivation, physical activity participation, and enjoyment in an active dance video game. *Journal of Sport and Health Science, 2*(2), 122-128.
- [14] Huang, C., & Gao, Z. (2013). Associations between students' situational interest, mastery experiences, and physical activity levels in an interactive dance game. *Psychology, health & medicine, 18*(2), 233-241.
- [15] Lauermaun, F., & König, J. (2016). Teachers' professional competence and wellbeing: Understanding the links between general pedagogical knowledge, self-efficacy and burnout. *Learning and Instruction, 45*, 9-19.
- [16] Li, W., Shen, B., Rukavina, P. B., & Sun, H. (2011). Effect of perceived sport competence on intentions to exercise among adolescents: Mediating or moderating?. *Journal of Sport Behavior, 34*(2), 160-174.

- [17] Krapp, A. (1999). Interest, motivation and learning: An educational-psychological perspective. *European journal of psychology of education, 14*(1), 23-40.
- [18] IBM Corp. Released 2019. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp.
- [19] Maldonado, E., Zamarripa, J., Ruiz-Juan, F., Pacheco, R., & Delgado, M. (2019). Teacher autonomy support in physical education classes as a predictor of motivation and concentration in Mexican students. *Frontiers in Psychology, 10*, 2834.
- [20] McGovern, J., Drewson, S. R., Hope, A., & Konopack, J. F. (2020). Gender differences in a youth physical activity intervention: Movement levels and children's perceptions. *American Journal of Health Education, 51*(2), 109-119.
- [23] Mir, M. S., & Shrivastava, Y. (2019). Comparative study of attitude and interest of junior college boys and girls towards physical education. *International Journal of physiology, Nutrition, and physical Education, 4*(1): 1170-1172.
- [24] Mouratidis, A. A., Vansteenkiste, M., Sideridis, G., & Lens, W. (2011). Vitality and interest-enjoyment as a function of class-to-class variation in need-supportive teaching and pupils' autonomous motivation. *Journal of Educational Psychology, 103*(2), 353-366. doi.org/10.3389/fpsyg.2019.02834.
- [25] Otundo, J. O., & MacGregor, S. K. (2019). Effect of Situational Interest and Social Support on College Students' Physical Activity Motivation: A Mixed Methods Analysis. *Physical Educator, 76*(2), 502-523.
- [26] Philomena, D. C. (2018). The occupied child and engaged teaching: Environmental qualities supporting emergent reading in Kenya. *International Journal of Education and Research, 6*(1), 87-100.
- [27] Rintaugu, E.G., & Ngetich, E.D.K. (2012). Motivational gender differences in sport and exercise participation among university sport science students. *Journal of Physical Education and Sport, 12*(2), 180-187.
- [28] Rotgans, J. I., & Schmidt, H. G. (2011a). The role of teachers in facilitating situational interest in an active-learning classroom. *Teaching and Teacher Education, 27*(1), 37-42.
- [29] Rotgans, J. I., & Schmidt, H. G. (2011b). Situational interest and academic achievement in the active-learning classroom. *Learning and Instruction, 21*(1), 58-67.
- [30] Roure, C., & Pasco, D. (2018). Exploring situational interest sources in the French physical education context. *European Physical Education Review, 24*(1), 3-20.
- [31] Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications.
- [32] Shen, B., Chen, A., Tolley, H., & Scrabis, K. A. (2003). Gender and interest-based motivation in learning dance. *Journal of teaching in physical education, 22*(4), 396-409.
- [33] Standage, M., Duda, J. L., & Ntoumanis, N. (2005). A test of self-determination theory in school physical education. *British Journal of Educational Psychology, 75*(3), 411-433.
- [34] Standage, M., Duda, J. L., & Ntoumanis, N. (2006). Students' motivational processes and their relationship to teacher ratings in school physical education: A self-determination theory approach. *Research quarterly for exercise and sport, 77*(1), 100-110.
- [35] Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education, 2*, 53-55.
- [36] Zamarripa, J., Rodríguez-Medellín, R., Pérez-García, J. A., Otero-Saborido, F., & Delgado, M. (2020). Mexican basic psychological need satisfaction and frustration scale in physical education. *Frontiers in Psychology, 11*, 1-8. doi: 3389/fpsyg.2020.00253.
- [37] Zhu, X., & Chen, S. (2017). Effects of cognitive demand on situational interest and running task performances. *Educational Psychology, 37*(7), 907-920.
- [38] Zhu, X., Chen, S., & Parrott, J. (2014). Adolescents' interest and performances in aerobic fitness testing. *Journal of Teaching in Physical Education, 33*(1), 53-67.