Check for updates

DOI: https://doi.org/10.34069/AI/2024.79.07.1

How to Cite:
Can, H.C., Türksoy Işım, A., & Kalaycı Alas, D. (2024). Does blended learning enhance the academic motivation levels of physical education and sports pre-service teachers? A quasi-experimental study. *Amazonia Investiga*, *13*(79), 9-20. https://doi.org/10.34069/AI/2024.79.07.1

Does blended learning enhance the academic motivation levels of physical education and sports pre-service teachers? A quasi-experimental study

Harmanlanmış Öğrenme Beden Eğitimi ve Spor Öğretmen Adaylarının Akademik Motivasyon Düzeylerini Değiştirebilir mi? Yarı Deneysel Bir Çalışma

Received: June 15, 2024 Accepted: July 29, 2024

Written by:
Hasan Ceyhun Can[1]
https://orcid.org/0000-0001-7000-9172
Ayşe Türksoy Işım[2]
https://orcid.org/0000-0001-9189-9645
Dilan Kalaycı Alas[3]
https://orcid.org/0000-0002-2778-754X

Abstract

This study investigated the impact of a blended learning intervention on the academic motivation of pre-service physical education teachers. A quasi-experimental design with pre-test and post-test measures was employed. The Academic Motivation Scale (AMS) was used to assess intrinsic motivation, extrinsic motivation, and amotivation. Results showed that the blended learning group experienced a significant increase in intrinsic motivation compared to the control group. No significant differences were found in extrinsic motivation or amotivation between the groups. The findings suggest that blended learning can enhance intrinsic motivation in pre-service physical education teachers, highlighting its potential for improving teacher education programs.

Keywords: Academic motivation, blended learning, physical education, teacher training, pre-service teachers.

Özet

Bu araştırmada karma öğrenme müdahale sürecinin beden eğitimi öğretmeni adaylarının akademik motivasyonu üzerindeki etkisi incelenmiştir. Ön test ve son test modeli ile birlikte yarı deneysel desen uygulanmıştır. İçsel motivasyon, dışsal motivasyon ve motivasyonsuzluk düzeylerini değerlendirmek için Akademik Motivasyon Ölçeği (AMS) kullanılmıştır. Sonuçlar, karma öğrenme grubunun kontrol grubuna kıyasla içsel motivasyonda önemli bir artış yaşadığını göstermiştir. Gruplar arasında dışsal motivasyon veya motivasyonsuzluk açısından anlamlı bir fark bulunmamıştır. Bulgular, karma öğrenmenin beden eğitimi öğretmeni adaylarının içsel motivasyonunu artırabileceğini, dolayısıyla öğretmen eğitim programlarının geliştirilmesinde potansiyel taşıdığını göstermektedir.

Anahtar Kelimeler: Akademik motivasyon, karma öğrenme, beden eğitimi, öğretmen eğitimi, öğretmen adayları.

Introduction

In this study, it was aimed to examine the effect of the instructional intervention process determined according to the blended learning approach on the academic motivations of physical education and sports

[1] Istanbul-Cerrahpasa University, Faculty of Sports Sciences, Istanbul, Turkey. WoS Researcher ID: AFH-3831-2022
[2] Istanbul-Cerrahpasa University, Faculty of Sports Sciences, Istanbul, Turkey. WoS Researcher ID: D-5031-2019
[3] Near East University, Atatürk Faculty of Education, Nicosia, Northern Cyprus. WoS Researcher ID: JCE-8216-2023

teachers. The level of influence of blended learning, which is a current issue, on the motivations of individuals in teacher education constitutes the problem statement.

The article structure starts with a literature search for the subject area. The literature review is followed by the concept of academic motivation, which is associated with blended learning within the article. The main purpose of the study is located right at the end of these subheadings. The method part of the research was discussed in detail with the titles of research design, participant knowledge, information and strategies for experiment design, data collection, data analysis and explanation of the application process. The article ends as the presentation, discussion and conclusion part of the findings.

The article is a research created with the focus on academic motivation and blended learning and carried out with a quasi-experimental method. Before starting the experimental intervention process, pre-tests were applied to the control and experimental groups determined, and then the intervention procedure was performed. There are two main sections in lesson planning for the experimental group participants: theoretical content, in which various teaching materials are transferred with the teaching management system, and practical content, which is transferred under the control of the instructor. After the end of the procedure, tests were applied. The data of the study conducted with 79 people were analyzed with SPSS 26 package program. The data obtained from the groups in which the semi-experimental design was applied show that blended learning affects intrinsic motivation. At the end of the research, suggestions were presented.

Literature Review

Learning is a process, and the biggest problem in this process is the lack of motivation of the students. Motivation associated with learning can be defined as the desire for movement during goal orientation. Motivation, which is the first and most important element for learning, determines the level of willingness of the learner. For this reason, the level of learning efforts of learners should be determined according to their motivation (Phann, Em & Tep, 2023). On the other hand, it is also seen as an additional concept that defines what is needed for learning to take place in learners (Gredler, 2017). Motivation is also defined as one's effort to fulfill his/her duties, devoting and maintaining the necessary effort (Çeliköz, 2010). Although motivation is given different names, their common point is that they encourage the person to take a certain action.

Motivation is functional when an individual is excited to satisfy a need or desire. The individual becomes a part of the actions that are perceived to have the possibility of meeting this need or desire, or he/she shows interest in such actions (Tan et al., 2003). Motivation indicates encouragement for the maintenance of a goal-oriented behavior; thus, pedagogues have also stated that it should be an educational goal followed by all education systems (Schunk, 2014; Krishan & Al-rsa'i, 2023). Education psychologists think that motivation of students is an indispensable necessity for effective learning to take place (Biehler & Snowman, 1986). The psychological impact of motivation on students is evaluated as steps that take one to concrete success as motivation is seen as an additional concept that complements the needs required for learning to be experienced by students (Gredler, 2017). The concept of motivation (Schukajlow et al., 2023), which we encounter in several different fields such as educational psychology, general psychology, language learning, and mathematics perception, has a place in pedagogy as well. From the perspective of pedagogy, students develop individual attitudes suitable for their learning behavior in the learning environment, which serves as a mechanism to decide whether he/she will participate in the learning process (Purnomo, Ratnawati & Aristin, 2017). A student with high motivation for learning organizes the learning process in a way to gain the behavior in question. Such a student tends to learn more and show higher exam success (Slavin, 2006).

There are studies such as academic motivation competencies of university students and physical education teachers (Alemdağ et al., 2014; Korkmazer, 2020), opinions about academic motivation among prospective teachers (Gömleksiz, & Serhatlıoğlu, 2014), academic motivation scale development (Karataş, & Erden, 2012), the relationship between academic achievement and academic motivation (Amrai et al., 2011); Sivrikaya, A. H. (2019) in the literature.

Academic Motivation

The driving force behind the learning motivation of students is academic motivation, which can be seen as the most fundamental characteristic needed for their development. Academic motivation is the impulse of a student that he/she uses to reach the academic environment that he/she set as a goal. It is a structure with multiple variables and sub-dimensions which allows for the student to learn a new thing and experience stimulation (Dierendonck et al., 2023). Academic motivation of students generally represents their primary driving force to begin learning. However, it also serves as the reason for continuing the lengthy and boring learning process (Ushioda, 2008). In this context, it is different from the concept of motivation in that it affects the learning process and the desire to reach academic tasks. Academic motivation is important because it positively affects students' approach to academic tasks, spending the necessary time and energy, and making enough effort to complete academic tasks, and is related to academic success (Lindner & Harris, 1998; Vanzile-Tamsen & Livingston, 1999).

Academic motivation includes the student feeling the urge to increase his/her school achievement and determining purposes for going to school; on the other hand, it is stated that it emerges on the basis of the need and desire to excel (Wilkesmann et al., 2012; Gupta & Mili, 2016). Academic motivation, which is accepted as the production and maintenance of the energy necessary for academic work, is associated with the achievement-oriented intrinsic desire. As it can be understood from here, the level of academic motivation and the level of success in the education process are interrelated.

Autonomy theory, which is used to better understand academic motivation, defines autonomy as the individual to be motivated and take responsibility by determining his/her goals and his/her priorities in order to reach these goals. Autonomy theory includes three types of motivations, namely intrinsic motivation, extrinsic motivation, and amotivation (Ryan & Deci, 2000). Intrinsic motivation is a natural motivational disposition, which involves doing something because it is enjoyed or found interesting. Here the reward for performing the activity is internal (Ryan & Moller, 2017). Extrinsic motivation, on the other hand, consists of consolidations or reinforcements that can be affected positively or negatively by other individuals, tools or factors, and that can reduce or increase the probability of the behavior being maintained or repeated (Hosseinalipour, 2015). To sum up, extrinsic motivation includes doing something for its results that can be reached, whereas intrinsic motivation is a kind of impulse, which is very important for pedagogues, as it leads to high quality learning and creativity. However, the effects of extrinsic motivation should not be overlooked, as many tasks required by educators from students are far from being interesting or enjoyable. Therefore, using teaching strategies that will activate extrinsic motivation types is necessary for effective learning (Ryan & Deci, 2000). The place of motivation in the academic realm and its effect on student success are undeniable, and the lack of motivation negatively affects academic success in particular. Amotivation refers to a situation where there is no intrinsic or extrinsic motivation, where the individual cannot grasp the relationship between current conditions and his/her behavior and does not want to take part in any activity. The state of being unmotivated refers to the state of not giving the necessary importance while performing any behavior and lack of self-confidence.

As regards the value of student academic motivation in education and learning environments, it has been argued that both intrinsic and extrinsic motivation of students can affect their academic performance positively (Froiland & Oros, 2014). In order to show the importance of motivation, reference is made to its positive effect on students' perseverance level. It has also been suggested that academic motivations can empower students to resist difficulties they may encounter in the learning process (Howard et al., 2021).

Studies conducted on motivation show that academic motivation is the basic predictor of academic performance and success (Green et al., 2006; Linnenbrink & Pintrich, 2002). In addition, it has been observed that it affects the maintenance of student participation in the learning process, their attitude towards the learning process, their performance, and academic success (Linnenbrink & Pintrich, 2002; Ratelle et al., 2007; Khalila, 2015; Cayubit, 2022). It has been argued that academically motivated students tend to perceive school and learning as valuable, enjoy learning, and take pleasure in learning-related activities (Eccles & Wigfield, 2002; Zimmerman, 2000; Zimmerman, 2008) whereas lack of motivation has been shown as the primary reason for student failure (Scheel et al., 2009; Wigfield et al., 2005).

Considering the impact of academic motivation on school achievement, it is essential that institutions find different ways of increasing student motivation (McCoach, 2002; Wang & Pomerantz, 2009). Findings of academic studies have shown that educators can affect student motivation (Ames, 1992; Perry et al., 2006;

Stipek, 2002; Wentzel, 2002; Wigfield, Eccles & Rodriguez, 1998). The people who directly affect students' sense of autonomy and academic performance are educators, namely teachers (Affuso et al., 2022). Therefore, increasing the academic motivation of the students can be associated with the teaching approaches used by educators.

Objective of the Study

It has been aimed to examine the impact of instructional intervention process determined according to blended learning approach on the academic motivation of physical education and sports pre-service teachers. The research question developed for this purpose is as follows:

To what extent does the instructional intervention process, which includes or excludes blended learning, affect the intrinsic motivation, extrinsic motivation and amotivation levels of physical education and sports pre-service teachers when their baseline scores, which is the common variable, are controlled?

Methods

Research Design

In the quantitative part of the research, the "quasi-experimental design" method was preferred among the experimental research designs. While applying the quasi-experimental method, pre-test / post-test models were used. In the quasi-experimental design used to represent what is possible (Patton, 2018), the pre-test provides a criterion for evaluating the qualifications of the participants before they are subjected to a process, whereas the post-test provides the measure of the qualification assessment of the participants after the process ends (Creswell, 2019). The symbolic representation of the quantitative phase of the research is given below.

Table 1.
Symbolic representation of the experimental intervention process.

Groups	Assignment	Pre-tests	Intervention	Post-tests
Experiment	E	AMS_1	X_1	AMS_2
Control	E	AMS_1	-	AMS_2

E: Matching AMS: Academic Motivation Scale X_1: Blended Learning

Participants

Participants of the study were physical education and sports pre-service teachers studying at a public university in Istanbul, Turkey, who volunteered to participate. The participants were informed about all the details of the study and the study was followed on a voluntary basis. Groups were determined using the matched participants method. This method was preferred as random assignments are not possible when determining groups in quasi-experimental studies (Creswell, 2014; Robson, 2015; Teddlie & Tashakkori, 2020). Gender distributions were taken into account while matching. It was concluded that the groups were at the same level before the experimental intervention and their distribution was homogeneous (p=.80). Control and experimental groups were determined by lot for the instructional intervention to be carried out after matching. A total of 79 people participated, 39 people in the control group and 40 people in the experimental group. 37 (46.8%) of the participants were female and 42 (53.2%) were male, all of whom were aged between 19 and 24.

Limitations of the Experimental Design and the Strategies

Selection of participants

Due to the fact that random assignment is not possible in semi-experimental studies, the matching method has been used in order to increase the validity of the research. With this method, the effect of external factors has been tried to be prevented.

Maturation of participants

It can be assumed that the change between measurements will be the result of the individual development of the participants. It is believed that the change in the dependent variable of 12 weeks, which is the experimental period, occurs without depending on the outcome of individual developments.

The effect of participant loss

In experimental studies, the separation of participants after the process has started poses a threat to internal validity. Measures have been taken to prevent the loss of participants within the scope of the research.

The expectation effect

Detailed explanations about the scales were not made in order to avoid creating any expectations for the participants. In addition, it is aimed to increase the validity of the data collected from the participants by keeping the course evaluation out of the scope of the research.

Reactivity to the experimental situation

The fact that participants are aware of the experimental intervention process may lead to differentiation taking place outside the intervention. For this reason, it is important for participants to know that no experimental procedure has taken place. Information that could pose a threat was not shared with the research participants.

Experimental variable interaction

In order not to manipulate the effect of the experimental variable, the tests were applied to the groups in a similar way. Repeated timed tests were applied to each group in order to minimize the variable interaction.

Data Collection

Personal Information Form: It was developed by the researchers and was used to find out the characteristics of the participants in the determined titles.

Academic Motivation Scale (AMS), The scale, which was developed by Vallerand et al. (1992) to determine the motivation level of students, was adapted to Turkish by Ünal-Karagüven (2012). The self-evaluation scale, which is 7-Likert type applicable to university students, consists of 28 items. There are 7 sub-dimensions in the scale, including three intrinsic motivation (IM) dimensions, three extrinsic motivation (EM) dimensions and one amotivational (AMOT) dimension. There is no reverse scored item in the scale. The scores that the participants can obtain vary between 28 and 196. The Cronbach's Alpha values used to calculate the reliability of the data obtained from the measurement tool within the scope of this study are IM .86, EM .70 and AMOT .76. Since these values are above the accepted reference value of .70 (Pallant, 2016), it can be claimed that the data obtained from the scale are reliable.

Analysis of Data

Numerical values were assigned to the obtained raw data which were freed from entry errors; later, they were defined to SPSS 26 package program which is used in data analysis. Missing data and extreme values were excluded from the dataset. The normality of the data were also checked: as regards the dependent variable, skewness values vary between -.41 and 1.5, and Kurtosis values change from -.71 to 1.6. These values are between -2 and +2, which is the acceptable interval for normal distribution (Gravetter & Wallnau, 2014).

Data analysis aimed at keeping under control the baseline academic motivation scores of the participants. For this purpose, before starting the test, it was checked to see whether it met the parametric assumptions. According to the homogeneity of variances test conducted, the results were found to be significant as follows: IM, $F(1,77)= .11$, $p<.05$; EM, $F(1,77)= 2.32$, $p<.05$, AMOT, $F(1,77)= 1.94$, $p<.05$ and AMS, $F(1,77)= .01$, $p<.05$. Baseline scores do not differ significantly between groups; $F(1,77)= .98$, $p=.324$. As

a result of the tests, it was decided to perform the univariate covariance (ANCOVA) analysis, which is one of the parametric tests, in order to keep the baseline academic motivation scores of the participants under control. It has been observed that the condition of "homogeneous distribution of regression curves", which is the additional assumption of the analysis, is also met (IM, p=.12; EM, p=.81; AMOT, p=.38).

Application process

Experimental intervention process was performed in spring semester of 2021-2022 academic year. The preferred course was a field education course with both theoretical and practical content. Prior to beginning the intervention process, pre-test was applied to the determined control and experimental groups, which was followed by the intervention procedure. During the process, the control group participants were taught under the control of the instructor in a classroom environment where the traditional approach was adopted. There was no planned external intervention in this process. The course planning for the experimental group participants was as follows: the course was divided into two main parts, the theoretical content conveyed through various teaching materials using the instructional management system, and the practical content conveyed under the control of the instructor. After the end of the process, post-tests were applied.

Results

The ANCOVA test was run by keeping the AMS pre-test scores under control. Three factors of AMS were analyzed separately in order to examine whether there was a difference in academic motivation levels between the experimental and control groups after the instructional intervention.

The intrinsic motivation level of the participants before the instructional intervention was significantly relevant (F(1,75)= 11.74, p<.05, η2= .13). When the initial intrinsic motivation level was controlled, the basic impact of the instructional intervention was found to be significant (F(1,75)= 4.50, p<.05, η2=.05). This interaction is minor. Blended learning group participants had a statistically significantly higher academic motivation score than control group participants (.69, %95 [.29, 1.08], p <.05).

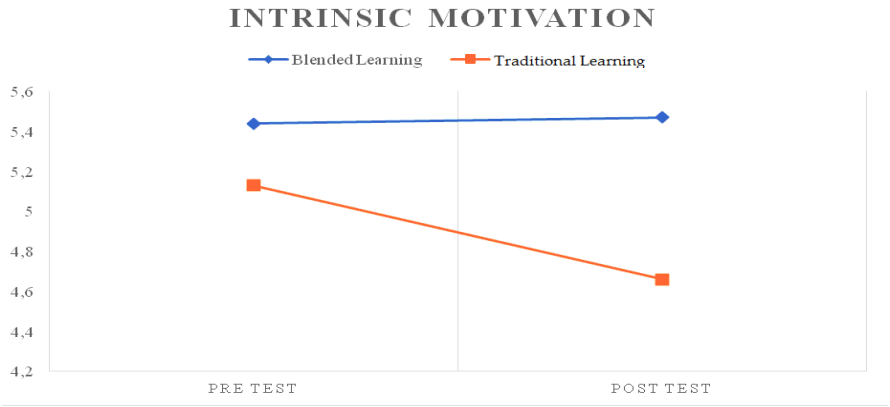

Figure 1. Measures of intrinsic motivation and interaction of groups.
Source: by Can, H. C., Türksoy Işım, A. & Kalaycı Alas, D. (Authors)

The extrinsic motivation level of the participants before the instructional intervention was significantly relevant ($F_{(1,75)}$= 18.78, p<.05, η2= .20). When the initial extrinsic motivation level was checked, it was found that the instructional intervention had no effect on the participants' extrinsic motivation levels ($F_{(1,75)}$= .03, p>.05, η2=.00).

According to the amotivation levels of the participants, the main impact of the instructional intervention was not significantly relevant ($F_{(1,75)}$= .18, p>.05, η2= .00). However, it is seen that the mean scores of the experimental and control groups have increased. Particularly, difference can be observed between the pretest (*M*=1.89, *SE*=1.24) and posttest (*M*=3.07, *SE*=.18) scores of experimental group participants who received education aiming at blended learning.

Levene Test is significant considering the entire scale ($F_{(1,77)}$= .01, p<.05). Academic motivation level of participants prior to the instructional intervention was significantly relevant ($F_{(1,75)}$= 16.80, p<.05,

η2= .18). When controlling for the initial academic motivation level, it was found that the basic effect of the instructional intervention was not significant ($F_{(1,75)}$= 3.58, p>.05, η2=.04). Although significant difference was not found, the group which received education with blended learning (*M*=5.15, *SE*=.08) had higher mean score compared to the control group (*M*=4.65, *SE*=.09) after intervention.

Table 2.
Descriptive Statistics of Pretest and Posttest Scores of Pre-Service Teachers and ANCOVA Summary of Academic Motivation.

	Pre Test		***Post Test***		***Univariate ANCOVA***			
	M	SD	M	SD	M (adjusted)	SE	F	η2
Intrinsic Motivation							**4.50***	.05
Experimental Group	5.44	1.03	5.47	.87	5.44	.14		
Control Group	5.13	.78	4.66	.97	4.75	.14		
Extrinsic Motivation							.03	.00
Experimental Group	5.38	.86	5.48	.68	5.44	.11		
Control Group	5.18	.87	4.99	.84	5.02	.11		
Amotivation							.18	.00
Experimental Group	1.89	1.24	3.07	.10	3.07	.18		
Control Group	2.24	.97	3.30	.12	3.26	.18		
Total							3.58	.04
Experimental Group	4.90	.72	5.17	.58	5.15	.08		
Control Group	4.74	.60	4.61	.64	4.65	.09		

Experimental Group n = 40, Control Group n = 39 *p< .05
Source: by Can, H. C., Türksoy Işım, A. and Kalaycı Alas, D. (Authors)

When the start and end test scores between the groups are examined, it is seen that the intrinsic and extrinsic motivation scores of the physical education pre-service teachers studying with the traditional approach decreased as a result of the instructional intervention, whereas their amotivation scores showed increase.

Discussion

It has been shown that the blended learning environment contributes to the development of positive attitudes among pre-service teachers towards courses (Atmacasoy & Aksu, 2018; Owston et al., 2019; Bursa, 2023; Syafruddin & Suparman, 2023). As the positive attitude of individuals towards teaching profession increase, so do their academic motivation and academic success, which are claimed to be interrelated (Zembat et al., 2018; Sunardi et al., 2021). Motivation, which can be indicated as the main source of the connection, has an undeniable effect on many factors, especially academic success (Smith et al., 2012).

It has been revealed that the intrinsic and extrinsic motivation levels of physical education and sports pre-service teachers tend to change throughout their academic processes (Poteliūnienė et al., 2021). It is reported that as the learning period of the students lengthens, their intrinsic motivation levels decrease but their extrinsic motivations increase (Santrock, 2018). In addition, the monotype learning approach also negatively affects intrinsic motivation (Permata et al., 2023). However, on the contrary, it was observed that the intrinsic motivation of physical education pre-service teachers increased (Poteliūnienė et al., 2021). Similarly, research findings show that the intrinsic motivation levels of Turkish physical education pre-service teachers differed significantly with the effect of blended learning as a result of the instructional intervention. It is stated that cultural differences can create motivation differences among physical education pre-service teachers (Kuśnierz et al., 2020). In a study conducted on Turkish language pre-service teachers, it was reported that their academic achievement was only affected by intrinsic motivation (Eymur & Geban 2011). Essentially, it was observed that students with weak intrinsic motivation had low academic achievement (Uyulgan & Akkuzu, 2014). Supporting this argument, it was determined that Turkish physical education pre-service teachers had higher level of intrinsic motivation compared to their Polish peers (Ardeńska et al., 2016). Based on the results of different studies in the same culture, it is plausible that the intrinsic motivations of the participants are affected by cultural differences.

Graduate theses produced in Turkey report that employment of blended learning makes positive contributions to teacher training (Can et al., 2022). It is argued that blended learning, which creates positive effects in the field of physical education and sports teaching, is the most appropriate teaching approach,

especially for the continuity of academic success (Priambodo et al., 2020; Bozkurt & Erdogan, 2022). In addition, it is claimed that blended learning has a nature that motivates its users (Kumtepe, 2019). On the other hand, blended learning has limitations as well as its strengths (Rose & Ray, 2011). In the study, it was seen that blended learning did not cause a significant difference on the amotivation scores of the participants; however, the level of amotivation increased in the process. Similarly, it has been reported that the level of amotivation of physical education pre-service teachers increased during their education (Poteliūnienė et al., 2021). In the usage of blended learning, the main limitations are that students have to study in isolation and therefore they suffer from time management problems (Keogh et al., 2017). Due to the prolongation of the instructional intervention process, it can be argued that pre-service teachers are exposed to more limitations, and therefore their level of amotivation has increased.

The source of motivation of a university student has the possibility of affecting his/her entire life (Blašková et al., 2019). There are many variables that come into play in the formation of this potential (Schunk, 2014). Teaching approach, which is reported to affect the motivation levels of physical education and sports pre-service teachers, can be shown as the main factor (Spittle & Spittle, 2014). When the current education understanding is examined, it is seen that traditional approach is far from providing a suitable and powerful motivation environment for every student (Alshammari, 2020). On the other hand, it is reported that using distance education applications alone will be inefficient, for which reason it is necessary to go beyond online approach for the sake of the future of physical education teaching (Daum & Buscher, 2014; Bozkurt & Sharma, 2020; Williams et al., 2020; Lambert et al., 2022; Rakha, 2023). In the process of the digital revolution, blended learning is increasingly adopted by higher education institutions (Calderón et al., 2020). Therefore, in order to establish a healthy connection between our traditional habits and new understandings that emerged from the search for solutions during the pandemic process, blended learning which combines the strengths of both understandings can be preferred.

It has been received a significant level of positive feedback in a study in which teachers at a university in the Riyadh region investigated their views on blended learning for deaf or hard-of-hearing students (Alsraisry et al., 2020). In the study, which revealed that blended learning is more effective than traditional classroom learning in improving student achievement, it was stated that blended learning is more flexible and accessible (Maksymchuk et al., 2023).

In the study where the effect of blended learning environment on learning process was determined by mixed meta method, it was found that blended learning is more effective on academic achievement compared to traditional education method. (Topkaya et al., 2023). The study, in which the need to stimulate student motivation in blended learning is emphasized, was carried out in the EFL classroom (Wahyuningsih & Afandi, 2023). Another study (Shurygin et al., 2024) conducted with third-year university students found that the blended learning model significantly affects self-regulation and achievement compared to the traditional approach.

Limitations

In the study, the academic motivation level of participants studying at physical education and sports teaching department were examined. This situation affected the generalizability of the results to the entire population because of the restricted nature of the sample group. Due to the quasi-experimental design, random assignment could not be made in the determination of the groups.

Despite its limitations, it is believed that the research findings will contribute to understanding the impact of blended learning on academic motivation in the training of physical education and sports teachers.

Conclusions

The purpose of this study was to examine the impact of blended learning on the academic motivation of physical education pre-service teachers. The study was conducted in 2021-2022 spring semester at a field education course which has both theoretical and practical content. In this context, the data obtained from the groups where the quasi-experimental design was applied show that blended learning affects intrinsic motivation. There was no difference in the extrinsic motivation levels due to the instructional intervention. It was observed that the mean scores of amotivation increased remarkably in the process, but there was no significant difference between the groups. According to the data obtained from the pre-test and post-test scores between the groups, it was concluded that as a result of the instructional intervention, the intrinsic

and extrinsic motivation scores of the physical education pre-service teachers studying with the traditional approach decreased, while their amotivation scores increased. Although the academic motivation levels of the participants did not differ significantly, it was also determined that the overall mean scores of the blended learning participants were higher.

Further studies can focus on the following: (1) addressing limitations; (2) conducting similar studies on a larger sample group, by increasing the number of participants or with different participants, (3) using mixed methods research in order to address the contribution of blended learning to academic motivation in physical education teacher training more comprehensively; (4) designing longitudinal research and reporting changes over time, and (5) comparative research of research results that may have been culturally obtained.

Bibliographic References

Affuso, G., Zannone, A., Esposito, C., Pannone, M., Miranda, M. C., De Angelis, G., ... & Bacchini, D. (2022). The effects of teacher support, parental monitoring, motivation and self-efficacy on academic performance over time. *European Journal of Psychology of Education, 38*(1), 1-23.

Alemdağ, C., Öncü, E., & Yılmaz, A. K. (2014). Academic Motivation and Academic Self-Efficacy of Physical Education Teacher Candidates. *Journal of Sports Sciences, 25*(1), 23-35. https://dergipark.org.tr/en/pub/sbd/issue/16369/171304

Alshammari, M. T. (2020). An adaptive framework for designing secure e-exam systems. *International Journal of Computer Science and Network Security, 20*(5), 189-196.

Alsraisry, N., Albakheet, H., Alsajjan, N., & Aldaajani, N. (2020). Blended learning approach for deaf or hard of hearing students: Investigating university teachers' views. *Amazonia Investiga, 9*(32), 36-44. https://doi.org/10.34069/AI/2020.32.08.4

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*(3), 261-271.

Amrai, K., Motlagh, S. E., Zalani, H. A., & Parhon, H. (2011). The relationship between academic motivation and academic achievement students. *Procedia-Social and Behavioral Sciences, 15*, 399-402.

Ardeńska, A., Tomik, R., Berber, S., Düz, B., Çivak, B., Çalişkan, U., & Ogrodnik, J. (2016). A comparison of physical education students' motivation using Polish and Turkish versions of the academic motivation scale. *Journal of Human Kinetics, 54*(1), 207-218.

Atmacasoy, A., & Aksu. M. (2018). Blended learning at pre-service teacher education in Turkey: A systematic review. *Education and Information Technologies, 23*, 2399-2422. https://doi.org/10.1007/s10639-018-9723-5

Biehler, R. F., & Snowman, J. (1986). *Psychology applied to teaching*. Houghton Mifflin.

Blašková, M., Majchrzak-Lepczyk, J., Hriníková, D., & Blaško, R. (2019). Sustainable academic motivation. *Sustainability, 11*(21), 5934. https://doi.org/10.3390/su11215934

Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education, 15*(1), 1-6.

Bozkurt, T. M., & Erdogan, R. (2022). Investigation of the relationship between the attitudes of physical education and sports teacher candidates towards e-learning in sports and academic success in the distance education process. *Turkish Online Journal of Educational Technology-TOJET, 21*(2), 47-53

Bursa, S. (2023). The View of Prospective Social Studies Teachers on Blended Learning. *Turkish Online Journal of Distance Education, 24*(1), 185-199.

Calderón, A., Scanlon, D., MacPhail, A., & Moody, B. (2020). An integrated blended learning approach for physical education teacher education programmes: Teacher educators' and pre-service teachers' experiences. *Physical Education and Sport Pedagogy, 26*(6), 562-577.

Can, H. C., Zorba. E. & Türksoy-Işım, A. (2022). Examination of Graduate Theses Using the Blended Learning Model in Teacher Education. *Trakya Journal of Education, 12*(3), 1656-1672. https://dergipark.org.tr/en/pub/tred/issue/72743/1029061

Cayubit, R. F. O. (2022). Why learning environment matters? An analysis on how the learning environment influences the academic motivation, learning strategies and engagement of college students. *Learning Environments Research, 25*(2), 581-599.

Creswell, J. W. (2014). *Research design* (G. Hacıömeroğlu, Trans.; S. B. Demir, Ed.). Ankara: Eğiten Kitap.

Creswell, J. W. (2019). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (H. Ekşi, Trans. ed.). Istanbul: Educational Consultancy and Research Center. https://acortar.link/jn05ha

Çeliköz, N. (2010). Basic Factors that Affect General Academic Motivation Levels of Candidate Preschool Teachers. *Education, 131*(1).

Daum, D. N., & Buschner. C. (2014). Research on teaching blended and online physical education. In R. Ferdig & K. Kennedy (Eds.). *Handbook of research on K-12 online and blended learning* (pp. 201–221). Pittsburgh. PA: ETC Press.

Dierendonck, C., Tóth-Király, I., Morin, A. J., Kerger, S., Milmeister, P., & Poncelet, D. (2023). Testing associations between global and specific levels of student academic motivation and engagement in the classroom. *The Journal of Experimental Education, 91*(1), 101-124.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*(1), 109-132. doi: 10.1146/annurev. psych.53.100901.135153

Eymur, G., & Geban, Ö. (2011). Examining the relationship between motivation and academic achievement of chemistry teacher candidates. *Education & Science, 36*(161). http://egitimvebilim.ted.org.tr/index.php/EB/article/view/987

Froiland, J. M., & Oros, E. (2014). Intrinsic motivation, perceived competence and classroom engagement as longitudinal predictors of adolescent reading achievement. *Educational Psychology, 34*(2), 119-132.. doi: 10.1080/01443410.2013.822964

Gömleksiz, M. N., & Serhatlıoğlu, B. (2014). Perspectives on Teacher Candidates' Academic Motivation Levels. *Turkish Journal of Social Research, 173*(173), 99-128. https://dergipark.org.tr/en/pub/tsadergisi/issue/21486/230306

Gravetter, F., & Wallnau, L. (2014). *Essentials of statistics for the behavioral sciences*. Belmont: Wadsworth. URL: https://acortar.link/7ac3Bn

Gredler, M. E. (2017). *Learning and Teaching: From Theory to Practice* (Ö. Polat, Trans. Ed.). Ankara: Nobel.

Green, J., Nelson, G., Martin, A. J., & Marsh, H. (2006). The Causal Ordering of Self-Concept and Academic Motivation and Its Effect on Academic Achievement. *International Education Journal, 7*(4), 534-546.

Gupta, P. K., & Mili, R. (2016). Impact of academic motivation on academic achievement: A study on high schools students. *European Journal of Education Studies, 2*(10).

Howard, J. L., Bureau, J., Guay, F., Chong, J. X., & Ryan, R. M. (2021). Student motivation and associated outcomes: a meta-analysis from self-determination theory. *Perspectives on Psychological Science, 16*(6), 1300-1323. doi: 10.1177/1745691620966789

Hosseinalipour, F. (2015). *Examination of Motivation Levels and Stress Coping Methods of University Athlete Students*. (Unpublished Master's Thesis), Gazi University, Institute of Educational Sciences, Department of Physical Education and Sports Teaching, Ankara. https://platform.almanhal.com/Details/Thesis/2000346788?ID=4-2000346788

Karataş, H., & Erden, M. (2012). Linguistic Equivalence, Validity, and Reliability Study of the Academic Motivation Scale. *Education Sciences, 7*(4), 983-1003. https://dergipark.org.tr/en/pub/nwsaedu/issue/19814/211923

Keogh, J. W., Gowthorp, L., & McLean, M. (2017). Perceptions of sport science students on the potential applications and limitations of blended learning in their education: a qualitative study. *Sports biomechanics, 16*(3), 297-312.

Khalila, R. (2015). The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students: Mediating and moderating effects. *Nurse Education Today, 35*(3), 432-438.

Korkmazer, F. (2020). A Field Study on Examining University Students' Perceptions of Academic Motivation. *Dicle University Journal of Faculty of Economics and Administrative Sciences, 10*(20), 502-515. https://dergipark.org.tr/en/pub/duiibfd/issue/57937/809312

Krishan, I. Q., & Al-rsa'i, M. S. (2023). The effect of technology-oriented differentiated instruction on motivation to learn science. *International Journal of Instruction, 16*(1), 961-982.

Kumtepe, A. T. (2019). Blended Learning Model in Adult Education. Ekin: Ankara. https://acortar.link/jRc7k6

Kuśnierz, C., Rogowska, A. M., & Pavlova, I. (2020). Examining gender differences, personality traits, academic performance, and motivation in Ukrainian and Polish students of physical education: A cross-cultural study. *International journal of environmental research and public health, 17*(16), 5729.

Lambert, K., Ford, A., & Jeanes, R. (2022). The association between physical education and academic achievement in other curriculum learning areas: A review of literature. *Physical Education and Sport Pedagogy, 29*(1), 51-81.

Lindner, R. W., & Harris, B. R. (1998). Self-regulated learning in education majors. *The Journal of General Education, 47*(1), 63-78.

Linnenbrink, E. A., & Pintrich, P. R. (2002). Motivation as an enabler for academic success. *School Psychology Review, 31*(3), 313-327.

Maksymchuk, L., Artimonova, T., Kurchatova, A., Ishchenko, L., & Vovkochyn, L. (2023). Theoretical foundations of implementation blended learning in the process of training future specialists. *Amazonia Investiga, 12*(69), 61-72. https://doi.org/10.34069/AI/2023.69.09.5

McCoach, B. D. (2002). A validation study of the school attitude assessment survey. *Measurement and Evaluation in Counseling and Development, 35*(2), 66-77.

Owston, R., York, D. N., & Malhotra, T. (2019). Blended learning in large enrolment courses: Student perceptions across four different instructional models. *Australasian Journal of Educational Technology, 35*(5), 29-45.

Pallant, J. (2016). SPSS User Guide (S. Balcı & B. Ahi, Trans.). Ankara: Memory Bookstore.

Patton, M. Q. (2018). *Qualitative Research and Evaluation Methods* (M. Bütün & S. B. Demir, Trans. Eds.). Ankara: Pegem.

Perry, N. E., Turner, J. C., & Meyer, D. K. (2006). Classrooms as contexts for motivating learning. *Handbook of educational psychology, 2*, 327-348.

Permata, K. I., Salsabilla, R., & Ali, M. S. (2023). Multiple Intelligence-based Instruction to Increase Students' Intrinsic Motivation in Learning English. *Applied Research on English Education (AREE), 1*(1), 48-59.

Phann, S., Em, S., & Tep, S. (2023). Cambodian Buddhist monks' motivation in learning English: Grade level analysis. *PROJECT (Professional Journal of English Education), 6*(1), 164-175.

Poteliūnienė, S., Emeljanovas, A., & Sánchez, G. F. L. (2021). Changes in the academic motivation and satisfaction with studies of pre-service physical education teachers during the study period. *Universitas Psychologica, 20*, 1-17.

Priambodo, A., Hariyanto, A., Dinata, V. C., Ristianto, K. O., & Prakoso, B. B. (2020, January). Learning need assessment: Formulating blended-learning as academic services for student-athletes. *In International Conference on Research and Academic Community Services (ICRACOS 2019)* (pp. 217-220). Atlantis Press.

Purnomo, A., Ratnawati, N., & Aristin, N. F. (2017). Development of Blended Learning for Generation Z. *Journal of Theory and Practice in Social Studies Education, 1*(1), 70-76. https://acortar.link/EhOK6N

Rakha, A. H. (2023). The impact of Blackboard Collaborate breakout groups on the cognitive achievement of physical education teaching styles during the COVID-19 pandemic. *Plos one, 18*(1), e0279921.

Ratelle, C.F., Guay, F., Vallerand, R.J., Larose, S., & Senécal, C. (2007). Autonomous, controlled, and amotivated types of academic motivation: A person-oriented analysis. *Journal of Educational Psychology, 99*(4), 734-746.

Robson, C. (2015). *Scientific Research Methods: Real-World Research* (Ş. Çınkır & N. Demirkasımoğlu, Trans. Eds.). Ankara: Anı

Rose, R., & Ray, J. (2011). Encapsulated presentation: A new paradigm of blended learning. *The Educational Forum, 75*(3), 228-243.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology, 25*(1), 54-67.

Ryan, R. M., & Moller, A. C. (2017). Competence as central, but not sufficient, for high-quality motivation. *Handbook of competence and motivation: Theory and application, 2*, 216-238.

Santrock, J. W. (2018). *Educational Psychology* (D. M. Siyez, Trans. Ed.). Ankara: Nobel.

Scheel, M., Madabhushi, S., & Backhaus, A. (2009). The academic motivation of at-risk students in a counseling prevention program. *Counseling Psychologist, 37*(8), 1147-1178.

Schunk, D. H. (2014). *Learning Theories* (M. Şahin, Trans.). Ankara: Nobel.

Schukajlow, S., Rakoczy, K., & Pekrun, R. (2023). Emotions and motivation in mathematics education: Where we are today and where we need to go. *ZDM–Mathematics Education, 55*(2), 249-267.

Shurygin, V., Hajiyev, H., Yakutina, M., Kozachek, A., & Zakieva, R. (2024). Blended Learning: The Effect on Students' Self-Regulation and Academic Achievements. *Novitas-ROYAL (Research on Youth and Language), 18*(1), 137-154.

Sivrikaya, A. H. (2019). The Relationship between Academic Motivation and Academic Achievement of the Students. *Asian Journal of Education and Training, 5*(2), 309-*315.*

Slavin, R. E. (2006). *Educational Psychology Theory and Practise*. Boston: Pearson.URL: https://acortar.link/XhLPFD

Smith, J. K., Smith, L. F., Gilmore, A., & Jameson, M. (2012). Students' self-perception of reading ability, enjoyment of reading and reading achievement. *Learning and individual differences, 22*(2), 202-206.

Spittle, S., & Spittle, M. (2014). The reasons and motivation for pre-service teachers choosing to specialise in primary physical education teacher education. *Australian Journal of Teacher Education, 39*(5), 1-25.

Stipek, D. J. (2002). Good instruction is motivating. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 309–332). San Diego, CA: Academic Press.

Sunardi, J., Geok, S. K., Komarudin, K., Yuliarto, H., & Meikahani, R. (2021). Effect of blended learning, motivation, study hour on student learning achievement. *Sports Journal, 9*(2), 168-177. doi: https://doi.org/10.21831/jk.v9i2.40508

Syafruddin, A., & Suparman, S. (2023). Application of Blended Learning in Physical Education: Article Review. *Journal Respecs (Research Physical Education and Sports), 5*(1), 94-102.

Tan O.S., Parsons, R.D., Hinson, S.L., & Sardo-Brown, D. (2003). *Educational psychology: A practitioner-researcher approach*. Australia: Thomson.

Teddlie, C., & Tashakkori, A. (2020). Foundations of Mixed Methods Research. In Y. Dede & S. B. Demir (Eds.), *Foundations of Mixed Methods Research* (S. B. Demir, Trans.) (pp. 23-48). Ankara: Anı. https://acortar.link/ntu3Gl

Topkaya, Y., Demirkol, M., Salma, C., & Özkaya, A. (2023). Analysis of Research on Blended Learning Using the Karma-Meta Method. *Ahi Evran University Kırşehir Faculty of Education Journal, 24*(2), 1311-1344. https://dergipark.org.tr/en/pub/kefad/issue/79667/1134310

Ushioda, E. (2008). Motivation and good language learners. In: Griffiths, Carol, (ed.) *Lessons from Good Language Learners*. Cambridge, U.K.: Cambridge University Press, pp. 19-34.

Uyulgan, M. A., & Akkuzu, N. (2014). A Look at the Academic Intrinsic Motivation of Teacher Candidates. *Theory and Practice in Educational Sciences, 14*(1), 7-32. Doi: 10.12738/estp.2014.1.2013

Ünal-Karagüven, M. H. (2012). Adaptation of academic motivation scale to Turkish. *Educational Sciences in Theory and Practice, 12*(4), 2599-2620. http://www.kuyeb.com/pdf/tr/61db108de245cb62a5d692762abe8a9baguven.pdf

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic and amotivation in education. *Educational and psychological measurement, 52*(4), 1003-1017.

Vanzile-Tamsen, C., & Livingston, J. A. (1999). The differential impact of motivation on the self-regulated strategy use of high-and low-achieving college students. *Journal of College Student Development, 40*, 54-60.

Wahyuningsih, S., & Afandi, M. (2023). Using blended learning in the EFL classroom during the Covid-19 pandemic in Indonesia: A narrative inquiry. *International Journal of Learning, Teaching and Educational Research, 22*(3), 209-224.

Wang, Q., & Pomerantz, M. E. (2009). The motivational landscape of early adolescence in the United States and China: A longitudinal investigation. *Child Development, 80*(4), 1271-1287. doi: 10.1111/j.1467-8624.2009.01331

Wentzel, K. R. (2002). The contribution of social goal setting to children's school adjustment. In A. Wigfield & J. Eccles (Eds.), *Development of achievement motivation* (pp. 221–246). San Diego, CA: Academic Press.

Wigfield, A., Eccles, J. S., & Rodriguez, D. (1998). The development of children's motivation in school contexts. In A. Iran-Nejad & P. D. Pearson (Eds.), *Review of research in education* (Vol. 23, pp. 73-118). Washington, DC: American Educational Research Association.

Wigfield, A., Lutz, L. S., & Wagner, A. L. (2005). Early adolescents development across the middle school years: Implications for school counselors. *Professional School Counseling, 9*(1), 112-119.

Wilkesmann, U., Fischer, H., & Virgillito, A. (2012). *Academic motivation of students-the German case* (pp. 1-20). zhb.

Williams, L., Martinasek, M., Carone, K., & Sanders, S. (2020). High school students' perceptions of traditional and online health and Physical Education courses. *Journal of School Health, 90*(3), 234-244. https://doi.org/10.1111/josh.12865

Zembat, R., Akşin-Yavuz, E., Tunçeli, H. İ., & Yılmaz. H. (2018). Examining the relationship between attitude towards teaching profession and academic motivation and success. *Journal of Theoretical Educational Science, 11*(4), 789-808. http://dx.doi.org/10.30831/akukeg.351404

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13-39). San Diego, CA: Academic Press.

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal, 45*(1), 166-183. doi: 10.3102/000283120731290