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Examining academic motivation levels of undergraduate students taking distance education during the covid-19 pandemic in terms of various variables

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Highlights

- There were significant relationships between technology usage proficiency and intrinsic motivation of undergraduate students.
- There were significant relationships between average daily usage time of technological devices and their academic extrinsic motivation.
- Academic intrinsic and extrinsic motivations of freshmen were significantly higher than sophomores and seniors.

Article Info: Research Article

Keywords: *Academic Motivation, Pandemic, Intrinsic Motivation, Extrinsic Motivation, Amotivation*

Abstract

The aim of this study is to investigate the academic motivation levels of undergraduate students taking distance education during the pandemic in terms of various demographic and technology-related variables. The research was designed with survey model. Data of the study were collected from 170 undergraduate students. "Academic Motivation Scale" and personal information form were used as data collection tools. The collected data were analyzed with Kendall's tau correlation test, independent sample t-test and one-way analysis of variance. According to results of the study, it was found that academic intrinsic and extrinsic motivation levels of the undergraduates taking distance education are high and their amotivation levels are low. It was determined that there were significant differences between the students' thoughts on whether to pursue postgraduate education in the future and their academic intrinsic and extrinsic motivation levels, but there was not any significant difference between amotivation dimension. Also, it was found that there were significant relationships between technology usage proficiency and intrinsic motivation of undergraduate students. Lastly, it was determined that there were significant relationships between average daily usage time of technological devices and their academic extrinsic motivation. Suggestions were offered in accordance with the results of the study.

1. Introduction

Motivation is defined as the power that initiates, maintains and changes behavior (Martin, 2001). Schunk, Pintrich, and Meece (2008) define motivation as the process in which goal-oriented activities are encouraged and sustained. Motivation is one of the most essential factors affecting the speed, intensity, direction and permanence of human behavior (Fırat, Kılınç & Yüzer, 2018). Motivation can also affect what we learn, how we learn, and when we choose to learn (Schunk, 1995). According to Petrovica (2014), if a student is motivated to an action, thinking and learning can be accomplished better. Academic motivation is a factor that affects people's attendance at school and getting a degree in school (Clark &

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Schroth, 2010). Academic motivation supports the development of individuals academically and contributes to raise their potential to the highest level at school (Eggen & Kauchak, 2001).

As a meta-theory, Self Determination Theory examines the motivation, energy, cognition and behavior required to meet individual needs (Johnson, Stewart & Bachman, 2015) argues that individuals have psychological innate needs to encourage their development (Deci et al., 1991). According to the theory, these psychological needs have three characteristic components that constitute motivation. These are competence, relatedness and autonomy. Competence means an individual's ability to perform by comprehending goals or results. Relatedness refers to an individual's need for social bounding with others. Autonomy is an individual's need to regulate his/her own actions.

Self-determined individuals highly engaged in competence, relatedness, and autonomy factors in an activity will contribute to motivation and thus enhance individuals' performance on tasks (Childers & Jones, 2017). Self-Determination Theory, which explains intrinsic and extrinsic motivation deeply (Hartnett, St-George & Dron, 2011) is a contemporary motivation theory based on learner autonomy. This theory argues that all people have an inherent need to be self-determined/autonomous, feel competent and connected to other people. According to the theory, if environmental conditions are such as to support an individual's autonomy, more autonomous forms of motivation can be exhibited (Ryan & Deci, 2000a).

Self-Determination Theory is unique as it examines different subtypes of motivation and self-regulation (Malinauskas & Požėrienė, 2020). This theory details the balance between intrinsic motivators, extrinsic motivators, and amotivation, and how these dynamics interact in an instant social context (Loizzo et al., 2017). According to this particular theory, motivation is classified as intrinsic, extrinsic and amotivation (Deci & Ryan, 2000). Intrinsic motivation is a type of motivation that encourages activities in which individuals experience inner satisfaction and makes these activities interesting and enjoyable (Ryan & Deci, 2017). Intrinsic motivation is a crucial factor affecting the learning process as a concept that means doing something for inner satisfaction (Shonfeld & Magen-Nagar, 2020).

On the contrary, extrinsic motivation is the drive of individuals to perform their behavior depending on external factors. Students are willing to learn to gain recognition, reward, or avoid negative criticism (Ryan & Deci, 2000b). In other words, extrinsic motivation is defined as the motivation of the individual with external influences, that is, fulfilling the given task in order to gain the praise or appreciation of the teacher or to avoid the teacher's reaction. Intrinsic motivation, on the other hand, is defined as the reactions that an individual develops against their inner needs, such as being competent, knowing, understanding and achieving their goals (Akbaba, 2006).

Ryan and Deci (2000a) assert that intrinsic motivation and extrinsic motivation are not mutually opposed and not mutually exclusive. They emphasize that the learner should be positioned on a continuum that extends from being "motivated" at one end to being "amotivated" at the other end. According to Ryan and Deci (2000a), amotivated learners lack the intention to act. Amotivation, that is being unmotivated, takes part at the lowest level of Self-Determination Theory and it refers to behaviors that are not motivated by either internal or external factors and lack willingness stemming from a sense of inability (Deci & Ryan, 1985). Amotivated individuals are neither intrinsically nor extrinsically motivated because they feel they cannot control a situation (Goulimaris, 2015).

1.1. Problem of the Study

The global Covid-19 pandemic has created an urgent need for high quality online education at all educational levels (Trikoilis & Papanastasiou, 2020). With the arrangements made to minimize the contagion by ensuring social distance in the Covid-19 epidemic, it has been revealed that the best practice

that can provide this in the field of education is open and distance learning environments (Telli & Altun, 2020). It is clear that open and distance learning applications have come to an extremely important position during the Covid-19 pandemic process and these applications will continue from now on (Altınpulluk, 2021a; Trikoilis & Papanastasiou, 2020).

Motivation in open and distance learning occurs quite differently from the motivation in traditional face-to-face classrooms (Moore, 2013). For this reason, motivation should be considered in detail, especially in open, distance and online environments (Chen & Jang, 2010). Motivation plays a key role in adult learning and distance learners should be encouraged to participate in the study for a variety of reasons (Khalid, 2014). It is known that there are motivation problems in every distance education system, students with low motivation levels leave the program without completing the program and feel isolated due to lack of interaction (Moore & Kearsley, 1996; Muilenburg & Berge, 2005). At this point, it is necessary to carefully examine the dimensions of intrinsic and extrinsic motivation in open and distance learning systems.

Although motivation has important effects on learning outcomes, research on student motivation in distance education, online learning and e-learning environments is limited (Altınpulluk, 2021b; Fırat, Kılınç & Yüzer, 2018; Jones & Issroff, 2005). Artino (2008) similarly states that studies investigating learning motivation in online environments are relatively limited in terms of both number and scope. One of the main reasons for this situation is that educators and researchers focus more on cognitive processes in these environments and ignore emotional and social processes (Chen & Jang, 2010).

1.2. Aim and Research Questions

In order to increase the success and quality in education, it is necessary to respond to the demands and expectations of the students and to evaluate their motivation. It is seen that there is a need for studies on how the motivation of students is shaped in open and distance learning environments, which have found a very intense usage area during the pandemic.

The aim of this study is to examine the academic motivation levels of undergraduate students taking distance education during the pandemic in terms of various demographic variables and technology-related variables. In order to achieve the aim of this study, answers to the following research questions were sought:

1. What are the academic motivation levels of undergraduate students taking distance education during the pandemic?
2. Do the academic motivation levels of undergraduate students taking distance education during the pandemic differ significantly according to gender, class level, and thoughts on whether to pursue postgraduate education in the future?
3. Are there significant relationships between the academic motivation levels of undergraduate students taking distance education during the pandemic and the average daily usage time of technological devices and their technology usage proficiency?

2. Methodology

This research, in which the academic motivation levels of undergraduate students taking distance education during the pandemic were examined in terms of various demographic variables and technology-related variables, was designed as a survey model. Survey models are research models used to describe a past or present situation in its current form (Karasar, 2005).

2.1. Sample

The research population consists of undergraduate students taking distance education at Anadolu University Faculty of Education during the pandemic. To determine the sample, simple random sampling method was used. The sample consisted of 170 undergraduate students. 71.2% of the students in the sample are female and 28.8% are male. 9.4% of the students are freshmen, 30.0% are sophomores, 25.9% are juniors and

34.7% are seniors. It was determined that 65.9% of the students have thoughts to pursue postgraduate education in the future and 34.1% have not.

2.2. Data Collecting Tools

Academic Motivation Scale: The original scale was developed by Vallerand et al. (1992) in Canada. Turkish adaptation of the scale was carried out by Ünal-Karagüven (2012). The original form of the scale consists of 28 items and 3 dimensions and 7 sub-dimensions that make up these dimensions. The minimum score that can be obtained from the sub-dimensions is 4, and the maximum score is 28. In order to test the linguistic equivalence of the scale, the correlation coefficients between the items for the Turkish and English forms were calculated with the data obtained from 88 students studying English department. It was determined that the correlation values between the items ranged between 0.29-0.68 ($p<.01$). After the Turkish language equivalence of the scale was ensured, the construct validity of the scale was examined with exploratory and confirmatory factor analysis. The study group of the data obtained for these analyzes consisted of 390 university senior students. The total variance of the scale was determined as 58.06%. As a result of confirmatory factor analysis, it was determined that the structure of the scale was confirmed ($x^2/df=3.094$, RMSEA= .073, SRMR=0.065, CFI=.94, NFI=.91, AGFI=.81, IFI=.94). Finally, it was determined that the Cronbach alpha coefficients of the sub-dimensions of the scale ranged between .67 and .83. The Cronbach alpha reliability coefficient for the entire scale was calculated as .87 (Ünal-Karagüven, 2010). In this study, the Cronbach's Alpha coefficients for intrinsic motivation, extrinsic motivation and amotivation dimensions of the scale were calculated as 0.942, 0.899 and 0.700 respectively.

Personal Information Form: It was used to obtain data on personal characteristics of undergraduate students such as gender, grade level, and the thoughts on whether to pursue postgraduate education in the future. Moreover, students were asked to evaluate the average daily usage time of technological devices and their level of technology usage proficiency by grading from 1 to 7.

2.3. Data Analysis

In order to determine the type of analysis to be used in the research, the normality of the data was examined. Since the skewness and kurtosis coefficients of the data are between -1.5 and +1.5, an indication that they show normal distribution (Tabachnick & Fidell, 2015), parametric tests were used in the analyses. The skewness and kurtosis coefficients of the data are presented in Table 1.

Table 1.

Skewness and kurtosis coefficients for research variables

Factors	Skewness	sd	Kurtosis	sd
Intrinsic Motivation	-.715	.186	.087	.370
Extrinsic Motivation	-.907	.186	1.111	.370
Amotivation	1.223	.186	.808	.370

In the study, descriptive statistics were applied to examine the academic motivation levels of undergraduate students taking distance education during the pandemic. The interpretation of descriptive statistics is based on arithmetic means. An arithmetic mean between 6.11-7.00 was evaluated as " exactly correspond", between 4.41-6.10 as "fairly correspond", between 3.56-4.40 as "moderately correspond", between 1.86-3.55 as "somewhat correspond" and between 1.00-1.85 as "not correspond at all".

In the second sub-purpose of the study, independent sample t-test was applied for the variables of gender and thoughts on whether to pursue postgraduate education in the future. One-way analysis of variance (ANOVA) was also applied for the grade level variable. Since the variances were homogeneous, Scheffe test was used as the posthoc test to determine the source of the significant differences between the academic

motivation of the students and the grade level variable. In addition, the effect size degrees of the significant differences were also calculated. Cohen's d value was used for independent sample t-test and eta-square (η2) value was used for one-way analysis of variance to determine the effect size. When interpreting Cohen's d values, it was evaluated like that: The value between 0-0.20 is weak effect. The value between 0.21-0.50 is small effect. The value between 0.51-1.00 is moderate effect. The value 1.00 and above is strong effect (Cohen, Mainon & Morrison, 2007). The value of eta-square (η2) between 0.01 and 0.06 was interpreted as a very small effect, between 0.06 and 0.14 as a medium effect, and a value of 0.14 and above was interpreted as a very large effect (Cohen, 1988). Kendall's tau correlation technique was used to obtain findings related to the last sub-purpose of the study. In the literature, Kendall's tau-b coefficient is suggested as the regression coefficient to be calculated if one or more of the variables examined are ordinal variables (Dawson & Trapp, 2001). In this study, Kendall's tau technique was used in the correlation analysis, since the students' average daily use of technological devices and their technology use proficiency levels were obtained through a ranking order collection tool.

3. Findings

The first sub-purpose of the study is to determine the academic motivation levels of undergraduate students taking distance education during the pandemic. Descriptive statistics regarding the academic motivation levels of undergraduate students taking distance education are shown in Table 2.

Table 2.

Descriptive statistics on academic motivation levels of undergraduate students taking distance education during the pandemic

Dimensions	Sub-dimensions	n	min	max	mean	sd	Mean/item no
Intrinsic Motivation	Total	170	15.00	84.00	60.33	15.67	5.03
	Intrinsic Motivation-to know	170	6.00	28.00	22.17	5.09	5.54
	Intrinsic Motivation-accomplishment	170	4.00	28.00	18.81	5.92	4.70
	Intrinsic Motivation-stimulation	170	4.00	28.00	19.35	5.68	4.84
Extrinsic Motivation	Total	170	18.00	84.00	61.69	14.51	5.14
	Identified regulation	170	6.00	28.00	22.88	4.98	5.72
	Introjected regulation	170	4.00	28.00	17.16	6.40	4.29
	External regulation	170	6.00	28.00	21.65	5.46	5.41
Amotivation		170	4.00	19.00	7.19	3.78	1.80

After examining the data in Table 2, it has been determined that the academic intrinsic motivation (X=5.03) and extrinsic motivation (X=5.14) of the undergraduate students taking distance education are at the level of "fairly correspond". According to this finding, it can be said that the academic intrinsic motivation and extrinsic motivation of undergraduate students taking distance education are high. The sub-dimensions of intrinsic motivation, intrinsic motivation to know (X=5.54), intrinsic motivation- accomplishment (X=4.70), and intrinsic motivation-stimulation (X=4.84) were also high, but it has been determined that intrinsic motivation to know has the highest mean. The sub-dimensions of the extrinsic motivation dimension, identified regulation (X=5.72) and external regulation (X=5.41) are at the level of "fairly correspond", while their views on introjected regulation (X=4.29) are at the level of "moderately correspond". According to this finding, it can be said that the identified regulation and external regulation levels of undergraduate students taking distance education are high, but their introjected regulation levels are moderate. It has been determined that the views of undergraduate students taking distance education

about amotivation (X=1.80), which is the negative sub-dimension of academic motivation, are at the level of "not correspond at all".

Based on this arithmetic mean, it can be stated that amotivation levels of undergraduate students taking distance education during the pandemic are quite low. This situation can be evaluated as an indicator that to take distance education during the pandemic does not cause to being unmotivated of students. In addition, when the high academic intrinsic and extrinsic motivation of the students and their low amotivation are evaluated together, it can be deduced that the academic motivation levels of the students during the pandemic are as high as desired. The results of the analysis on whether the academic motivation levels of undergraduate students taking distance education during the pandemic differ according to their gender are presented in Table 3.

Table 3.

Findings of the comparison of academic motivation levels of undergraduate students taking distance education during the pandemic with respect to gender

Dimensions	Gender	n	Mean	sd	t	df	p	Difference	Effect size
Intrinsic Motivation	Female	121	60.27	15.47	-.074	168	.941		
	Male	49	60.47	16.31					
Extrinsic Motivation	Female	121	61.70	14.34	.020	168	.984		
	Male	49	61.65	15.07					
Amotivation	Female	121	6.79	3.64	-2.245	168	.026*	Male>Female	0.371
	Male	49	8.20	3.96					

The findings indicate that the academic motivation levels of male and female undergraduate students do not differ in terms of intrinsic motivation and extrinsic motivation dimensions. It is seen that there is a significant difference between the gender of undergraduate students and the amotivation dimension ($t_{0.05:168}$=-2.245, p<.05). This difference in the amotivation dimension is due to the fact that male students' mean scores in this dimension (X =8.20, sd=3.96) are higher than female students' mean scores (X=6.79, sd=3.64). According to this finding, it can be said that male students' amotivation levels are statistically significantly higher than female students. In addition, the effect size value of gender on amotivation was calculated as 0.371 (Cohen's d). This value shows that gender has small effect on students' amotivation levels. The results of the analysis on whether the academic motivation levels of undergraduate students taking distance education during the pandemic differ according to their grade level are presented in Table 4.

Table 4.

Findings of the comparison of academic motivation levels of undergraduate students taking distance education during the pandemic with respect to grade level

Dimensions	Grade Level	n	Mean	sd	F	df	p	Difference	Effect size
Intrinsic Motivation	1	16	70.63	11.80	3.027	3-166	.031*	1>2 1>4	.052
	2	51	58.41	16.21					
	3	44	61.39	15.19					
	4	59	58.41	15.63					

Extrinsic Motivation	1	16	71.38	10.52	3.552	3-166	.016*	1>2 1>4	.060
	2	51	60.08	16.09					
	3	44	63.43	11.22					
	4	59	59.15	15.21					
Amotivation	1	16	7.56	4.73	.407	3-166	.748		
	2	51	6.86	3.59					
	3	44	7.64	3.89					
	4	59	7.05	3.62					

The findings in Table 4 show that the academic intrinsic ($F_{3\text{-}166}$ =3.027, p<.05) and extrinsic ($F_{3\text{-}166}$ =3.552, p<.05) motivation levels of undergraduate students differ according to their grade levels, but their amotivation levels do not. It has been determined that the difference in the academic intrinsic motivation dimension is due to the fact that the scores of freshmen (X=70.63, sd=11.80) are higher than that of sophomores (X=58.41, sd=16.21) and seniors (X=58.41, sd=15.63). According to this finding, it can be deduced that the academic intrinsic motivation of the freshmen taking distance education during the pandemic is significantly higher than that of sophomores and seniors. Furthermore, eta-square (η2) value was calculated to determine the effect size of grade level on academic intrinsic motivation and was found to be .052. This value shows that grade level has a very small effect on students' academic intrinsic motivation levels.

Similarly, it was seen that the differences in the academic extrinsic motivation dimension stemmed from the fact that freshmen (X=71.38, sd=10.52) have higher mean scores than sophomores (X=60.08, sd=16.09) and seniors (X=59.15, sd=15.21). According to this finding, it can be deduced that the academic extrinsic motivation of the freshmen taking distance education during the pandemic is significantly higher than that of sophomores and seniors. This finding indicates that the academic extrinsic motivation of freshmen taking distance education studying distance education during the pandemic is also higher than sophomores and seniors. Eta-square (η2) value was calculated to determine the effect size of grade level on academic extrinsic motivation and was found to be .060. This value shows that grade level has a medium effect on students' academic extrinsic motivation levels. The results of the analysis on whether the academic motivation levels of undergraduate students taking distance education during the pandemic differ according to their thoughts on pursuing postgraduate education in the future are presented in Table 5.

Table 5.

Findings of the comparison of academic motivation levels of undergraduate students taking distance education during the pandemic with respect to grade level

Dimensions	**Thoughts**	**n**	**Mean**	**sd**	**t**	**df**	**p**	**Difference**	**Effect size**
Intrinsic Motivation	Yes	112	62.88	14.53	3.025	168	.003*	Yes>No	0.478
	No	58	55.40	16.71					
Extrinsic Motivation	Yes	112	63.41	13.20	2.174	168	.031*	Yes>No	0.340
	No	58	58.36	16.37					
Amotivation	Yes	112	7.08	3.88	-.545	168	.587		
	No	58	7.41	3.60					

When Table 5 is examined, it can be seen that there are significant differences between undergraduate students' thoughts on whether to pursue postgraduate education in the future and academic intrinsic motivation ($t_{0.05:168}$=3.025, p<.05) and extrinsic motivation ($t_{0.05:168}$=2.174, p<.05) levels. It was determined

that there was no significant difference between the undergraduate students' thoughts on whether to pursue postgraduate education in the future and the amotivation dimension. When the significant differences between the groups are examined, it is seen that the mean scores of the students who are considering taking a postgraduate education in the future is higher than the students who are not considering taking a postgraduate education in the future in terms of both academic intrinsic motivation and extrinsic motivation dimensions. This finding indicates that the academic intrinsic and extrinsic motivation levels of undergraduate students who are considering taking a postgraduate education in the future are higher than other students. In addition, the effect size value of the thought on whether to pursue a postgraduate education in the future on intrinsic motivation was determined as 0.478 and the effect size value on extrinsic motivation was determined as 0.340. These values show that the idea of taking postgraduate education in the future has small effect on students' academic intrinsic and extrinsic motivation levels.

In the study, Kendall's tau correlation analysis technique was used to test whether there is a significant relationship between the academic motivations of undergraduate students taking distance education during the pandemic, and the average daily usage time of technological devices and their technology usage proficiency. The correlation coefficients showing the relationships between the variables are shown in Table 6.

Table 6.

Results of correlation analysis between academic motivation of undergraduate students taking distance education during the pandemic, and average daily usage of technological devices, and technology usage proficiency (Kendall's tau)

Variables	1	2	3	4	5
1- Intrinsic Motivation	-				
2- Extrincic Motivation	.577**	-			
3- Amotivation	-.171**	-.112*	-		
4- The Average Daily Usage Time of Technological Devices	.113	.127*	.099	-	
5- Technology Usage Proficiency	.129*	.102	-.022	.306**	-

*p<0.05, **p<0.01

As can be seen in Table 6, it is found that there are positive, low-level and significant relationships between the academic intrinsic motivations of undergraduate students taking distance education and their technology use proficiency (r=.129, p<.05). According to this finding, it can be said that as the technology usage proficiency of undergraduate students taking distance education increase, their academic intrinsic motivations increase, albeit slightly. Furthermore, it has been determined that there are positive, low-level and significant relationships between the academic extrinsic motivation of undergraduate students taking distance education and the average daily usage of technological devices (r=.127, p<.05). According to this finding, it can be concluded that as the average daily usage of technological devices of undergraduate students taking distance education increases, their academic extrinsic motivation increases, albeit slightly. As a result, it can be said that the technology usage proficiency of undergraduate students is related to their academic intrinsic motivation, and the average daily usage of technological devices is related to their academic extrinsic motivation.

4. Results and Discussion

The first sub-purpose of the study is to determine the academic motivation levels of undergraduate students taking distance education during the pandemic. The results showed that the academic intrinsic and extrinsic motivations of undergraduate students taking distance education were high, and their amotivation levels were quite low. This situation can be evaluated as an indicator that to take distance education during the pandemic does not cause to being unmotivated of students. Kuvaas el al. (2017) stated that the underlying

factor of intrinsic motivation is the feeling of pleasure and satisfaction. In this context, the high intrinsic motivation of undergraduate students shows that they feel academic pleasure and satisfaction from the courses they take through distance education during the pandemic. Based on the high extrinsic motivation levels of the participants, it is possible to infer that the undergraduate students are also active in the lessons to reach the reward or avoid punishment. The low level of amotivation, which indicates that the person is academically reluctant and inactive, can be considered as an indicator that undergraduate students are not unmotivated.

High academic motivation, which is evaluated as one of the main factors affecting academic performance and success (Green, Nelson, Martin & Marsh, 2006; Karataş & Erden, 2014) is a desirable situation for students' success. As a matter of fact, one of the primary goals of education is to increase the academic success of students (Ünal-Karagüven, 2012). Similarly, Yoshida et al. (2008) emphasize that motivation is related to many educational outcomes such as curiosity, performance, learning and persistence. Therefore, it can be concluded that the academic motivation of undergraduate students taking distance education during the pandemic is high. The reason for this situation can be that undergraduate students are members of the Z generation and the Z generation has high proficiency in the usage of technology. This generation, which Prensky (2001) calls digital natives, was born into the internet world and has never experienced a period without the internet. It can be said that this generation (Turner, 2015), accustomed to interacting and communicating with multimedia tools such as smartphones, social media and flat-screen TVs, and always connected with the world, adapted to this situation immediately with the beginning of distance education during the pandemic. Therefore, it can be deduced that the academic motivations of undergraduate students are not adversely affected by distance education.

The second sub-purpose of the research is to determine the academic motivations of undergraduate students taking distance education during the pandemic whether differ or not significantly according to gender, class level, and thoughts on whether to pursue postgraduate education in the future. The results for this sub-purpose showed that the intrinsic motivation and extrinsic motivation levels of distance learners did not differ according to their gender, but their amotivation levels did. It was determined that male students' amotivation levels were statistically significantly higher than female students. This result of the research is largely consistent with the results in the literature. For example, Vallerand et al. (1992) determined that female students have a more self-determined motivation profile than male students. Sıcak and Başören (2015) found that male students have lower motivation than female students in their study in which they examined the academic motivation of secondary school students in terms of various variables. In a study in which Ergin and Karataş (2018) investigated the achievement-oriented motivation levels of university students, they concluded that the achievement-oriented motivation levels of female students were significantly higher. Direktör and Nuri (2017), in their study examining the effect of self-esteem on academic motivation, determined that men achieved higher amotivation scores than women. Meece and Painter (2008), similarly, draw attention to the fact that women are as good as or better than men in many educational success indicators. In the study conducted by Spittle, Jackson, and Casey (2009) with physical education undergraduate students, it was determined that the scores of female students were higher than the scores of male students in all motivation types except amotivation. Spittle, Jackson, and Casey (2009) stated that the high motivation of female students may have resulted from experiencing greater relatedness during university years of female students, but that this was only a guess. In this sense, it can be said that the reason why male undergraduate students are more amotivated than female students are a finding that needs to be taken into account and the reasons for it to be examined.

According to the grade level variable, it was determined that the academic intrinsic motivation and extrinsic motivation levels of undergraduate students taking distance education during the pandemic differed, but their amotivation levels did not differ. It was determined that the difference in academic intrinsic motivation and extrinsic motivation levels stemmed from the fact that the academic intrinsic motivation of the

freshmen was significantly higher than that of the sophomores and seniors. Similarly, in the study of Karataş and Erden (2014) in which they compared the academic motivation levels of freshmen and seniors, they determined that the intrinsic and extrinsic academic motivation levels of freshmen were higher than seniors. However, unlike the finding in this study, they also found that the amotivation levels of the seniors were higher than the freshmen. Sıcak and Başören (2015), in their study in which they examined the academic motivation of secondary school students in terms of grade level, determined that the differences in the intrinsic and extrinsic motivation dimensions were in favor of the 9th grade between the 9th and 11th grades. In addition, they revealed that in the amotivation dimension, the 9th grade scores differed from the 10th grade and 11th grade scores, and this difference was in favor of the 9th grade. Ergin and Karataş (2018) examined the achievement-oriented motivation levels of university students and showed that the total score of success-oriented motivation and the external effects sub-dimension score differed significantly according to grade level. Yavuz-Eroğlu, Eroğlu, and Ekinci (2019), on the other hand, found that there was no significant relationship between academic motivation and its sub-dimensions in terms of grade level variable in their study, which examined the academic motivation levels of Physical Education and Sports School students according to department and grade level variables. Although the findings obtained in the literature confirm the findings in this study, it can be seen that different results occur at some education levels.

According to the variable of thoughts on whether to pursue postgraduate education in the future, it was determined that the academic intrinsic motivation and extrinsic motivation levels of undergraduate students taking distance education differed, but their amotivation levels did not differ. It has been observed that the difference in academic intrinsic motivation and extrinsic motivation levels is in favor of students who are considering taking postgraduate education in the future. Having the motivation of the students to want to improve their selves by continuing their education life in the future, may be a situation that increases the academic motivation of the students. In this context, it can be said that this finding obtained from the study is a natural and expected finding. There is no study in the literature examining the variable of thoughts on whether to pursue postgraduate education in the future and the level of academic motivation.

The last sub-purpose of the study is to determine whether there is a significant relationship between the academic motivations of undergraduate students taking distance education during the pandemic and their average daily usage of technological devices and their technology usage proficiency. It is seen that there are positive and low-level significant relationships between the academic intrinsic motivations of undergraduate students taking distance education and their technology usage proficiency. Therefore, it has been concluded that as the technology usage proficiency of undergraduate students taking distance education increases, their academic intrinsic motivations increase, albeit slightly. It can be said that it is natural to reach this finding in learning environments like distance education that require digital literacy and active use of technological devices. It has been determined that there are positive and low-level significant relationships between the academic extrinsic motivation of undergraduate students taking distance education and the average daily usage of technological devices. According to this, it can be concluded that as the average daily usage of technological devices of undergraduate students taking distance education increases, their academic extrinsic motivation increases, albeit slightly. It can be stated that this finding is predictable since distance education environments require the use of technological devices at a certain level and for a period of time.

4.1. Limitations and Implications

The first limitation of this study is that the generalizability of the research is limited to Anadolu University Faculty of Education, since the research data were collected from undergraduate students studying at this faculty. In order to overcome this limitation, studies that collect data from other faculties of Anadolu University can be carried out. In addition, studies that compare the academic motivation levels of students

at university level can be designed by collecting data from students from more than one university. In order to generalize to all undergraduate students in Turkey, projects that collect academic motivation data from all universities in the country can be carried out. Thus, it will be possible to reveal the general situation of the academic motivation of undergraduate students in Turkey. Finally, it can be recommended to conduct research to examine the academic motivation levels of postgraduate and doctoral students. Another limitation of the study is that the quantitative method was only used. It can be suggested to design studies that will provide more in-depth information by examining the academic motivations of distance learners with qualitative and mixed method research. Another limitation of the study is that technology usage proficiency was measured with a single item. In this sense, studies can be carried out to develop data collection tools to measure technology usage competencies of undergraduate students. In addition, the academic motivation scale is a self-report data collection tool. Since the results of the research are open to the threat of bias, it can be recommended to support the studies with data that includes external evaluators such as observation.

Some suggestions for practitioners can also be presented. The high academic motivation of undergraduate students in distance education courses during the pandemic shows that face-to-face lessons should be carried out interactively and supported by technology after the pandemic. Thus, it will be possible to increase the academic success and performance of the Z generation by keeping their academic motivations high. Considering the relationship between technology usage proficiency and academic intrinsic motivation of undergraduate students taking distance education, it can be suggested to encourage students' participation in activities such as lectures, seminars, symposiums to increase their technology usage competencies.

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