

A Quantitative Exploration of Academic Motivation in Online Higher Education

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Abstract

Academic motivation (AM), the desire for behaviors connected to academic functioning and success, determines the level of student engagement in academic activities. Due to the increase in online learning environments in universities in the post-pandemic period, it is significant to explore the AM level among students in online higher education to offer a more effective program. In this study, it was aimed to investigate the AM level among undergraduate students taking online courses in terms of different motivational constructs; namely, intrinsic motivation (IM), extrinsic motivation (EM) as well as amotivation, and whether there is a relationship between AM and demographic variables of gender, age and year of study. Adopted as a quantitatively-designed study, the AM scale with 7 sub-scales including IM towards knowledge, accomplishments, and experience stimulation; and EM external, introjected, and identified regulations; and amotivation was conducted to 220 undergraduate students taking online courses in different universities in Turkey. The collected data were analyzed by using SPSS for Windows 26.0 and IBM AMOS v24.0. The descriptive results indicated that the IM level of the sample was low, whereas the levels of EM and amotivation were moderate. The highest mean score was detected in the construct of amotivation. The results of MANOVA and ANOVA analyses to determine the variability of IM, EM, and amotivation by the demographics revealed that the participants' mean scores did not vary based on their year of study while some statistically significant findings were detected between EM and gender as well as amotivation and age.

Keywords: Academic Motivation, Intrinsic Motivation, Extrinsic Motivation, Amotivation, Online Learning, Higher Education

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Introduction

Motivation, regarded as one of the psychological factors in education, has been a center of interest for researchers and studied to explore its impact on a variety of topics in higher education (Dunn & Kennedy, 2019; Ferrer et al., 2022; Haji Vosoogh et al., 2022). Usher and Morris (2012) defined motivation as “the process responsible for the initiation, intensity, and persistence of behavior” and explained academic motivation (AM) as “the cause of behaviors that are in some way related to academic functioning and success”. In other words, AM refers to the drive or desire to engage in academic activities such as learning, studying, carrying out educational tasks and doing assignments, etc.

Different motivational constructs have been categorized for AM in the literature based on self-determination theory; namely, intrinsic motivation (IM), extrinsic motivation (EM), and amotivation (Ryan & Deci, 2017; Vallerand et al., 1997; Vallerand & Ratelle, 2002). Ryan and Deci (2017) defined IM as participating in an activity for the inherent satisfaction and enjoyment it brings by being motivated by internal factors, such as curiosity, interest, and personal fulfillment. Vallerand et al. (1993) defined three types of IM “the IM to know (to do something for the pleasure and satisfaction experienced while learning), to accomplish things (to do something for the pleasure and satisfaction experienced while trying to accomplish things), and to experience stimulation (to do something in order to experience stimulating sensations)” (p.160). In other words, IM towards knowledge is a reflection of a person’s desire to discover, learn, and acquire new knowledge or skills for their own sake (Deci & Ryan, 1985; Sansone & Harackiewicz, 2000). IM toward experience stimulation entails seeking out pursuits or experiences that offer novelty, excitement, challenge, or sensory stimulation (Ryan & Deci, 2017; Vallerand, 1997).

Contrarily, EM is influenced by outside forces such as grades, rewards, or social recognition and requires engaging in behaviors to obtain external rewards or avoid punishment (Deci & Ryan, 1985). Vallerand et al. (1993) explained three types of EM “external regulation (e.g., to do something because one is pressured by someone to do it), introjected regulation (to do something because one pressures him/herself to do it), and identified regulation (to do something because one has decided to do it although it is not fun)” (pp.160-161). Particularly, the lowest level of self-determination in EM is defined as external regulation, which entails engaging in an activity solely to receive rewards from outside sources or to avoid punishment, and individuals driven by external regulation feel controlled by external factors and lack personal volition or interest in the activity itself (Ryan & Deci, 2017; Vallerand, 1997). Introjected regulation is the process of engaging in behavior that is motivated by internal pressures such as guilt, shame, or ego involvement., and individuals with introjected regulation may engage in the activity to maintain self-esteem, avoid feelings of guilt, or meet self-imposed standards, even though their motivation is not fully autonomous (Ryan & Deci, 2017; Vallerand, 1997; Vallerand et al., 1993). Identified regulation reflects a higher level of internalization in IM involving the engagement in an activity because the individual recognizes its personal importance, relevance, or alignment with their values and goals, and individuals with identified regulation perceive the activity as personally meaningful, even though the initial motivation may have been external (Ryan & Deci, 2017; Vallerand, 1997; Vallerand et al., 1993).

Amotivation, representing a lack of motivation, is a state of disinterest or apathy toward participating in academic activities (Vallerand et al., 1997). In other words, it alludes to the absence of IM and EM (Vallerand et al., 1993). Amotivation can arise when individuals

perceive a lack of control or autonomy in their actions, do not find meaning or value in the task, or experience a sense of incompetence or helplessness (Vallerand, 1997; Standage et al., 2003).

With its different constructs, AM is a significant factor associated with some outcomes such as higher academic achievement (Levitt et al., 2016; Mueen et al., 2016), increased persistence and retention (Howard et al., 2021), enhanced learning engagement (Martin et al., 2017), improved self-regulated learning (Cho & Heron, 2015), and positive psychological well-being (Howard et al., 2021; Ryan & Deci, 2017). Due to its positive outcomes for student learning, AM is required to be increased for face-to-face as well as online teaching settings. Unlike face-to-face instruction, online learning has its own set of challenges such as the lack of social interaction, technological issues, self-regulation difficulties, and a sense of isolation (Broadbent & Poon, 2015; Picciano, 2002; Richardson & Swan, 2003). AM can be negatively affected by online learning procedures and processes because of the lack of in-person social interactions and peer support found in traditional face-to-face classroom settings (Richardson & Swan, 2003). Technological issues and challenges with online tools and platforms can also frustrate students and lower their motivation and engagement in their academic endeavors. Even though it is assumed that online courses are flexible, this type of learning necessitates that students have strong self-regulation abilities as well as efficient time management skills (Broadbent & Poon, 2015). Lack of in-person interaction and physical presence in online learning can exacerbate feelings of loneliness among students, which can lower motivation and cause a sense of disconnect (Picciano, 2002).

Due to the increase in online learning environments in higher education in the post-pandemic period, it is significant to explore the level of AM among students in online higher education in order to offer a more effective program. Because of the distinctive features of online learning environments such as asynchronous communication, self-directed learning, and fewer social interactions, students' motivational orientations may be affected more differently than in traditional learning settings. Therefore, this research aimed to examine the level of AM among undergraduate students taking online courses in terms of different motivational constructs such as IM, EM as well as amotivation and whether there was a relationship between AM and demographic variables of gender, age, and year of study.

Methodology

Research design

Adopted as a quantitative design, this research aimed to investigate the level of AM among undergraduate students taking online classes in terms of various types of motivation including IM, EM, and amotivation, and whether there was a relationship between AM and demographic variables of gender, age and year of study. For this purpose, the following research questions (RQs) are developed:

- RQ1. What is the overall level of AM among undergraduate students?
 - 1.1. What is the level of IM among undergraduate students?
 - 1.2. What is the level of EM among undergraduate students?
 - 1.3. What is the level of amotivation among undergraduate students?

RQ2. Is there a relationship between AM and demographic variables among undergraduate students?

- 2.1. Is there a relationship between AM and gender?
 - 2.1.1. Is there a relationship between IM and gender?
 - 2.1.2. Is there a relationship between EM and gender?
 - 2.1.3. Is there a relationship between amotivation and gender?
- 2.2. Is there a relationship between AM and age?
 - 2.2.1. Is there a relationship between IM and age?
 - 2.2.2. Is there a relationship between EM and age?
 - 2.2.3. Is there a relationship between amotivation and age?
- 2.3. Is there a relationship between AM and year of study?
 - 2.3.1. Is there a relationship between IM and year of study?
 - 2.3.2. Is there a relationship between EM and year of study?
 - 2.3.3. Is there a relationship between amotivation and year of study?

Sample

Non-probability sampling method was used based on the convenience sampling technique to determine the study group. Accordingly, 220 undergraduate students taking online courses in different universities in Turkey were involved in the study on a voluntary basis participation. The characteristics of the sample profile are presented in Table 1.

Demographics		N	%
Gender	Female	115	52.3
	Male	105	47.7
Age	18	117	53.2
	19	34	15.5
	20	25	11.4
	21+	44	20.0
Faculty of	Education	72	32.7
	Engineering	96	43.6
	Science and Literature	25	11.4
	Management	16	7.3
	Law	9	4.1
	Health Sciences	2	0.9
Year of Study	1 st year	124	56.4
	2 nd year	37	16.8
	3 rd year	30	13.6
	4 th year	19	8.6
	5 th and more	10	4.5
Total		220	100.0

Table 1: Characteristics of sample profile

As observed in Table 1, 52.3% (n=115) of the participants were female, and 47.7% (n=105) were male. More than half of the participants (n=117; 53.2%) were 18 years old, 15.5% (n=34) were 19 years old, 11.4% (n=25) were 20 years old, and 20% (n=44) were 21 years old or older. Regarding the faculty where the students were studying, 32.7% (n=72) of the

participants were studying in the faculty of education, while 43.6% (n=96) were studying in the faculty of engineering. More than half of the participants (n=124; 56.4%) were in their first year of education.

Research Instrument

Designed as a quantitative data collection tool, the questionnaire used in this study consisted of two sections. First, the demographic information of the participants was asked including their gender, age, faculty, and year of study. Second, the Academic Motivation Scale (AMS) was used consisting of 28 items structured in 7 sub-scales including IM towards knowledge, accomplishments, and experience stimulation; EM external, introjected, and identified regulations; and amotivation. The original AMS was developed by Vallerand et al. (1993) with a 7-point Likert-type scale. However, the 5-point Likert type was preferred in this study regarding its familiarity, standardization and comparability, and practical considerations in Turkish culture. During the data collection phase of the scale, the statements were arranged as a 5-point Likert scale. Therefore, a confirmatory factor analysis was applied to determine the compatibility of the original 7-point scale's factor structure as presented in Figure 1.

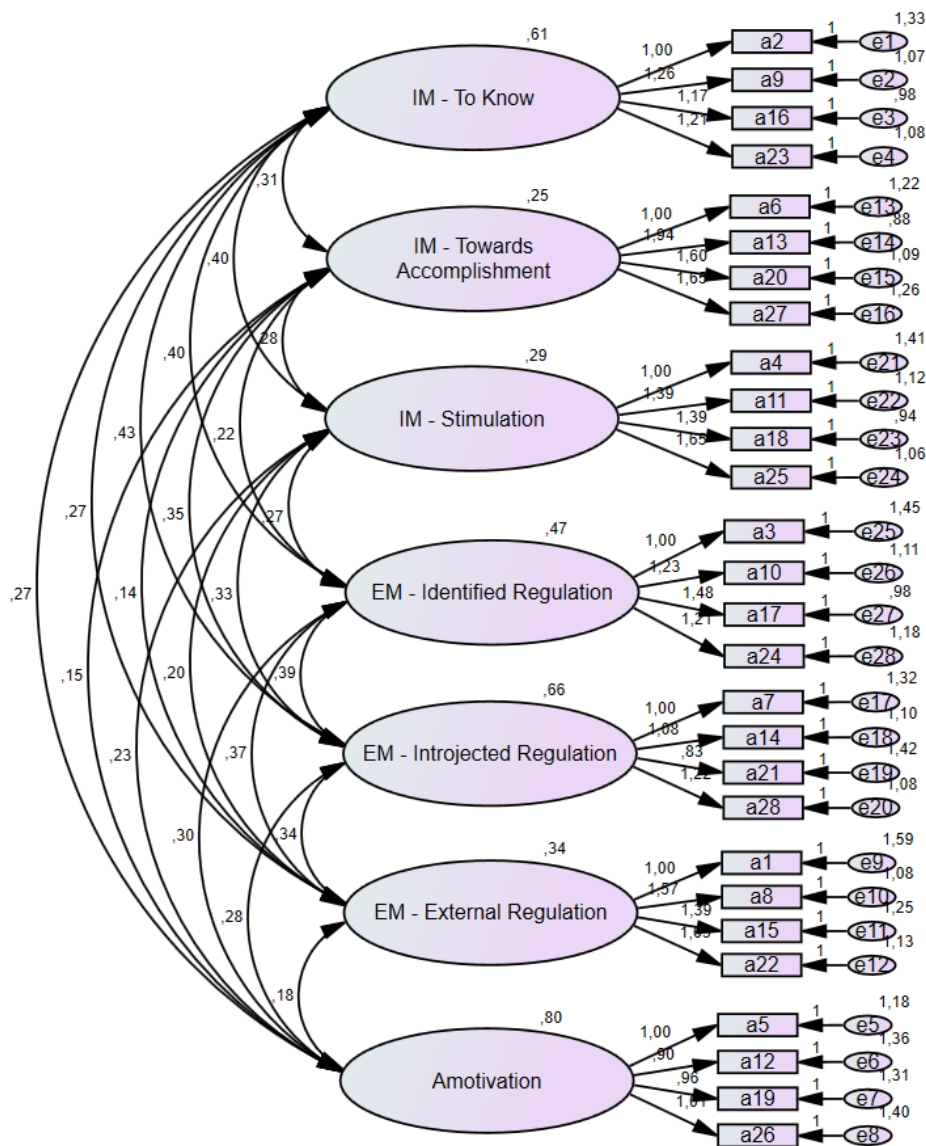


Figure 1: Path diagram of confirmatory factor analysis

The path diagram of the confirmatory factor analysis for the AMS is illustrated in Figure 1, and the fit indices for the diagram are presented in Table 2.

	X²/df	GFI	CFI	RMSEA
Academic Motivation Scale	1.56	0.86	0.90	0.05
Good Fit	<3	>0.950	>0.950	<0.05
Acceptable Fit	3 <X ² /df<5	>0.900	>0.900	<0.08

Table 2: CFA fit indices

After the examination of the fit statistics for the 7-factor structure of the scale, it was observed that the Chi-Square/degrees of freedom and RMSEA and CFI criteria showed a very good fit, while the GFI criterion demonstrated a low fit. Since three of the four criteria examined met a very good fit, it could be claimed that the data collected through the AMS was consistent with the original factor structure of the scale. Therefore, the weighted averages for the 5-point Likert scale were calculated and interpreted as depicted in Table 3.

Ranges of Weighted Averages	Opinion	Ranges of Weighted Averages of AMS	Result Interpretation
1.00 – 1.80	Strongly Disagree	4.00 – 7.20	Very Low
1.81 – 2.60	Disagree	7.21 – 10.40	Low
2.61 – 3.40	Neutral	10.41 – 13.60	Moderate
3.41 – 4.20	Agree	13.61 – 16.80	High
4.21 – 5.00	Strongly Agree	16.81 – 20.00	Very High

Table 3: Weighted averages for 5-point Likert scales and AMS

Regarding the reliability of the AMS, descriptive statistics, skewness and kurtosis values, and reliability coefficient (Cronbach's Alpha) values for the sub-dimensions were analyzed and presented in Table 4.

Academic Motivation Scale	\bar{x}	S.D.	Skewness	Kurtosis	Alpha
<i>Intrinsic Motivation (IM)</i>	10.210	3.359	0.661	0.304	0.859
To know	9.905	4.240	0.276	-0.883	0.753
Towards accomplishment	10.255	3.738	0.588	0.284	0.669
Experience stimulation	10.473	3.644	0.532	0.033	0.651
<i>Extrinsic Motivation (EM)</i>	10.560	3.336	0.425	-0.151	0.837
Identified regulation	10.509	4.023	0.227	-0.763	0.703
Introjected regulation	10.509	4.055	0.589	-0.115	0.697
External regulation	10.659	3.958	0.119	-0.927	0.665
<i>Amotivation</i>	12.986	4.142	0.158	-0.970	0.691

Table 4: Descriptive statistics, normality, and reliability

According to the results, it is observed that the kurtosis and skewness values of all sub-dimensions of the AMS were within the limit values of -1 to +1, and the normal distribution assumption was met. Therefore, parametric tests were applied to the collected data.

Data Collection

Before the data collection phase, the Board of Ethics for Human Studies in Social Sciences and Humanities granted permission for this study's compliance with scientific and ethical standards. The questionnaire form, which was configured on an e-platform, was implemented after receiving participants' approval of the consent for participation in the research. Distributed to more than 300 students, valid results were obtained from 220 participants.

Data Analysis

Initially, descriptive statistics, normality, and reliability were calculated to identify the statistical limits for the appropriateness of the AMS. Next, based on the application of parametric tests, MANOVA was conducted to determine whether IM and EM varied according to gender, age, and year of study; and independent samples t-test was performed to identify the variability of amotivation by gender. Additionally, ANOVA was performed to determine whether amotivation varied by gender, age, and year of study. Post hoc analyses were carried out to find out the sources of the detected statistically significant differences. All the analyses were conducted via SPSS for Windows 26.0 and IBM AMOS v24.0.

Results

The data collected from 220 undergraduate students taking online courses were analyzed based on the RQs. Accordingly, the level of AM with its 7 sub-scales (RQ1) and whether there was a relationship between AM and demographic variables (RQ2) were investigated, the results of which are presented below.

Academic Motivation Among Students

The level of AM with its 7 sub-scales among university students was examined by performing descriptive statistics in SPSS and the results are presented in Table 5.

Academic Motivation Scale (AMS)	\bar{x}	S.D.	Result Interpretation
<i>Intrinsic Motivation (IM)</i>	10.210	3.359	Low
To know	9.905	4.240	Low
Towards accomplishment	10.255	3.738	Low
Experience stimulation	10.473	3.644	Moderate
<i>Extrinsic Motivation (EM)</i>	10.560	3.336	Moderate
Identified regulation	10.509	4.023	Moderate
Introjected regulation	10.509	4.055	Moderate
External regulation	10.659	3.958	Moderate
<i>Amotivation</i>	12.986	4.142	Moderate

Table 5: Mean scores for academic motivation

As observed in Table 5, the IM level of the sample (RQ1.1) was "low" ($7.20 < \bar{x}=10.210 < 10.41$), while the EM level of them (RQ1.2) was "moderate" ($10.40 < \bar{x}=10.560 < 13.61$). The level of amotivation of the sample (RQ1.3) was also "moderate" ($10.40 < \bar{x}=12.986 < 13.61$), but it was the highest pointed subdimension. Accordingly, the overall level of AM

was detected “moderate” ($10.40 < \bar{x}=11.252 < 13.61$). Regarding the IM subdimensions, it was detected that IM to know ($7.20 < \bar{x}=9.905 < 10.41$) and IM towards accomplishment ($7.20 < \bar{x}=10.255 < 10.41$) were revealed “low”, whereas experience stimulation was “moderate” ($10.40 < \bar{x}=10.473 < 13.61$). The levels of EM identified regulation ($10.40 < \bar{x}=10.509 < 13.61$), EM introjected regulation ($10.40 < \bar{x}=10.509 < 13.61$), and EM external regulation ($10.40 < \bar{x}=10.659 < 13.61$) were found “moderate”.

Academic Motivation and Demographic Variables

The results of MANOVA and ANOVA are presented to determine whether IM, EM, and amotivation vary according to gender (RQ2.1), age (RQ2.2), and year of study (RQ2.3).

Variability of Academic Motivation by Gender

First, concerning the gender variable, MANOVA was performed to determine the variability of IM based on gender (RQ2.1.1). The findings of MANOVA are listed in Table 6. According to the results, participants’ intrinsic motivation did not vary based on their gender ($\lambda=0.983$; $F_{(3,216)}=1.255$; $p>0.05$).

Intrinsic Motivation (IM)		To Know		Towards Accomplishment		Experience Stimulation	
Gender	N	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.
Female	115	9.852	4.179	9.852	3.662	10.209	3.409
Male	105	9.962	4.326	10.695	3.788	10.762	3.882

MANOVA Wilks’ Lambda = 0.983; $F_{(3,216)}=1.255$; $p=0.291>0.05$

Table 6: Variability of intrinsic motivation by gender

Second, to identify the variability of EM by gender, MANOVA was used, and the findings of MANOVA are presented in Table 7 (RQ2.1.2). In line with the results, participants’ extrinsic motivation varied based on their gender ($\lambda=0.915$; $F_{(3,216)}=6.669$; $p<0.05$). Accordingly, female students’ identified regulation and external regulation were higher than male students, while the perception of male students’ introjected regulation was higher than female students.

Extrinsic Motivation (EM)		Identified Regulation		Introjected Regulation		External Regulation	
Gender	N	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.
Female	115	10.748	4.152	9.67	3.668	10.730	4.081
Male	105	10.248	3.88	11.429	4.272	10.581	3.838

MANOVA Wilks’ Lambda = 0.915; $F_{(3,216)}=6.669$; $p=0.000<0.05$

Table 7: Variability of extrinsic motivation by gender

Finally, independent samples t-test was applied to detect the variability of amotivation by gender (RQ2.1.3). The findings related to the t-test analysis are illustrated in Table 8.

	Gender	N	\bar{x}	S.D.	t	p
Amotivation	Female	115	13.252	4.217	0.996	0.320
	Male	105	12.695	4.058		

Table 8: Variability of amotivation by gender

As reported by the results presented in Table 8, it was detected that the participants' level of amotivation did not vary based on their gender ($p=0.32>0.05$).

Variability of Academic Motivation by Age

Regarding the age variable, firstly, MANOVA was performed to reveal the variability of IM by age, and the findings of MANOVA are depicted in Table 9 (RQ2.2.1). According to the results, participants' intrinsic motivation did not vary based on their age ($\lambda=0.939$; $F_{(3,216)}=1.512$; $p=0.140>0.05$).

Intrinsic Motivation (IM)		To Know		Towards Accomplishment		Experience Stimulation	
Age	N	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.
18	117	9.427	4.207	10.128	3.559	10.282	3.414
19	34	9.382	3.877	10.235	3.814	10.235	3.394
20	25	10.8	4.387	10.48	4.665	9.92	4.212
21	44	11.068	4.342	10.477	3.682	11.477	4.014

MANOVA Wilks' Lambda =0.939; $F_{(3,216)}=1.512$; $p=0.140>0.05$

Table 9: Variability of intrinsic motivation by age

Next, MANOVA was carried out to determine the variability of EM by age (RQ2.2.2). The findings related to MANOVA are presented in Table 10. According to the results, participants' extrinsic motivation did not vary based on their age ($\lambda=0.959$; $F_{(3,216)}=1.012$; $p=0.429>0.05$).

Extrinsic Motivation (EM)		Identified Regulation		Introjected Regulation		External Regulation	
Gender	N	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.
18	117	10.684	4.051	10.53	3.921	10.65	3.907
19	34	10.353	3.868	9.912	3.995	10.441	3.628
20	25	9.32	4.289	10.68	4.688	9.32	4.347
21	44	10.841	3.923	10.818	4.167	11.614	3.995

MANOVA Wilks' Lambda =0.959; $F_{(3,216)}=1.012$; $p=0.429>0.05$

Table 10: Variability of extrinsic motivation by age

Finally, ANOVA was used to identify the variability of amotivation by age (RQ2.2.3). The findings of ANOVA are listed in Table 11.

	Age	N	\bar{x}	S.D.	F	p
Amotivation	18	117	13.539	4.215	2.776	0.042
	19	34	12.471	4.187		<u>Diff.</u>
	20	25	11.040	3.348		1-3
	21+	44	13.023	4.061		

Table 11: Variability of amotivation by age

According to the results, the levels of participants' amotivation varied based on their age ($F=2.776$; $p=0.042<0.05$). As a result of the Tukey analysis conducted to detect the source of the difference, it was found that the level of amotivation of 18-year-olds was higher than that of 20-year-olds.

Variability of Academic Motivation by Year of Study

Respecting the variable of year of study, initially, MANOVA was performed to determine the variability of IM based on year of study (RQ2.3.1). The findings of MANOVA are presented in Table 12. Concerning the results, participants' intrinsic motivation did not vary based on their year of study ($\lambda=0.939$; $F_{(4,215)}=1.124$; $p=0.337>0.05$).

Intrinsic Motivation (IM)		To Know		Towards Accomplishment		Experience Stimulation	
Year of Study	N	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.
1 st year	124	9.452	4.297	10.040	3.544	10.266	3.429
2 nd year	37	9.270	3.827	10.162	3.708	10.162	3.444
3 rd year	30	11.067	4.346	10.667	4.521	10.367	4.263
4 th year	19	11.632	4.139	10.895	4.332	11.737	4.188
5 th year +	10	11.100	3.814	10.800	2.741	12.100	3.755

MANOVA Wilks' Lambda =0.939; $F_{(4,215)}=1.124$; $p=0.337>0.05$

Table 12: Variability of intrinsic motivation by year of study

Secondly, to identify the variability of EM by year of study, MANOVA was applied, and the findings of MANOVA are presented in Table 13 (RQ2.3.2). Accordingly, participants' extrinsic motivation did not vary based on their year of study ($\lambda=0.946$; $F_{(4,215)}=1.004$; $p=0.443>0.05$).

Extrinsic Motivation (EM)		Identified Regulation		Introjected Regulation		External Regulation	
Year of Study	N	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.
1 st year	124	10.548	4.129	10.403	3.903	10.629	3.985
2 nd year	37	10.270	3.724	9.919	3.854	10.459	3.509
3 rd year	30	9.867	4.305	10.867	4.584	9.933	4.339
4 th year	19	10.895	3.814	12.053	4.790	12.263	3.984
5 th year +	10	12.100	3.446	10.000	3.399	10.900	3.900

MANOVA Wilks' Lambda =0.946; $F_{(4,215)}=1.004$; $p=0.443>0.05$

Table 13: Variability of extrinsic motivation by year of study

Finally, ANOVA was used to reveal the variability of amotivation by year of study (RQ2.3.3). The findings related to ANOVA are depicted in Table 14.

	Year of Study	N	X	S.D.	F	p
Amotivation	1 st year	124	13.532	4.247	1.845	0.121
	2 nd year	37	12.351	4.050		
	3 rd year	30	11.433	3.510		
	4 th year	19	13.000	4.667		
	5 th year +	10	13.200	2.860		

Table 14: Variability of amotivation by year of study

According to the results observed in Table 14, the levels of participants' amotivation did not vary based on their year of study ($F=1.845$; $p=0.121>0.05$).

Discussion

In online higher education, AM plays a crucial role in student engagement, learning outcomes, and overall success. Recognizing the pivotal role of AM in this context, the present study sought to delve into the levels of AM among undergraduate students enrolled in online courses. Therefore, this study aimed to investigate the AM level among undergraduate students taking online courses in terms of different motivational constructs such as IM, EM, and amotivation and whether there was a relationship between AM and demographic variables of gender, age, and year of study by contributing to a deeper understanding of the intricate dynamics surrounding AM in the realm of online higher education.

The results indicated that the overall level of AM of the students was detected as “moderate”, which was the same as the level of EM including the mean scores of EM identified, introjected, and external regulations as well as amotivation. However, the IM level of the sample was “low” in addition to the levels of IM to know and IM towards accomplishment. Similarly, Ramos and Habig (2019) found that the level of nursing students' EM was higher than IM, but detected low levels of amotivation among students. Consistently, Teo et al. (2023) detected, in a study on AM and online learning with 288 Malaysian university students, that the highest mean scores were calculated for EM and IM, but the lowest for amotivation. Unlike the results of this research, Malinauskas and Pozeriene (2020), in their study on a comparison of AM between university students of traditional and online education, reported higher levels of IM including its sub-scales, IM to know, IM towards accomplishment, and IM to experience stimulation for university students taking online courses. Moreover, Fryer and Bovee (2016) argued that there was a chance that the motivation of many students would decline and eventually turn to amotivation because online learning environments would not be motivationally regulated.

Regarding the results of the variability of AM by gender, age, and year of study, some significant findings were identified to reveal the relationship between AM and demographics. Accordingly, it was detected that the levels of the students' IM and amotivation did not vary based on their gender. Nevertheless, the level of the participants' EM varied according to their gender, and the results pointed out that the levels of identified and external regulations for female students were higher than for male students, while the perception of male students' introjected regulation was higher than female students. Similarly, Pugh (2019) identified a strong correlation between motivation and gender by revealing that a higher proportion of

male students were extrinsically motivated in online education settings. Inconsistently, some studies in the literature did not detect any statistically significant differences between AM and gender (Malinauskas & Pozeriene, 2020; Ramos & Habig, 2019). Overall, the results highlight the significance of taking gender into account as a potential factor that influences specific aspects of AM, especially in the area of EM.

According to the results of the variability of AM by age, the participants' levels of the IM and EM did not vary based on their age. However, it was found that the sample's level of amotivation varied based on their age, and the level of amotivation of 18-year-olds is higher than that of 20-year-olds. Contrarily, some previous research did not identify any differences between AM and age (Malinauskas & Pozeriene, 2020; Pugh, 2019; Ramos & Habig, 2019). The complexity of the connection between age and AM is highlighted by these contradictory findings, which emphasize the need for more research and comprehension of the factors influencing the differences in amotivation between age groups.

As for the variability of AM by year of study, it was reported that students' levels of IM, EM, and amotivation did not vary based on their year of study. This finding suggested that regardless of whether they were in their first year or almost finished with their education, students' motivational orientation remained largely unchanged. Furthermore, regardless of the students' respective years of study, there were no discernible differences in the levels of demotivation among them. It indicated that the progression through various educational stages had little effect on the lack of motivation or disengagement from academic pursuits. The conventional belief that AM naturally changes or declines as students move through their academic careers is called into question by these findings.

Conclusion

This study contributes to the understanding of the AM levels and their connections to demographic variables in online higher education. The results highlight how important it is to take AM into account when promoting student engagement and success by emphasizing the need for customized support and interventions to improve motivation, particularly in the IM and amotivation dimensions. By comprehending the complexities of AM, educators, and policymakers can develop strategies to foster a motivational climate conducive to online learning environments. In order to create effective strategies and interventions that promote motivation, engagement, and student success, educators and institutions must first understand the importance of AM in online higher education. Online learning environments should become more active, interactive, and supportive of fruitful academic experiences by encouraging and nurturing AM.

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