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Building an Academic Tenacity Scale for Students in Some Faculties of Physical Education and Sports Science

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ORIGINAL STUDY

Building an Academic Tenacity Scale for Students in Some Faculties of Physical Education and Sports Science

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Abstract

This study aimed to develop an academic tenacity scale for students in Faculties of Physical Education and Sport Sciences and to identify their level of academic tenacity. Given the theoretical and practical nature of study in these faculties, which may influence students' academic engagement, and the lack of standardized tools to measure this construct in the field, the need emerged to develop a valid and reliable measurement instrument and to answer the main research question: Is it possible to develop a scientific tool to measure academic tenacity among students in some Faculties of Physical Education and Sport Sciences. The researchers adopted the descriptive survey method, as it was appropriate for the nature and objectives of the study. The population consisted of students from the Faculties of Physical Education and Sport Sciences at the Universities of Samarra, Tikrit, and Kirkuk for the academic year (2025–2026), totaling (921) male and female students. The population was divided into a construction sample and an application sample. The construction sample included (600) students after excluding the pilot study participants, while the final application sample consisted of (267) students after excluding incomplete responses. The researchers followed standardized scientific procedures for scale construction and psychometric validation. The scale was then administered to the final sample. The results indicated that students in Faculties of Physical Education and Sport Sciences demonstrated a high level of academic tenacity, with a mean score of (186.813) compared to the hypothetical mean of (120). The calculated t-value was (139.892) at a significance level of (0.000). The study concluded that academic tenacity plays a significant role in enhancing students' ability to persist, overcome academic challenges, and achieve educational goals. These findings align with the fourth Sustainable Development Goal (Quality Education) by improving higher education outcomes and fostering lifelong learning competencies.

Keywords: Building, Academic tenacity, Students, Physical education, Sports science

1. Introduction

Society has several pillars that provide it with human resources, and the university is at the forefront of these pillars. It is the main support that no society can do without in its progress and growth. It is an academic scientific institution whose goal is to prepare individuals who are researchers and students in various disciplines to meet the requirements of comprehensive development in society. Between The university and a life experience in the individual's scientific journey that is distinguished from the

stages that preceded it in that it qualifies individuals for practical life because the previous stages prepare them and provide them with information in order to reach it. University life is not without circumstances and problems on various academic, psychological and social levels, It requires its members to pass through and overcome it, and for this reason, specialists and educators in the field of physical education, sports science, educational psychology, and others have been interested in studying young people, especially university students, and studying ways that help them achieve the best educational

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levels. “One of the most important expectations for the success of students is that they have academic tenacity, that is, they are more able to achieve and perform according to standard levels” (Kannangara et al., 2020). These can be grouped together under the term academic tenacity, which enables students to engage in learning, postpone short-term temptations, view efforts positively, see challenges and obstacles as learning opportunities, view problems as solvable, and use strategies to move forward effectively. Students with academic tenacity have a sense of academic belonging, are engaged in learning, view their efforts positively, and are able to face challenges and difficulties as learning opportunities. Regarding the characteristics of academic tenacity, each one is important in enhancing academic performance, the ability to face difficulties, solve problems, overcome obstacles, and achieve higher levels of academic attainment, ultimately leading to better life outcomes. Each of these characteristics has played a role and had an impact on the lives of many students (Kannangara et al., 2020). As Martin and Marsh (2009) explained, academic tenacity differs from academic resilience, as it relates to dealing with the ordinary academic difficulties that most students face during their educational journey, while academic resilience relates to facing acute and chronic crises. The researchers indicated that academic perseverance is a protective factor that contributes to improved academic adjustment and enhanced chances of academic success (Martin, 2009). In a subsequent study, Martin et al. (2010) demonstrated that the five Cs (confidence, control, calmness, tenacity, and coordination) are fundamental pillars of academic perseverance, and that these factors directly contribute to increased motivation and improved student performance over time (Martin et al., 2010). Furthermore, Collie et al. (2024) found a positive relationship between academic perseverance and academic achievement. Their results showed that students with high levels of academic perseverance have a greater ability to manage study demands and cope with academic pressures, which positively impacts their academic performance (Collie et al., 2024). Similarly, Martin (2013) confirmed that academic perseverance is closely linked to coping with academic anxiety and avoiding failure and dropping out of school, as it helps students overcome daily academic setbacks and maintain their academic engagement (Martin, 2013). The research problem lies in the fact that, given the nature of the study in the faculties of physical education and sports sciences, which combines the theoretical and practical aspects, and what it requires in terms of simultaneous physical and mental effort, students may face multiple pressures that affect their level of academic tenacity.

Despite the importance of this variable, studies - to the best of the researchers' knowledge - have not found a way to adequately measure the academic tenacity of students in faculties of physical education and sports sciences. This raises a fundamental question: Is it possible to develop a method for measuring academic tenacity among students of some physical education and sports science colleges? This research aims to build a scale for academic tenacity among students of the College of Physical Education and Sports Science, as well as to identify the degree of academic tenacity among students of some physical education and sports science colleges. The researchers assumed that students of the College of Physical Education and Sports Science possess a statistically significant level of academic tenacity.

2. Search procedures

2.1. Research method

The researchers used the descriptive method with a survey approach because it was suitable for the nature of the research and its objectives.

2.2. Research community and sample

2.2.1. Research community

The research community consisted of students from some colleges of physical education and sports sciences for the morning and evening studies for the academic year 2025/2026, totaling (921) male and female students distributed across three colleges in three Iraqi universities, namely (Samarra, Tikrit, Kirkuk). These universities were chosen because of the ease of communication with them and their willingness to cooperate with the researchers. Also, the three universities are located within the same geographical area, which ensures reducing the differences between the members of the research sample, as shown in Table 1.

2.2.2. Research samples

The research sample was selected purposively according to the nature of the problem and the research objectives, as follows:

Construction sample: The construction sample was selected purposively from the students of the Colleges of Physical Education and Sports Sciences in the Universities of Tikrit and Kirkuk, and their number amounted to (636) male and female students, representing (69.05%) of the total research population. After that, a pilot experiment sample was selected, amounting to (36) male and female students, representing (3.90%) of the total research population. Thus,

Table 1. Shows the research population and its samples.

T	University	Sample	Statistical analysis		Application	The excluded
			building	exploratory		
1	Samarra	285	–	–	267	18
2	Tikrit	433	372	36	–	25
3	Kirkuk	203	184	–	–	19
The total		921	556	36	267	62
percentage		100%	60.369164	3.9088	28.99	6.7318

•The researchers obtained the number of students from the registration departments in the aforementioned colleges.

Table 2. Agreement of the experts on the validity of the academic adherence scale.

T	Fields	Experts number	agreeing	disagreeing	Agreement percentage
1	trust	11	11	0	%100
2	control	11	11	0	%100
3	Commitment	11	9	2	%81,81
4	Engagement	11	10	1	90,90%

the construction sample became composed of (600) male and female students, representing (65.14%) of the total research population, After excluding (44) male and female students whose answers did not respond to the scale.

Sample application: The researchers determined the sample for the final application of the scale in a deliberate manner for students of the College of Physical Education and Sports Sciences at the University of Samarra, as their number reached (285) male and female students, and (18) male and female students were excluded because their answers were not included in the final application of the scale.

2.3. Methods of information collection and tools and equipment used in the research

2.3.1. Data collection methods

Questionnaire to find out the validity of the academic stickiness scale. Arabic and foreign scientific sources and references. Expert opinions [Appendix \(1\)](#) The Supporting Research Team.

2.3.2. Tools and equipment used in the research

A DELL laptop. Some office supplies (pens and paper). A stopwatch.

2.4. Field research protocols

2.4.1. Procedures for constructing an academic tenacity scale

After reviewing numerous studies and scientific references, the researchers found no existing tool for measuring academic commitment among students in some faculties of physical education and sports

science. (As far as the researchers know) Therefore, the researchers constructed an academic commitment scale. Ibrahim Faisal Khalaf (2020, p. 53), citing Muhammad Khair Al-Din (2016), indicated that constructing such a scale involves several stages.

Defining the concept of the scale: After the research, the researchers came to study academic adherence and to know its level and its relationship to the other study variable.

Defining the objective of the scale: It is to develop a scientific method to identify the level of academic commitment among students of physical education and sports science colleges in some Iraqi universities.

Defining the areas of the academic tenacity scale: After defining the scale's concept and objective, the researchers needed to determine the areas it would encompass. Therefore, they reviewed several scientific sources and references related to the topic of academic attachment, such as the study by Kanjara (2020). The researchers identified four areas for the academic attachment scale: trust, control, commitment, and attachment. To ensure the validity and suitability of these areas for the research sample, the researchers developed a questionnaire covering these areas and presented it to experts. Attachment 2) A minimum score of 75% was adopted for acceptance of each area, as [Bloom et al. \(1983\)](#) states that "75% or more of the experts' opinions are accepted" ([Bloom et al., 1983](#), p. 126). The completed questionnaires were then collected from the experts, and their feedback was incorporated. [Table 2](#) illustrates this process:

[Table 2](#) shows that all areas were accepted as they obtained the required percentage of agreement from the experts. The percentage (75%) or more of the experts' opinions was adopted, and thus the scale

becomes composed of four areas, which are (trust, control, commitment, and connection).

Formulating the items for the academic tenacity scale: In order to formulate the scale items, the researchers reviewed scientific sources and references related to academic attachment and conducted personal interviews with specialists. (40) items were proposed, distributed across the scale's domains, and were included in a questionnaire in its initial form. Several aspects were considered in formulating the items, as the researchers must ensure accuracy during the formulation process.

Face validity of the academic tenacity scale: After collecting the forms from the experts and transcribing them, the opinions of the experts were taken into account to make it ready in its initial form, as it became clear that all items in all fields obtained a percentage of agreement greater than (75%) and no item was deleted, and thus the number of items of the scale is (40) items, with (10) items for each field.

The pilot study of the academic tenacity scale: The pilot application sample was selected from the students of the College of Physical Education and Sports Sciences/Tikrit University, numbering (36) students, representing (3.90%). The researchers conducted the pilot application of the scale with the help of the assisting work team on Thursday, 5/3/2026. The time required to answer the scale was between (12-20) minutes. This was calculated by starting the timing between the moment of distributing the scale to the survey sample and the moment of submitting the answer to the first student as the minimum time and the last student as the maximum time.

Scientific foundations for measuring academic persistence among some students in colleges of physical education and sports sciences:

Validity of the scale:

The validity of the discrimination (the two extreme groups): The researchers extracted the discriminatory power by applying the scale to a sample of (300) male and female students for the period from 8/3/2026 until 17/3/2026.

After distributing the scale to the sample of students, (44) male and female students did not respond, and thus the sample amounted to (556) male and female students. When they were divided at a rate of (27%) into two groups, upper and lower, (150) student's were taken from the group with the upper responses and (150) student's from the lower group, and Table 3 shows this.

Table 3 presents the results of the extreme groups method for the scale items. The results of the discriminatory power analysis of the scale items using an

independent samples t-test showed statistically significant differences between the mean scores of the upper and lower groups on all scale items. All sig. values were less than the significance level of 0.05, indicating that all items possess high discriminatory power in differentiating between high-scoring and low-scoring individuals on the scale. Furthermore, the calculated t-values for all items were high and exceeded the critical values, confirming the significance of the differences between the two groups. These results indicate that the scale items possess a good degree of discriminatory validity, as each item was able to clearly differentiate between students with high and low levels in the measured trait. This enhances the scale's efficiency and suitability for application in the current study. Accordingly, all items were retained due to their statistically significant discriminatory power.

Internal consistency validity:

Item consistency with the scale: The researchers found the internal consistency of the scale by extracting the simple correlation coefficient (Pearson) to measure the correlation of the score of each item with the total score of the scale. The (sig) values were adopted to indicate this correlation, and the correlation values are considered significant if the (sig) values $\leq$ (0.05). Table 4 shows this.

The results of Table 4 correlation coefficient table between the score of each item and the total score of the scale showed that all correlation coefficients were positive and statistically significant at the significance level of (0.01). These results indicate that the items of the scale are appropriately correlated with the total score, which shows that the items move in the same direction as what the total scale measures. This confirms the existence of good internal consistency between the items and the total score of the scale, which enhances the validity of the internal structure of the scale and its suitability for application to the research sample.

Consistency of paragraphs within their scope: In order to ensure the consistency of the scale, the two researchers found a correlation between the score of each item and the total score of the field to which it belongs, as shown in Table 5.

The results of Table 5 The results of the correlation analysis between the items of the first domain and the total domain score (M1) showed a significant correlation between each item and the total score of the first domain. These results indicate that the domain items have a good degree of internal consistency, and that all items contribute effectively to measuring the first domain, which enhances the internal construct validity of the scale and its applicability.

Table 3. Values of the arithmetic means, standard deviations, calculated (t) values, and (sig) values for the two extreme groups of the scale.

T	Paragraph	Upper Group		Lower group		Calculated T	Sig.	Significance
		arithmetic mean	standard deviation	arithmetic mean	standard deviation			
1	Q1	5.000	0.000	4.254	0.607	19.355	0.000	significant
2	Q2	5.000	0.000	4.081	0.754	19.204	0.000	significant
3	Q3	5.000	0.000	4.561	0.729	9.501	0.000	significant
4	Q4	5.000	0.000	4.230	0.805	15.074	0.000	significant
5	Q5	5.000	0.000	4.452	0.724	11.931	0.000	significant
6	Q6	5.000	0.000	4.093	0.722	19.780	0.000	significant
7	Q7	5.000	0.000	4.113	0.755	18.501	0.000	significant
8	Q8	5.000	0.000	4.250	0.698	16.910	0.000	significant
9	Q9	5.000	0.000	4.532	0.660	11.153	0.000	significant
10	Q10	5.000	0.000	4.153	0.630	21.151	0.000	significant
11	Q11	5.000	0.000	4.262	0.731	15.898	0.000	significant
12	Q12	5.000	0.000	4.383	0.888	10.945	0.000	significant
13	Q13	5.000	0.000	4.182	0.694	18.584	0.000	significant
14	Q14	5.000	0.000	4.556	0.798	8.755	0.000	significant
15	Q15	5.000	0.000	4.117	0.735	18.908	0.000	significant
16	Q16	5.000	0.000	4.262	0.643	18.086	0.000	significant
17	Q17	5.000	0.000	4.113	0.664	21.045	0.000	significant
18	Q18	5.000	0.000	4.371	0.794	12.470	0.000	significant
19	Q19	5.000	0.000	4.423	0.744	12.213	0.000	significant
20	Q20	5.000	0.000	4.242	0.707	16.884	0.000	significant
21	Q21	5.000	0.000	4.125	0.729	18.912	0.000	significant
22	Q22	5.000	0.000	4.065	0.688	21.408	0.000	significant
23	Q23	5.000	0.000	4.528	0.725	10.249	0.000	significant
24	Q24	5.000	0.000	4.415	0.795	11.578	0.000	significant
25	Q25	5.000	0.000	4.419	0.780	11.719	0.000	significant
26	Q26	5.000	0.000	4.431	0.797	11.236	0.000	significant
27	Q27	5.000	0.000	4.536	0.814	8.971	0.000	significant
28	Q28	5.000	0.000	4.431	0.807	11.096	0.000	significant
29	Q29	5.000	0.000	4.032	0.708	21.532	0.000	significant
30	Q30	5.000	0.000	4.371	0.819	12.088	0.000	significant
31	Q31	5.000	0.000	3.895	0.898	19.371	0.000	significant
32	Q32	5.000	0.000	4.427	0.786	11.468	0.000	significant
33	Q33	5.000	0.000	4.355	0.827	12.291	0.000	significant
34	Q34	5.000	0.000	4.040	0.730	20.705	0.000	significant
35	Q35	5.000	0.000	4.117	0.763	18.238	0.000	significant
36	Q36	5.000	0.000	4.407	0.853	10.939	0.000	significant
37	Q37	5.000	0.000	4.379	0.801	12.213	0.000	significant
38	Q38	5.000	0.000	4.444	0.803	10.915	0.000	significant
39	Q39	5.000	0.000	3.895	0.842	20.654	0.000	significant
40	Q40	5.000	0.000	3.915	0.677	25.230	0.000	significant

* Significant if sig. > 0.05.

The results of Table 6 the correlation coefficients between the items and the second domain indicate the existence of positive and statistically significant correlations at the significance level of (0.01), which indicates that the items measure the same dimension in a homogeneous and interconnected manner.

The results Table 7 show that there are positive and statistically significant correlations between all items in the third domain and the overall domain (M3) at a significance level of (0.01), indicating that the items are related and measure the same concept well.

The results Table 8 indicate that there are positive and statistically significant correlations between all items in the fourth domain and the overall domain (M4) at a significance level of (0.01), which confirms

that the items are related and appropriately measure the same dimension.

Consistency of the domains with each other: In order to ensure the consistency of the scale, the researchers found the correlation of the scores of each domain with the other domain within the scale to ensure that they are related to each other and represent the scale, as shown in Table 9.

All correlation coefficients are statistically significant at the 0.01 level.

The results of Table 9 the correlation matrix indicate positive and statistically significant correlations between all study domains, confirming the statistical significance at the 0.01 level and reinforcing the construct validity and internal consistency of the research instrument.

Table 4. Correlation coefficients between the score of each item and the total score of the scale and (sig) values.

T	Paragraph	Correlation coefficient	Sig.	T	Paragraph	Correlation coefficient	Sig.
1	Q1	0.582	0.000	21	Q21	0.686	0.000
2	Q2	0.658	0.000	22	Q22	0.712	0.000
3	Q3	0.477	0.000	23	Q23	0.600	0.000
4	Q4	0.627	0.000	24	Q24	0.626	0.000
5	Q5	0.612	0.000	25	Q25	0.647	0.000
6	Q6	0.619	0.000	26	Q26	0.641	0.000
7	Q7	0.701	0.000	27	Q27	0.607	0.000
8	Q8	0.610	0.000	28	Q28	0.639	0.000
9	Q9	0.575	0.000	29	Q29	0.689	0.000
10	Q10	0.616	0.000	30	Q30	0.616	0.000
11	Q11	0.615	0.000	31	Q31	0.654	0.000
12	Q12	0.563	0.000	32	Q32	0.657	0.000
13	Q13	0.663	0.000	33	Q33	0.628	0.000
14	Q14	0.557	0.000	34	Q34	0.690	0.000
15	Q15	0.718	0.000	35	Q35	0.682	0.000
16	Q16	0.632	0.000	36	Q36	0.685	0.000
17	Q17	0.711	0.000	37	Q37	0.683	0.000
18	Q18	0.635	0.000	38	Q38	0.637	0.000
19	Q19	0.627	0.000	39	Q39	0.441	0.000
20	Q20	0.622	0.000	40	Q40	0.389	0.000

•Significant if the sig value is > 0.05.

Table 5. Values of correlation coefficients between the score of each dimension and the total score of the scale and the (sig) values of the item correlation coefficient with the first domain.

Paragraph	Correlation coefficient with the first field	Sig.	Paragraph	Correlation coefficient with the first field	Sig.
Q1	0.792	<0.001	Q6	0.770	<0.001
Q2	0.812	<0.001	Q7	0.798	<0.001
Q3	0.361	<0.001	Q8	0.765	<0.001
Q4	0.799	<0.001	Q9	0.382	<0.001
Q5	0.433	<0.001	Q10	0.774	<0.001

Reliability of the academic commitment scale among some students of physical education and sports science colleges: Reliability is a crucial indicator, and the researchers used the following methods to calculate it:

Cronbach's alpha method for the scale as a whole: This method is used to estimate the reliability coefficient of a test or scale in tests and scales that allow test-takers

to choose one response from a set of responses. The researchers used this method as a second method to find reliability, and the reliability coefficient in this method reached (0.959), which is a very high value and indicates that the scale enjoys a high degree of internal consistency and reliability. This also indicates that the items of the scale are homogeneous and mea-

Table 6. Correlation of items with the second domain (Q11–Q20).

paragraph	Pearson Correlation Coefficient	Sig	paragraph	Pearson Correlation Coefficient	Sig
Q11	0.738	<0.001	Q16	0.756	<0.001
Q12	0.491	<0.001	Q17	0.812	<0.001
Q13	0.796	<0.001	Q18	0.529	<0.001
Q14	0.605	<0.001	Q19	0.504	<0.001
Q15	0.843	<0.001	Q20	0.724	<0.001

Table 7. Correlation of items in the third domain (Q21–Q30).

paragraph	Pearson Correlation Coefficient	Sig	paragraph	Pearson Correlation Coefficient	Sig
Q21	0.507	<0.001	Q26	0.807	<0.001
Q22	0.552	<0.001	Q27	0.782	<0.001
Q23	0.794	<0.001	Q28	0.812	<0.001
Q24	0.817	<0.001	Q29	0.522	<0.001
Q25	0.821	<0.001	Q30	0.791	<0.001

Table 8. Correlation of items in the fourth domain (Q31–Q40).

paragraph	Pearson Correlation Coefficient	Sig	paragraph	Pearson Correlation Coefficient	Sig
Q31	0.612	<0.001	Q36	0.771	<0.001
Q32	0.743	<0.001	Q37	0.761	<0.001
Q33	0.725	<0.001	Q38	0.724	<0.001
Q34	0.619	<0.001	Q39	0.599	<0.001
Q35	0.610	<0.001	Q40	0.541	<0.001

Table 9. Correlation matrix between domains with statistical significance values (Sig).

Fields	M1	M2	M3	M4
M1	1	0.895** Sig=0.000	0.697** Sig=0.000	0.715** Sig=0.000
M2		1	0.756** Sig=0.000	0.778** Sig=0.000
M3			1	0.840** Sig=0.000
M4				1

sure the same concept with a high degree of accuracy and reliability, which confirms the validity of the scale for application in the current study.

Cronbach's alpha method for scale items: The researchers used Cronbach's alpha method to find the reliability of each item of the scale and it was found that the values of Cronbach's alpha coefficient in the case of deleting the item ranged between (0.958 – 0.960), which are very close to the overall reliability coefficient of the scale, which indicates that deleting any item does not lead to a substantial improvement in reliability, and therefore all items are suitable to remain within the final scale.

Final description of the scale: After all the procedures carried out by the researchers above, the scale for academic commitment among some students of faculties of physical education and sports sciences is now ready in its final form (Appendix 2), which consists of (40) items distributed across four fields, namely:

1. The (Trust) Field consisted of (10) items, and its sequence in scale (1-10)
2. The (Control) Field consisted of (10) items, and its sequence in scale (11-20)
3. The (Commitment) Field consisted of (10) items, and its sequence in scale (21-30)
4. The (Affiliation) Field consisted of (10) items, and its sequence in scale (31-40)

The response options for the scale items were (always, often, sometimes, rarely, never), respectively. The highest score achieved by a respondent on the scale was (200), and the lowest score was (40). The hypothetical mean score for the scale was (120).

2.5. The main experiment of applying the academic tenacity scale

After completing the previous procedures for building the scale and reaching its final version, the

researchers applied it to the application sample of (285) male and female students, and (18) male and female students were excluded for not answering the scale, and thus the number of application sample was (267) male and female students. The researchers designed an electronic form for the scale on the (Google forms) program, and then sent it to the application sample as a link via the WhatsApp program for each male and female student and asked them to answer the scale, during the period from Monday 6/4/2026 until Monday 13/4/2026, and after that the answers were obtained from the electronic link and the data were downloaded in (Excel) format in order to process it statistically.

3. Presenting and discussing the results

After conducting fieldwork and constructing the scale according to the scientific steps for scale development, the researchers achieved the first objective of the research, which was to develop an academic commitment scale.

3.1. Presentation of the academic commitment scale for students in some colleges of physical education and sports sciences

To achieve the second objective of the study, and after the researchers developed the academic commitment scale and applied it to the main sample, they obtained results that allow them to identify the degree of academic commitment among students in some colleges of physical education and sports sciences.

This shows from the Table 10 a clear concentration of responses at higher levels.

This shows from the Table 11 The study reveals a statistically significant difference between the sample mean and the hypothetical mean, favoring the sample mean.

Table 10. Descriptive statistical indicators for the overall scale.

arithmetic mean	The mediator	The loom	standard deviation	twist	The spread	lowest grade	Highest grade
186.81	183	200	14.486	-1.98	0,412	84	200

Table 11. Results of the one-sample t-test for the overall scale.

Variable	arithmetic mean	standard deviation	hypothetical mean	Calculated T-value	Level of significance
Academic tenacity Scale	186.813	14.486	120	139.892	0.000

Based on the results given in the table above, it is found that the members of the research sample possess a high level of academic attachment and this result can be explained in light of the theory (Clark et al., 2020), which believes that academic success is not achieved as a result of one factor only, but through a set of integrated personality traits and characteristics that work together to achieve academic achievement, the results of this study are consistent with the study of Abdullatif (2022) that university students enjoy a high level of academic attachment, and that This variable is positively correlated with academic average, as it helps students to face and adapt to everyday academic challenges (Abdellatif, 2022). As it means that university life is suitable for increasing academic adhesion because it provides a suitable environment that helps to motivate and desire to continue studying and continue facing challenges in order to complete the academic journey, as the students' motivation towards studying and the desire to increase knowledge helps them to challenge and overcome difficulties in order to continue with high enthusiasm and desire, as the study of Xu and Wang (2022) showed that academic motivation and interest in learning contribute to enhancing academic adherence, which increases students' ability to continue in learning and facing academic difficulties. In the same context. (Xu, (2022)) In this context, Martin, Collie and their colleagues explained that academic adherence is an important factor in improving academic interaction and academic achievement, as students with high levels of attachment have a greater ability to deal with daily pressures and challenges. Collie et al. (2024), and the study of Putwain et al. (2023) also showed that academic engagement directly and indirectly contributes to raising academic achievement by enhancing academic engagement. Rafsanjani et al. (2024) found that academic engagement is one of the most important variables explaining academic achievement among university students, as it helps them overcome temporary failures and continue to achieve their educational goals. These results support the findings of the current research that students of the faculties of physical education and sport sciences enjoy a high level of academic adhesion, which

reflects that they have positive characteristics that contribute to meeting the requirements of theoretical and practical study and achieving academic success (Rafsanjani et al., 2024).

4. Conclusions

4.1. Conclusions

- There is a high level of academic commitment among students in some faculties of physical education and sports science, indicating the presence of well-rounded student characteristics that have led to this high level.
- Academic commitment is achieved and grows significantly when students in some faculties of physical education and sports science demonstrate determination and commitment, and the opposite is also true.

Author's declaration

Conflicts of interest

None.

We confirm that all tables and figures in this article are ours and written by the researchers themselves.

Ethical-clearance

This manuscript approved by Samarra University/Faculty of Physical Education and Sport Sciences, on (2026/05/16).

Author's contributions

All contributions to this study were carried out by the researchers **Khalidoun Hamad Ali Hussein**, who conducted the study procedures, collected and organized the data, participated in the implementation of the experimental program, and contributed to drafting the manuscript, and developed the research idea, designed the study, supervised the research procedures, interpreted the results, and reviewed and finalized the manuscript, with the assistance of a

number of experts: **Saad Abbas Abd** in Statistics and **Aya Hasan** in Translation.

Facilitating the task

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Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

References

- Bloom, B. *et al.* (1983). *Assessing Summative and Formative Student Learning*. Translated by: Muhammad Amin Al-Mufti *et al.*: MacRuhill Publishing House, Cairo.
- Abdellatif, M. S. (2022). Academic buoyancy of university students and its relationship to academic average in light of some demographic variables. *Cypriot Journal of Educational Sciences*, 17(7), 2410–2423. <https://doi.org/10.18844/cjes.v17i7.7599>.
- Clark, K. N., Dorio, N. B., Eldridge, M. A., Malecki, C. K., & Demaray, M. K. (2020). Adolescent academic achievement: A model of social support and grit. *Psychology in the Schools*, 57(2), 204–221. <https://doi.org/10.1002/pits.22318>.
- Collie, R. J., Caldecott-Davis, K., & Martin, A. J. (2024). Academic buoyancy among female secondary school students: An examination of predictors and outcomes up to age 22. *Social Psychology of Education*, 27, 363–388. <https://doi.org/10.1007/s11218-023-09843-6>.
- Kannangara, C. S., Allen, R. E., Carson, J. F., Khan, S. Z. N., Waugh, G., & Kandadi, K. R. (2020). Onwards and upwards: The development, piloting and validation of a new measure of academic tenacity—The Bolton Uni-Stride Scale (BUSS). *PLOS ONE*, 15(7), Article e0235157. <https://doi.org/10.1371/journal.pone.0235157>.
- Martin, A. J. (2013). Academic buoyancy and academic resilience: Exploring “everyday” and “classic” resilience in the face of academic adversity. *School Psychology International*, 34(5), 488–500. <https://doi.org/10.1177/0143034312472759>.
- Martin, A. J., Colmar, S. H., Davey, L. A., & Marsh, H. W. (2010). Longitudinal modelling of academic buoyancy and motivation: Do the 5Cs hold up over time? *British Journal of Educational Psychology*, 80(3), 473–496. [https://doi.org/10.1348/000709910\\$times\\$486376](https://doi.org/10.1348/000709910$times$486376).
- Martin, A. J., & Marsh, H. W. (2009). Academic resilience and academic buoyancy: Multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs. *Oxford Review of Education*, 35(3), 353–370. <https://doi.org/10.1080/03054980902934639>.
- Putwain, D. W., Becker, S., Symes, W., & Pekrun, R. (2023). Riding the bumps in mathematics learning: Relations between academic buoyancy, engagement, and achievement. *Learning and Instruction*, 83, Article 101691. <https://doi.org/10.1016/j.learninstruc.2022.101691>.
- Rafsanjani, M. A., Wahyudi, H. D., Dewi, R. M., & Kamalia, P. U. (2024). Navigating the college students’ adversities: The role of academic buoyancy and motivation on learning achievement. *Journal on Efficiency and Responsibility in Education and Science*, 17(3), 247–256. <https://doi.org/10.7160/eriesj.2024.170307>.
- Xu, X., & Wang, B. (2022). EFL students’ academic buoyancy: Does academic motivation and interest matter? *Frontiers in Psychology*, 13, Article 858054. <https://doi.org/10.3389/fpsyg.2022.858054>.

A. Academic commitment scale

T	Paragraph	applies to	Apply to	applies to me.	Applies to	doesn't
		me. Always.	me Mostly.	Sometimes	me Rarely	apply to me.
1	I am confident in my ability to succeed in both theoretical and practical subjects.					
2	I can manage my time effectively to meet the demands of my studies and training.					
3	I attend all theoretical and practical lectures regularly.					
4	I feel a sense of belonging to the College of Physical Education and Sports Sciences.					
5	I feel capable of overcoming any academic difficulties I may encounter during my studies.					
6	I manage my emotions effectively when faced with academic or training challenges.					
7	I make a consistent effort to complete my coursework on time.					
8	I feel that studying this major is an important part of my professional future.					
9	I am confident in my practical and scientific skills in the field of sports.					
10	I work to find appropriate solutions when I encounter academic problems.					
11	I adhere to the instructions of my professors and the academic requirements of my courses.					
12	I enjoy participating in the academic and athletic activities organized by the college.					
13	I believe in my ability to improve my academic performance through perseverance and hard work.					
14	I make sure to plan my coursework in advance.					
15	. I strive to achieve academic excellence in my university studies.					
16	I feel that what I learn at college has real value in my life.					
17	I can perform my academic duties and tasks with high efficiency.					
18	I can balance my studies with various sports activities.					
19	I continue to work hard even when facing academic difficulties.					
20	I am keen to build positive relationships with my classmates and professors at college.					
21	I feel confident when participating in academic and practical activities within the college.					
22	I adjust my study methods when they do not achieve the desired results.					
23	I make sure to attend lectures and participate in academic activities regularly.					
24	I feel proud to be a student in the College of Physical Education and Sports Sciences.					
25	I believe I am capable of achieving good results in my exams.					
26	I control the factors that may negatively affect my academic performance.					
27	I am committed to completing all the required assignments and tasks.					
28	I actively participate in the events and activities organized by the college.					
29	I am confident in my ability to learn the new sports skills required for my studies.					
30	I manage the pressures of my studies in an organized manner.					
31	I dedicate sufficient time to studying and preparing for exams.					
32	I feel like an important part of the university community.					
33	I face academic challenges with a positive attitude and confidence.					
34	I set clear priorities for completing my university studies.					
35	I consider academic excellence a primary goal in my university life.					
36	I strive to represent the college positively in various activities.					
37	I believe my abilities enable me to excel in sports.					
38	I maintain my focus while performing various academic tasks.					
39	I maintain a consistent level of effort and diligence in my studies.					
40	I feel satisfied with my affiliation with the Physical Education and Sports Science major.					

بناء مقياس التشبث الأكاديمي لطلبة بعض كليات التربية البدنية وعلوم الرياضة

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ملخص البحث :

هدفت هذه الدراسة إلى تطوير مقياس للمثابرة الأكاديمية لدى طلاب كليات التربية البدنية وعلوم الرياضة، وتحديد مستوى مثابرتهم الأكاديمية. ونظرًا للطبيعة النظرية والعملية للدراسة في هذه الكليات، والتي قد تؤثر على مشاركة الطلاب الأكاديمية، فضلًا عن نقص الأدوات المعيارية لقياس هذا المفهوم في هذا المجال، برزت الحاجة إلى تطوير أداة قياس صالحة وموثوقة، والإجابة عن سؤال البحث الرئيسي: هل من الممكن تطوير أداة علمية لقياس المثابرة الأكاديمية لدى طلاب بعض كليات التربية البدنية وعلوم الرياضة؟ اعتمد الباحثون المنهج الوصفي، لملاءمته لطبيعة الدراسة وأهدافها. شمل مجتمع الدراسة طلاب كليات التربية البدنية وعلوم الرياضة في جامعات سامراء وتكريت وكركوك للعام الدراسي (2025-2026)، بإجمالي 921 طالبًا وطالبة. قُسم مجتمع الدراسة إلى عينة أولية وعينة تطبيقية. شملت عينة بناء المقياس 600 طالب بعد استبعاد المشاركين في الدراسة التجريبية، بينما تألفت عينة التطبيق النهائية من 267 طالبًا بعد استبعاد الإجابات غير المكتملة. اتبع الباحثون إجراءات علمية معيارية لبناء المقياس والتحقق من صحته النفسية. ثم طُبّق المقياس على العينة النهائية. أشارت النتائج إلى أن طلاب كليات التربية البدنية وعلوم الرياضة أظهروا مستوى عالٍ من المثابرة الأكاديمية، بمتوسط درجات بلغ 186.813 مقارنةً بالمتوسط النظري البالغ 120. بلغت قيمة t المحسوبة 139.892 عند مستوى دلالة إحصائية قدره 0.000. خلصت الدراسة إلى أن المثابرة الأكاديمية تلعب دورًا هامًا في تعزيز قدرة الطلاب على الاستمرار، وتجاوز التحديات الأكاديمية، وتحقيق الأهداف التعليمية. تتوافق هذه النتائج مع الهدف الرابع من أهداف التنمية المستدامة (التعليم الجيد) من خلال تحسين مخرجات التعليم العالي وتعزيز كفاءات التعلم مدى الحياة.

الكلمات المفتاحية: (بناء، التشبث الأكاديمي، طلبة، التربية البدنية وعلوم الرياضة)