Pakistan Journal of Life and Social Sciences

www.pjlss.edu.pk

RESEARCH ARTICLE

Measuring the Level of Cognitive Style (Risk – Caution) among University Students

Mohammed Abdulrazzaq Azeez[1*], Assist. Prof. Dr. Anwer Kasim Yahya Al-Azawy[2]

[1, 2] College of Basic Education, University of Mosul, Iraq.

ARTICLE INFO	ABSTRACT
	The current study focuses on measuring the level of cognitive style (risk – caution) among university students. The research sample reached (1002) male and female students from the colleges of the University of Mosul from both specializations (scientific and humanities) and from (males - females) and stage (second - fourth). To achieve the research objectives, the researcher created a measure of cognitive style (risk/caution), which consists of (37) items. The data was processed statistically by using the statistical package (SPSS), and appropriate statistical methods were used, including: the T-Test, and the KR-20 equation, and the Pearson correlation coefficient, and the researcher reached the following conclusion: University students are characterized by a cognitive style (risk), and there are statistically significant differences between the second and fourth stages in favor of the second.

*Corresponding Author:

mohammad.23bep92@student.uomosul.edu.iq

INTRODUCTION

Cognitive styles are an intermediary process between the stimuli the individual receives (input) and the behaviors he produces (outputs). They also work to organize perception and other cognitive processes to determine a special and distinctive style for the individual in processing this information. In this regard, Al-Sharqawi explains, 1992: 45).

There is agreement among researchers and specialists that cognitive styles are considered psychological formations that are not determined by one aspect of personality, but rather contribute to explaining individual differences between individuals for many cognitive and emotional variables. Cognitive styles express the most detailed way the individual has in order to practice his cognitive activities. Such as thinking, imagining, and the ways in which he approaches solving his problems and making his decisions (Al-Atoum, 2004: 285-287).

If cognitive styles represent an individual's cognitive preferences or the preferred forms of performance of individuals in perceiving and organizing the stimuli surrounding him, then the (risk) -caution style is considered one of the important styles as it is used accurately in the compatibility of individuals and the interaction between them (Kaase, 1994: 29).

The cognitive style (risk – caution) is linked to the extent of individual differences between individuals in their willingness to take risks and seize opportunities, to achieve a specific goal, and this is what distinguishes (risk), in exchange for obtaining certain guarantees before entering into any adventure, and this is what distinguishes caution. It is also noted that the risk-taker relies on to guess in a situation with complex alternatives, and is characterized by an adventurous spirit, while caution is characterized by walking along the drawn paths and according to specific and precise steps, and the necessity of employing the cognitive method in learning environments on the role of cognitive methods in developing interaction and designing learning environments. (Hussein, 2017: 45)

AIMS & OBJECTIVES

The current research aims to identify:

The level of cognitive style among university students.

The significance of differences in the level of cognitive style ((risk) / caution) among university students according to academic grade (second - fourth).

The current research is limited to students of the University of Mosul for morning studies for the academic year 2023-2024 of both genders (males - females) and specializations (scientific - humanities).

LITERATURE REVIEW

The cognitive style (risk/caution) is considered one of the styles that is characterized by unique features and characteristics in the way of perception, and both dimensions (risk/caution) have a special strategy in employing information and in dealing with various environmental stimuli, in terms of receiving, encoding, retaining, and using them, and the choice depends on One of the two dimensions (risk – caution) affects individual differences in cognitive activity in how to practice various processes such as learning, thinking, and solving problems, which gives the person a distinctive growth that suits his inclinations and tendencies to interpret events in light of awareness of his responsibilities. Individuals who tend to be cautious are more attentive to the situation and do not rush into the process. They make decisions while they are less willing to take risks, while individuals who tend towards a risk style are more willing to take risks and try. (Al-Atoum, 2004: 227)

In 1964, (Kogan & Wallach) presented a theoretical framework that focused on (risk) and caution and its relationship to mental abilities in general and decision-making ability in particular. This theoretical framework was primarily based in dealing with this method on presenting the individual with the limits of his tolerance for the possibilities of profit and loss in relation to life situations. It is considered part of the structure of his personality (Abdel Majeed, 2008: 45).

Many studies and research in psychology have indicated a set of characteristics that distinguish Adventurer from cautious individuals, which are as follows:

Adventurer have an ability superior to cautious individuals in their good memory and the ability to recall information and solutions. One of their characteristics is that they are more creative, as many theories and studies would not have been successful and meaningful without taking risks and engaging in challenges for their success and progress.

Adventurer are more confident in themselves and more motivated to achieve tasks. (Rahaif, 2009: 40)

Distracted people are more likely to overcome barriers and pressures than cautious individuals.

Adventurer perform actions characterized by risk and impulsiveness.

(Risk) people are distinguished from cautious people by being more creative. (Hamoud and Nouri, 2019: 28)

Al-Asadi, (2013) indicate that "It is a method that shows the extent of individual differences between individuals in their appetite for adventure. Adventurer tend to seize opportunities to achieve their goals compared to those cautious individuals who tend to obtain certain guarantees before entering into any adventure".

One of the theories that explained the risk/caution cognitive style is the theory of Kokan and Walsh 1964, and the risk/caution cognitive style clarifies the limits of an individual's tolerance for the possibilities of gain and loss and links it to a general ability, which is mental ability, and a specific ability, which is the ability to make a decision. He stated that (risk) people are more adventurous in Entering areas with high returns to achieve their goals, while cautious people tend to obtain guarantees in achieving their goals. According to Kogan, cognitive styles were divided into three types:

First: They represent the cognitive styles most closely linked to the direction of abilities. In this case, the standard of health and performance represents a criterion for controlling the cognitive style. This means that the cognitive style is linked to the performance required by the individual in a specific situation, meaning that performance is defined in light of the degree or level at which the individual has his reasons to which he tends to apply methods and strategies, that is, the methods do not impose themselves on the situation.

Second: They represent cognitive methods that do not require the use of a criterion for the validity or incorrectness of performance, but are viewed on the basis that they lie on a continuous (continuous) bipolar dimension, one of which poles carry the greater value, while the second pole carries the lesser value.

Third: It includes the characteristics of the first and second poles in terms of confirming the relationship between cognitive styles and abilities on the one hand and confirming the greater value of the two poles on the other hand (Kogan 1976: 120).

Guilfoud's three-dimensional theory of the structure of the mind is one of the theories that has attracted the attention of researchers, especially in the field of abilities. From his point of view, cognitive styles are mental functions and methods that express the dispositional aspects of people, that is, executive functions of the mind and its structure (Al-Sharqawi, 2003: 234). Guilford believes that people are distinguished in the way they deal with daily life situations and solve problems.

Many Previous Studies deals with cognitive style (risk – caution) such as Hammoud and Nouri Study (2019) aimed to identify the level of cognitive style (risk – caution) among students at the University of Mosul and to identify the level of cognitive style according to the gender variable. The researcher adopted the scale (Abdul Majeed 2008). The validity of the scale was verified and the discriminatory power of the scale's items was calculated. The results of the study showed that the prevailing style among the students of the University of Mosul is the style with its (risk) dimension more than the style with its caution dimension. The researcher used appropriate statistical methods, such as the Pearson correlation coefficient, the Crew-Nbach coefficient, and the T-Test for one sample. The results of the study showed that there is no statistically significant difference between males and females in the level of cognitive style (risk – caution) , and there is a statistically significant difference in the level of cognitive style depending on the academic grade. The first and fourth, in favor of the first grade, and there is a statistically significant difference according to specialization, scientifically, humanitarianly, and in favor of the humanitarian (Hamoud and Nouri, 2019).

RESEARCH METHODOLOGY

In order for the research procedures to be appropriate to the research objectives, the researcher used the descriptive method, which is one of the most important methods used in scientific research, as it helps in identifying the phenomenon of the study, describing it with quantitative and qualitative expression, and clarifying the relationship between them and other phenomena (Al-Omrani, 2013: 129).

The research community includes students from Mosul University colleges for the academic year (2023-2024), and they have been classified according to their colleges, specializations, and gender. The size of the original community was (44,333) male and female students, with (22,180) males and (22,153) females.

The researcher relied on the stratified random method in selecting the basic research samples, as the nature of the procedures for preparing and building the scale requires its application several times. The size and characteristics of each sample will be made clear to each conductor.

For the purpose of obtaining a representative sample of the research community, the colleges affiliated with the University of Mosul were classified into humanities colleges, which numbered (9) colleges, and scientific colleges, numbering (15) colleges. The sample was drawn by a stratified random method, where (6) were drawn from the humanities colleges. The selection fell on (the College of Law, the College of Arts, the College of Archeology, the College of Education for the Humanities, the College of Political Sciences, and the College of Islamic Sciences). The same procedure was applied to the scientific colleges, and the selection fell on (the College of Medicine, the College of Pharmacy, the College of Engineering, College of Computer Science and Mathematics, College of Science, College of Environmental Science and Technology) The statistical analysis sampled (250) male and female students distributed according to the humanitarian specialization represented by (130) with (62) male and (68) female students, while the scientific specialization represented by (120) At the rate of (62) male and (58) female students, as for the academic grades, the number of students for each grade was respectively as follows: the first (60), the second (53), the third (79), the fourth (47), the fifth (9), and the sixth (2).

The research tool is an objective, codified method for measuring a specific sample of behavior, and the choice of tools is of great importance in identifying the characteristic to be measured (Anastasia 1982: 15). For the purpose of achieving the research objectives, the researcher built a cognitive style scale (risk/caution), and the following is a review of the specific steps of the scale:

RESULT AND DISCUSSION

The researcher found the discriminatory power of the items through the two extreme groups methods and the relationship of the item score to the total score. The researcher applied the scale, which consists of (40) items, to members of the sample of university students, which numbered (250) male and female students, other than the original study sample. They were chosen randomly by (124) male and (126) female students, and the answer forms were corrected, in order to reveal the discriminating power of the scale's items, the sample members' scores were arranged in descending order from the highest total score to the lowest total score, and the two extreme groups were identified according to the total score and percentage, which is (27◌) from each group, as Kelly suggests, the number of members of both groups should be The two extremes in the overall result when calculating the discriminatory power of the items (27◌) from the participants in the sample (Odeh, 1998: 286).

Thus, the number of questionnaires for the upper group was (68) questionnaires, whose scores ranged from (61-72), and (68) questionnaires for the lower group, whose scores ranged from (43-56), and thus the total number of questionnaires that were subjected to analysis was (136)

questionnaires, and after using the T-Test (T-Test) for two independent samples to test the significance of the differences between the means of the upper and lower groups. It appeared that the calculated T-value for all items is greater than the tabulated T-value of (1.960) at a degree of freedom (134) and at a significance level (5 0.0)

The Relationship of the paragraph grade to the total grade

Accordingly, the researcher found the relationship of the score of each item to the total score of the discrimination sample of (250) male and female students using the Pearson correlation coefficient and showed that all correlation coefficients are statistically significant. At the level of (0.05) and the degree of freedom (248), with the exception of paragraphs (11-14-38), where the correlation coefficients ranged between (0.136 - 0.572), meaning that the calculated value is greater than the tabulated value of (1.960).

Reliability is one of the important psychometric properties in constructing tests and measures. This means that the measure gives identical or at least close results for the same individual if it is re-applied several times, meaning that the given description is not the product of chance (Al-Tariri, 2014: 169).

This method was used in calculating reliability, as they are presented with the test whose reliability is to be calculated, and then the results are recorded and corrected. After a specific period of time, the test is presented again, and the recording and correction are also done by finding the correlation coefficient between the two test scores, and the reliability or stability coefficient of the test is extracted. (Salawi, 2021: 78)

In order to obtain the reliability coefficient in this way, the researcher applied the scale to (40) male and female students from the humanities and scientific disciplines. They were chosen randomly, and the interval between the first and second application was two weeks. After that, the value of the reliability coefficient was found through the use of the Pearson correlation coefficient between the application scores. The first and second application degrees reached (0.86) degrees. This value is considered high and a good indicator of the stability of the tool. With this procedure, the performance became ready for final application.

The KR-20 equation

This equation is used in the case of finding the reliability coefficient for any achievement test or ability test, as this method is considered one of the best methods for finding the internal consistency coefficient for the scale. When applying the equation, it is required that the nature of the answer be of the binary type (Weiner & Stewart, 1984: 61). Analysis of the data for the paragraph analysis sample consisting of (250) male and female students showed that the reliability coefficient using the Q-Dr-Richardson method (20) was (0.89), as the reliability coefficient is considered good if it is squared (0.50) or more, which indicates that the current scale It has good reliability and this is an indication of the construct validity of the scale.

The scale of cognitive style (risk/caution) in its final form consists of (37) items. The items are corrected by giving a score of (1) to the answer that expresses the cautious style, and giving a score of (2) to the answer that expresses the (risk style, so the highest score can be obtained. The respondent on the scale has a score of (74) and the lowest score is (37), while the hypothetical mean of the scale is (55.5).

After the researcher confirmed the validity, reliability and discrimination of the items of the study tool, cognitive style ((risk) / caution), and to achieve the objectives of the study, he applied the scale in its final form to the basic research sample consisting of (1002) male and female students, by giving the respondent the two research tools at once and clarifying the instructions for the answer method. It is necessary to answer each paragraph in a way that suits the respondent, in addition to the honesty

and confidentiality of the answer, and that it will be used for scientific research purposes only. The period of final application extended from (4/14/2024) to (4/29/2024) as shown in Table No. (1).

Table 1: Final application of Research Items

College			Arts	Political Sciences	Human Education	Islamic Sciences	Law	Mining Engineering	Veterinary Medicine	Pharmacy	Engineering	Environmental Sciences	Computer Sciences and	Pure Sciences	Humanities	Science	Total
Academic classes	First	Males	11	8	22	7	10	9	8	5	8	9	12	13	58	64	122
		Females	12	7	20	10	9	4	8	12	3	13	10	15	58	65	123
		the total	23	15	42	17	19	13	16	17	11	21	22	28	116	129	245
	Second	Males	12	8	23	8	12	7	11	6	9	9	10	11	63	63	126
		Females	13	7	23	9	11	3	8	14	4	9	10	12	63	60	123
		the total	25	15	46	17	23	10	19	20	13	18	20	23	116	123	249
	Third	Males	11	12	16	10	9	5	7	4	8	12	11	13	58	60	118
		Females	13	10	21	9	8	2	8	11	6	11	13	11	61	62	123
		the total	24	22	37	19	17	7	15	15	14	23	24	24	119	122	241
	Fourth	Males	12	11	17	13	15	10	12	5	11	8	9	14	68	69	137
		Females	14	9	16	12	13	4	9	12	5	10	10	16	64	66	130
		the total	26	20	33	25	28	14	21	17	16	18	19	30	132	135	267
	Total	Males	46	39	78	38	46	31	38	20	36	38	42	51	247	256	503
		Females	52	33	80	40	41	13	33	49	18	43	43	55	246	253	499
		the total	98	72	158	78	87	44	71	69	54	81	85	106	493	509	1002

The results reached by the researcher will be presented and interpreted.

First objective: The first objective includes identifying the level of cognitive style (risk – caution) among students. The average score of the students on the cognitive style scale (risk – caution) was calculated, reaching (59.93) with a standard deviation of (6.13), and when balancing the arithmetic mean for the research sample. With the hypothesized mean of the scale (55.5), it was found that there was a significant difference between the two means in favor of the sample mean, as the calculated T-value reached (22.87), which is greater than the tabulated value (2.00) at the level of (0.05) and the degree of freedom (1001), and Table No. (2) shows that.

Table 2: One-sample T-Test on the level of cognitive style (risk – caution)

Sample	Flux Average	Account rate	Slandered curve	T- value		equation
				calculated	tabulation	
1002	5.55	59.93	6.13	22.876	2.00	Equation

From the table above it was shown that the calculated T-value is higher than the tabular one, which means that there is a statistically significant difference in favor of the arithmetic mean. This result can be interpreted according to the theory of Kogan and Welch (1964), as this method indicates the extent of individual differences between individuals in the extent of their willingness to take risks. (risk) individuals tend to seek to achieve their goals, compared to those cautious individuals who tend to obtain certain guarantees before entering into any adventure. It also showed that (risk) individuals are more adventurous in entering areas with high returns. This result agreed with the study of Hammoud and Saleh (2019).

To achieve this goal, the researcher extracted the arithmetic mean and standard deviation among the members of the research sample according to the variable (stage), then applied the T-Test for two independent samples, and Table No. (3) shows this.

Table 3: T-Test for two independent samples on the level of cognitive style (risk – caution) according to the stage

Stage	Sample No.	Account Rate	Slandered Curve	T- Value		Equation
				Calculated	Tabulation	05.0
Second	249	60.3614	6.35745	1.964	2.00	Not
Fourth	266	59.2959	6.11470			Equation

It is clear from the table above that the arithmetic mean for the second grade was (60.36) and a standard deviation of (6.35), while the arithmetic mean for the fourth grade was (59.29) and a standard deviation of (6.11). Using the test for two independent samples, it was found that the calculated value was (1.96), less than the tabulated value. (2.00) at a significance level of (0.05) and a degree of freedom (1000). This means that there are no statistically significant differences in cognitive style according to the academic grade. The reason may be attributed to the fact that the students of the academic stage are in almost similar educational environments, and that they use the same experiences and abilities. Mentally, because they are in approximately equal age stages, which is adulthood, which prompts them to choose the correct cognitive method, to process information and solve problems, and also that the programs followed in study are the same in both stages (second - fourth).

CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS

The present study reveals the conclusions that university students are characterized by a cognitive style (risk). There are no statistically significant differences between the second and fourth stages.

It is necessary for the teaching staff to take into consideration the individual differences between students, as it relates to the way students respond in different situations in terms of the type of cognitive style they are distinguished by.

Conducting studies that address the relationship of cognitive style (risk / caution) to other variables that are not covered by the current research, such as (thinking - academic achievement - job satisfaction).

REFERENCES

Salawi, Walid Khaled Sayed (2021): Existential frustration and its relationship to life skills among students of the colleges of education at the University of Mosul, Master's thesis, College of Education for the Humanities, University of Mosul.

Al-Tariri, Abdul Rahman bin Suleiman (2014): Psychological and Educational Measurement, 2nd edition, Al-Rushd Library, Riyadh, Kingdom of Saudi Arabia.

Saleh, Amal Turki (2019): The cognitive style of rigidity/flexibility and its relationship to patience among students at the University of Mosul, College of Basic Education, University of Mosul.

Odeh, Ahmed Suleiman (1998): Statistics for the researcher in education and human sciences, Al-Fikr Library, Amman.

Abbas, Muhammad Khalil and others (2009): An Introduction to Research Methods in Education and Psychology, 2nd edition, Dar Al-Masirah for Publishing, Distribution and Printing, Amman, Jordan.

Moussa, Abdel Fattah (2006): Psychological and educational measurement for normal and disabled people, 1st edition, Zahraa Al-Sharq Printing and Publishing Press, Cairo, Egypt.

Muhammad, Muhammad Jassim (2004): Educational Psychology and its Applications, 1st edition, Dar Al-Thaqafa for Publishing and Distribution, Amman, Jordan.

Rabie, Muhammad Shehadha (1994): Personality Measurement, 1st edition, Dar Al Masirah Publishing House, Amman, Al Aden.

Abdul Qadir, Muhammad Fasil (2023): Emotional sensitivity and its relationship to counterintuition among students at the University of Mosul, College of Education for Human Sciences, University of Mosul.

Aqeel, Hussein (2008): Steps of Scientific Research, 2nd edition, Ibn Katheer Publishing House.

Al-Gharib, Ramzia (1985): Psychological and Educational Evaluation and Measurement, Anglo-Egyptian Library, Cairo.

Al-Omrani, Abdul-Ghani Muhammad Ismail (2013): Fundamentals of Educational Research, 1st edition, Al-Kitab University Publishing House, Sana'a.

Al-Sharqawi, Anwar (1988): Contemporary Cognitive Psychology, Anglo-Egyptian Library, Cairo, Egypt, published by the UNESCO Institute of Education, Amman, Jordan.

Al-Sharqawi, Anwar Muhammad (2003): Contemporary Cognitive Psychology, Cairo, Anglo-Egyptian Library, 2nd edition.

Hamoud, Ayman Saleh and Nouri, Ahmed Muhammad (2019): Cognitive style ((risk) - caution) among students at the University of Mosul, College of Basic Education Research Journal, Volume 15, Issue 3.

Raheef, Zainab Shanan (2009): Distinctive cognitive styles and their relationship to personality traits among students at the University of Baghdad, unpublished master's thesis, College of Education, Ibn Rushd, University of Baghdad, Iraq.

Al-Atoum, Adnan Youssef (2004): Cognitive Psychology Theory and Application, 1st edition, Dar Al-Maysara for Publishing and Distribution, Amman.

Hussein, Laith (2017) The effect of the comprehensive and reciprocal tripartite method according to the cognitive style ((risk) / caution) in learning some artistic gymnastics skills for men, Al-Qadisiyah Journal of Educational Sciences.

Abdel Majeed, Hazima Kamal (2011): Cognitive style (risk – caution) and its relationship to sensory memory, 1st edition, Amman: Dar Safaa for Publishing and Distribution.

Al-Asadi, Abbas (2013): Cognitive Methods: An Introduction to Personality, Dar Al-Adala, Baghdad, Iraq.

Al-Jubouri, Ghazwan Ramadan Saleh (2019): Intellectual rigidity and its relationship to the cognitive style (risk – caution) among university students, Master's thesis, Tikrit University.

Al-Nima, Taha Al-Ajili (2004): Introduction to Psychology, Scientific Society Publications, Scientific Society Press, Baghdad.

Al-Akaishi, Bushra (2019): Cognitive style and its relationship to locus of control among students at the University of Sharjah, University of Sharjah Journal for Humanities and Social Sciences, University of Sharjah (1) 16.

Goldman, Daniel (1975): Emotional Intelligence Why it can Matter More than IQ, New York, Bantam Books

Kogan , N & Wallach , M. A) 1964(: Risk Taking , a study in cognition and personality . New York.

Hadlock , E.C. (1974) : The relationship between psychological security and risk – taking career choicen , D.I,VoI. (35), No. (5).

Anastasi A, (1982): Psychological testing, ° th ed, New York, MacMillan.

Kaas, K.J. (1994): Testing the limits of the students adaptation to college questionnaire (ATR). Annual from paper presented at the annual of the association for institutional research, U.S.A., 29.

Kogan , N. (1976): Cognitive Styles in Infancy and Early Childhood. New Jersey: John Willey & Sons.

Weiner, E . A. & Stewart, B. J.)1984(. Assessing individuals Psychological and Educational tests and measurement . New York . Litlle . brown & co.