

The Development of Intellectual Humility and its Relationship with Openness on Experience in Adults and the elderly

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ABSTRACT

This research aims to identify:

1. Intellectual humility among adults and the elderly according to the two variables: a. Age. B. Sex
2. Openness to experience among adults and the elderly according to the two variables: a. Age b. Gender
3. The significance of the correlation between intellectual humility and openness to experience among adults and the elderly according to the two variables: a. Age b. Sex.
4. The significance of the differences in the correlational relationship between intellectual humility and openness to experience among adults and the elderly according to the two variables: a. Age b. Sex.

To achieve the research objectives, the researcher adopted the Krumrei-Mancuso and Rouse (2016) scale, which consists of (21) items distributed into four domains. The researcher also adopted the (Costa & McCrae, 1992) scale, which consists of (28) items distributed into six domains. The two scales were translated into Arabic, verifying the validity of their translation and their psychometric properties of validity and consistency, and after applying it to the research sample of (349) respondents. The data obtained from the sample were statistically processed, and the following results were reached:

1. Adults and the elderly of the ages (18-30) (31-45) (46-59) (60 years and over) possess intellectual humility and openness to experience.
 2. The intellectual humility and openness to experience has evolutionary, progressive, not continuous, path through aging.
 3. The evolutionary path of the relationship between intellectual humility and openness to experience is not affected by age.
 4. The evolutionary pathway of the relationship between intellectual humility and openness to experience with sex is effected for the benefit of males.
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Research Problem:

One of the problems that confront the societies today in general, and the academic community in particular, is the adherence of individuals and their insistence on their ideas, although they are not convinced of these ideas, but they insist on them and do not try to change them even if they are not true, and this may be due to vanity, arrogance, or just to contradict the ideas of others and not They accept new ideas and experiences that are presented by others according to the rule (other than you know), so instead of looking for new experiences and knowledge that will benefit them, we see them cling to blind and false ideas and thus harm themselves and others, and to make their intellectual humility to gain a lot of information and experiences according to a wrong rule. The study of Taber & Lodge (2006) stated that individuals who are not intellectually humble put up barriers to openness to the ideas of others, as well as during social disagreements. . As these individuals see their point of view as "always correct" (Taber & Lodge, 2006: 760-761), and thus intellectual lack of humility is not just a

problem with the accuracy of the ideas and beliefs of individuals but can also make personal tensions in social relationships or in workplaces where It leads to strong reactions to differences of opinion, and the unwillingness to negotiate or compromise, and this can be attributed to individuals who are not intellectually humble to intellectual differences and lack of acceptance of knowledge from others to the misunderstanding of the other side, rather than the potential legitimacy of their opinions and opposing ideas. Unfortunately, this undermines the value of Different points of view and closes the thoughts of individuals with knowledge of them. For example, individuals who feel a strong need to defend their intellectual competence oppose different points of view and close to the acquisition and learning of new knowledge. Butler's study (Butler, 2000) indicated that individuals who show little desire to discover experiences show great conservatism and a strict defense of their own ideas and visions. They are characterized by poor intellectual flexibility, carry extreme tendencies, and are intolerant (Butler, 2000: 2).

Thus according to the discussion, the researcher will have important questions that need answers, namely: Do adults and the elderly possess intellectual humility and openness to experience, and is there a relationship between intellectual humility and openness to experience? Do the age and gender variables affect the correlation between intellectual humility and openness to experience? This is a set of questions that the current research tries to answer.

The research importance

Academic interest has increased in recent years in the variable of intellectual humility, as a result to the connection of this variable with many variables related to knowledge and learning, as there is a relationship between intellectual humility and cooperative learning, whereby intellectual humility facilitates individuals' acquisition of knowledge from and with others. As the individual with intellectual humility is balanced with respecting the views of others with a kind of compassion, altruism, benevolence, and the pursuit of less energy that facilitates cooperative and interactive learning. Likewise, there is a relationship between intellectual humility and knowledge acquisition, since intellectual humility is associated with uncertainty of knowledge, where intellectual humility frees individuals from selfishness and increases their fears about their ideas and knowledge and thus frees them to fully engage in cognitive efforts, because accepting one's intellectual error requires a certain degree of suspicion as opposed to an acceptance other than Perspective to current perspective.

Intellectual humility is also associated with cognitive variables, including the need for perception, wisdom, intellectual participation, curiosity, methods of thinking and describing the fundamental tendency to seek and cognitive enjoyment of activities, as well as there is a relationship between intellectual humility and intelligence, as intellectual humility is associated incrystallized intelligence, and it is not related to acute intelligence etal, 2019: 201).

Openness to experience is the opposite dimension of conservatism and traditionalism, and Mccrae

and John (1992) indicate that individuals who are characterized by openness to experiences possess cognitive characteristics that help them acquire a lot of knowledge and information, as they are characterized by meditation and enjoyment of good intellectual processes and tend to find solutions to things in a creative way. Individuals who are not open to experiences may not be able to discover it (Mccrae & John, 1992: 175).

The researcher believes that we need more clarification regarding intellectual humility and openness to experience for two reasons: The first is that our culture promotes and rewards excessive confidence and vanity, and the second: that at the same time, when we discover that we are wrong - our own ignorance or flaws - our culture does not make admission of this easy, since that moment of humility can turn into a moment of humiliation.

Research Objectives:

The current research objectives to identify:

1. Intellectual humility among adults and the elderly according to the two variables:

A. Age. B. Gender (male - female).

2. Openness to experience among adults and the elderly according to two variables:

A. Age b. Gender (male - female).

3. The significance of the correlation between intellectual humility and openness to experience among adults and the elderly according to two variables:

A. Age b. Gender (male - female).

4. The significance of the differences in the correlational relationship between intellectual humility and openness to experience among adults and the elderly according to the two variables:

A. Age b. Gender (male - female).

The Study Limits

This study is limited to adults and the elderly (male / female) within the age groups (18-30)

years (31-45) years (46-59) years (60 and over) years, and those present in Iraqi universities, for the academic year (2020/2021).).

Defining terms:

First. Development:

“It is an interconnected and successive set of changes that occur in the various aspects of the human personality over time” (Hassan, 1989: 15).

Second: Intellectual Humility:

The researcher adopted the definition of Krumrei & Rouse (2016), which they defined as: “The individual’s awareness that he is not intellectually threatening, meaning his ability to avoid intellectual errors. Such awareness brings with it a healthy independence between the mind and the ego, which means that the person will not feel threatened due to intellectual differences. He will not be overconfident in his knowledge, will respect the views of others, and will be open to reviewing his views.

Third. Openness to Experience:

The researcher adopted the definition of Costa & McCrae (1992) as the willingness of the individual to search for diverse experiences and the tendency to reflect on diverse opinions and beliefs and to change his attitudes and behavior after exposure to new ideas and information.

Fourth: Adulthood:

It is the age stage between (18 - 60) years (Gmash, 2011: 45).

Fifth: The Elderly:

A life stage that most people go through that has its own needs and requires distinctive methods to help them overcome their physical, mental and psychological deficiencies, and it occurs after adulthood and in the last episode of life (Hegazy and Abu Ghali, 2010: 24).

Chapter Two: Theoretical Framework and Previous Studies:

The first axis: theoretical framework:

First: Intellectual Humility:

Philosophers throughout ancient ages discuss intellectual humility, as they were in conflict with the limits of human knowledge. The French philosopher Michael de Montaigne, who lived in the sixteenth century, wrote in one of his articles: “The human epidemic is to show off his knowledge.” The two greatest teachers also agreed Worldwide leadership, Socrates in Greece and Confucius in China, on one thing: "the need for a clear distinction between what you know and what you do not know." Of course, this is necessary in order to avoid the arrogance of pretending to know something that you do not know in reality. And intellectual humility is that You are curious about what you do not know, and it does not require a high IQ or a specific skill, but rather it requires thinking about your cognitive limits, which can be painful.

Images of humility:

Public humility manifests itself in many ways in the daily lives of individuals, namely:

Humility to God Almighty: There is a religious dimension to humility, and this dimension focuses on the idea of a higher and greater power, which is - God Almighty, meaning that despite what we possess of great knowledge and wisdom, there are limits from our viewpoint as human beings.

Humility in religion: means submission and obedience to what the Prophet Muhammad (P B U H) brought of heavenly rulings and legislation.) “There is no shortage of money from charity, and God does not increase a servant with pardon except as glory, and no one’s humility to God is raised.””

Humility of a person in himself: means the individual's feeling of acceptance of himself and its faults, and that he is free from arrogance.

Humility with parents: This image is evident in what the Holy Qur’an says about honoring parents. This has been mentioned in many places,

including the words “Come and reduce for them the wings of humiliation from mercy, and say Lord have mercy on them as my Lord.”

Humility in Learning: Humility carries with it an open mindset and a desire to admit mistakes, seek advice and learn from others.

Humility with people: When the human drive towards ego is abandoned, humble people become more receptive to others. Moreover, the attention of humble people turns towards the beauty and the possibilities that surround them, so they become socially compatible and adaptive people.

Related concepts in intellectual humility:

Intellectual humility has been explored in psychology as a dimension of other dimensions such as wisdom, general humility, and self-esteem:

1. **Intellectual humility and wisdom.** There are common characteristics and qualities between intellectual humility and wisdom, such as (open thinking, not being afraid to admit and correct mistakes, and listening to all ideas and opinions (Samuelson, et al, 2013)). These traits, although not specifically described as intellectual humility, are a constant factor in studies of the concept of wisdom.

2. **Intellectual humility and general humility:** There are aspects of public humility that have epistemic dimensions. As there is a correlation between what is characterized by general humility and what is characterized by intellectual humility, as follows:

(A) Humility is generally characterized by a correct self-understanding (careful evaluation, maintenance of one's own achievement abilities in an appropriate perspective, low self-focus).

(B) Intellectual behavior (admitting mistakes, intellectual openness) (Tangney, 2000)).

3-**Intellectual humility and self-esteem:** Although humility is often associated in people's minds with the term low self-esteem, which tends to stimulate images of a weak-willed soul and subject to the desires of others. However, the humble person is,

in fact, the opposite of these qualities, as the humble person has an accurate opinion about himself and the limits of his abilities and skills (Davis, et al, 2013: 58).

Quiros theory (Quiros, 2006): Quiros believes that there are two types of humility that determine the characteristics of a person and his outlook on himself, and it is necessary to distinguish between these two types, which are healthy humility: which is the positive aspect that the personality is required to adopt and in this type in which the individual is aware of his capabilities and aware of his talents Which may be creative talents and capabilities, but he refuses to show them off or talk about them in front of others, and this is what makes him unselfish and lovable. As for the second type, it is modesty that is not positive or unhealthy: in which the individual views himself with a low self-esteem view, he is not confident, and thus this view leads to being a person subject to the powers and orders of others (Quiros, 2006: 3-5).

James & Roberts theory, 2012

James and Roberts note that “Humility is the act of not presenting unjustified intellectual claims of merit on the basis of one’s (supposed) superiority or distinction. There is clearly something about a “sense of entitlement ”which is controversial, and James and Roberts argue that there are criteria for the humble individual. Intellectually it:

He respects the intelligence of others as his own, and rarely feels immune, frustrated and criticized.

He systematically rejects intellectual advantages in interpersonal relationships because he does not feel any entitlement.

People who meet these criteria tend to behave in ways that are indicative of their intellectual humility. For example, the intellectually humble:

- They often reject a special intellectual treatment, even when it is due.
- Tends to take complaints and criticism seriously, even among the critics.

Krumrei-Mancuso and Rouse, 2016

Cromery and Rose argue that an intellectually humble person understands that his cognitive abilities are not perfect and that his knowledge, perceptions and beliefs are sometimes incorrect. This is coupled with an attitude of acceptance, in which the person does not feel defended by their susceptibility to mental error.

Thus, the emerging picture is that intellectual humility may operate independently of many religious beliefs, behaviors, and experiences. Religious beliefs may coincide with an openness to improving one's knowledge and beliefs, and it appears that intellectual humility that includes an appreciation of the temporary nature of one's personal knowledge does not need to be in conflict with religious conviction.

1. Independence of the thoughts and beliefs: It is the contradiction of the ideas and beliefs of the individual with others, which the individual considers his personal attack and vice versa.
2. Openness for reviewing perspectives: It is when the individual reviews his important thoughts and beliefs when he directs new information.
3. Respecting the views of others: It is the individual's awareness and respect for the ideas and beliefs of others when his ideas and beliefs contradict the beliefs and ideas of others through his awareness that this difference is his strengths between him and others.
4. Lack of intellectual confidence: when the individual feels that his thoughts and beliefs are better than the ideas and beliefs of others as a type of self-evaluation and vice versa.

Second: Theories of openness to experience:

Fitzgerald (1966) was the first who refer to the term openness to experience, describing it as a tendency or tendency to welcome unusual experience that does not contain any anxiety. Hamed (2003) believes that openness to experience is the individual's willingness to acquire new experiences, assimilate and interact with them, and the individual's full awareness of himself and what is reported around him and

giving expression to most aspects of inner experience. Openness to experience is one of the main dimensions of personality. Ideas, aesthetics, art, innovation, imagination, creativity, and love of knowing the world around them, and it also includes the extent of the individual's openness to learning. As for the low-grade, they are featured by imitation and rigidity and they are not fond of art, and openness to experience refers to how people change their thoughts and activities according to new ideas or situations and the extent to which each of them responds and accepts new ideas or levels of mental flexibility in individuals (Klapp, 2015).

Costa and McCrae's theory (1992)

Costa and Macri's theory is one of the most important theories that explain the human personality, according to this theory, personality is a system consisting of a set of traits. Both Costa and Macri specified that openness to experience has six aspects or elements, which are:

1. Ideas: Intellectual curiosity is an aspect of openness to experience. It is not limited to the vigorous pursuit of intellectual interests for the sake of intentions, but rather appears in the mental openness of the individual and the desire to think of new ideas, and perhaps ideas out of the ordinary.
2. Aesthetics: Individuals have a great appreciation for art and beauty, and they are active in the field of poetry, and they are absorbed in music and other artistic works. It is not necessary to have an artistic talent or to have an artistic duke, but their interest in the arts leads them to acquire a broad knowledge and appreciation of art. Than normal individuals have.
3. Imagination (Fantasy) Individuals open to experiences have an imagination full of vitality and an active imaginary life, and they take in daydreams not as an escape but as a way to create an interesting inner world for themselves as they develop their imaginations as they believe that imagination contributes to a rich and creative life. Individuals who are not open to experience are more realistic and prefer to limit their thinking to the task at hand.

4. Actions (openness to experience due behavioral terms as reflected in the individual's desire to try different activities or go to new places, and thus individuals with high degrees on this factor prefer new or unfamiliar and varied things over familiar and routine things, and over time). Time may share a series of different identities.

5. Feelings: Individuals accept their inner feelings and emotions as an important part of life, and they show external signs of emotion, such as the physiological manifestations that accompany the excitement, in the least stressful and sudden situations.

6. Values: It is the individual's willingness to re-examine conservative or traditional social, religious and political values again, as the individual tends to reconsider these values as well as striving to defend those values that are open to others and are suitable for all.

The results of the Costa and Macri studies indicated that the extrovert to experience tends to reshape the rebuilding of his life during the middle age period, showing them that there is a strong relationship between openness to experience and the occurrence of major changes in the individual's life (Costa & McCrae, 1992).

The second axis: previous studies:

A study (David, 2017):

(Honesty-Humility and Openness to Experience as Predictors of Hypothesis Confidence Among High School Students)

This study aimed to investigate the relationship between personality traits (honesty and intellectual humility) and confidence within the educational context. The study was conducted in the Netherlands at the University of Twente on children aged (11-14) years, and the size of the sample was (151). The results indicate that males have a higher level of overconfidence, and narrow personality traits for openness to experience, honesty, and humility were found to explain increased contrast more than accuracy, gender, and age.

(Murray, 2017) Study:

Intellectual Humility, Arrogance, and Openness: Investigating the

Psychometric Properties of a Self-Report Measure of Intellectual Virtue

This study was conducted at Tufts University in the United States of America. The sample size was (1257) male and female students, (78% males and 64% females, with an average age of (18-19) years.

The results showed Mayati: The best factor structure for self-report adaptation from IHS was a two-factor structure with correlated errors, identified using sub-scales as the underlying factors of intellectual arrogance (IA) and intellectual openness (IO), and IH showed reliability of measurement by gender using the two-factor model IH.

(Leary et al, 2017) Study:

(Cognitive and Interpersonal Features of Intellectual Humility):

The study aimed to find out the degree to which people realize that their beliefs may be wrong. Also as identifying the relationship between intellectual humility and some of the variables (openness, curiosity, tolerance of ambiguity and low dogmatism) This study was conducted in the United States of America on a sample of (300) respondents of (110) males and (190) females, working for (Amazon Mechanical Turk). The results showed that participants with intellectual humility were more in line with the strength of convincing arguments than those who In addition to expanding our understanding of intellectual humility, this research demonstrates that the IH scale is a valid measure of the degree to which people admit that their beliefs are false, and the results also showed that intellectual humility was associated with variables related to openness, curiosity, tolerance of ambiguity, and decreased dogmatism.

(Schumann, 2018 & Porter) Study:

Intellectual humility and openness to the opposing view):

The study aimed to investigate the relationship between intellectual humility and openness to a different point of view. The study was conducted at the University of California in the United States of America on a sample of 181 university students. The Porter and Schumann (2017) scale of intellectual humility, as well as a range of scales (openness, intelligence, and confidence) were applied. After making the statistical adjustments, the study concluded that individuals with intellectual humility are more open to others during disagreements with others. "When faced with conflict scenarios, participants who were higher in intellectual humility were more respectful and more interested in trying to identify opposing viewpoints."

(Mancuso et al, 2020) Study:

Links between intellectual humility and acquiring knowledge:

This study aims to investigate how intellectual humility (IH) is related to knowledge acquisition (learning). This study was conducted at the University of Florence, USA, in the language of the research sample (120) university students (53% males, 47% females). Others (pro-trait) Although IH was associated with more general knowledge and better recognition memory, IH was not associated with cognitive ability in the current study.

Chapter Three: Research Methodology and Procedures:

This chapter includes a presentation of the methodology used in the current research, and the procedures that were followed to achieve its objectives, as follows:

First: Research methodology:

The researcher used the evolutionary cross-sectional study that is included within the descriptive approach.

Second: Research procedures:

- Research Society:

The research society consisted of (40,150,000) forty million one hundred and fifty thousand people, as the number of adults (56.5%) of the total population within the ages (15-64) years, and the number of elderly (3.1%) within Ages (65 years and over), due to the latest statistics for the year 2021 throughout Iraq.

- The research sample:

The current research sample consisted of (349) individuals, of which (290) adults, and (59) within the elderly group, and table (1) explains that:

Table (1) Research sample individuals distributed according to age and gender

total	sex		ages	grades
	females	maels		
120	50	70	18-30years	Adults
95	38	57	31-45 years	
75	35	40	46-59 years	
59	26	33	And more years 60	Old people
349	149	200	total	

The Research Two Instruments :

First - Intellectual Humility Scale

To achieve the objective of the current research related to measuring intellectual humility, and after reviewing the previous literature related to the research topic, the researcher obtained the Krumrei-Mancuso and Rouse scale (2016).includes 21 items: openness to reviewing viewpoints (5 items), respecting the views of others (6 items), lack of intellectual confidence (6 items), and each items has five alternatives graded between (always, often, sometimes, rarely, never) and their weights (5, 4, 3, 2, 1) respectively.

Logical analysis of scale items:

The scale was presented, in its initial form, to a group of (4) arbitrators¹ specialized in educational and psychological sciences, and the items were kept as they are without deletion or alteration, with the exception of some minor amendments.

Statistical Analysis of the items :

The researcher resorted to the methods of the two extremes, and the relationship of the item score to the total score in the process of items analysis, as he introduced the scale to a sample of (349) respondents.

The following is an explanation of the statistical characteristics of the items:

A- Extract the discriminatory power of items:

Calculating the discriminatory strength for each item of the intellectual humility scale by using the T-test for two independent samples (t-test). The degree of freedom is (186), and the level of significance is (0.05). Therefore, the researcher kept all the items of the scale unchanged, and Table (2) explains that.

¹Names of the referees' gentlemen, their titles and their scientific specializations:

Prof. Intisar Hashem Mahdi - Development Psychology.

- Prof. Iman Abdul KarimTheeb - Measurement and Correction.

- Prof. Ban Abdel Rahim Adnan- Developmental Psychology.

- Prof. WalidQahtan Mahmoud - Development Psychology.

Table (2)The discriminatory power of the measures of intellectual humility

The computed T-value	Lower group		Top group		Ser No.
	Std. Deviation	Mean	Std. Deviation	Mean	
7.711	.98629	2.1277	3.2872	1.07386	1
5.619	1.06675	3.0426	.98217	3.8830	2
5.639	.78281	2.9894	1.03629	3.7447	3
2.211	.92303	3.4468	.85730	3.7340	4
7.510	1.09328	2.2021	1.23331	3.4787	5
5.991	1.00769	3.6064	.80748	4.4043	6
4.794	1.01988	4.0532	.68082	4.6596	7
7.874	1.03081	2.5851	1.11647	3.8191	8
7.306	.93460	1.5532	1.46354	2.8617	9
3.876	.94386	3.7660	.89949	4.2872	10
3.988	1.08166	4.2766	.49569	4.7660	11
9.345	.89151	2.8511	.87211	4.0532	12
7.603	.79729	1.5638	1.35662	2.7979	13
6.304	1.06503	3.4894	.91955	4.4043	14
7.446	.74500	3.0638	1.05103	4.0532	15
6.612	1.20573	2.8617	1.01397	3.9362	16
10.513	1.08081	2.4043	1.04163	4.0319	17
3.070	.85543	4.3085	.65101	4.6489	18
5.857	1.09407	3.0851	1.04727	4.0000	19
3.453	.95014	4.0213	.86421	4.4787	20
5.963	.93735	2.8830	1.06444	3.7553	21

Father. Extracting the relationship of the score of each item to the total score of the scale:

The researcher used the Pearson correlation coefficient to extract the relationship of the item

to the total score of the scale, and all the items were statistically significant at a level of significance (0.05) and a degree of freedom (347), and Table (3) explains that:

Table (3) The values of the coefficients of the correlation of the item score with the overall score of the scale of intellectual humility

denotation	Pearson Correlation	Ser.No.	Pearson Correlation	Ser.No.
detonate	0.441	12	0.403	1
detonate	0.407	13	0.336	2
detonate	0.394	14	0.340	3
detonate	detonate	15	0.167	4
detonate	0.368	16	0.429	5
detonate	0.500	17	0.363	6
detonate	0.221	18	0.282	7
detonate	detonate	19	0.421	8
detonate	0.213	20	0.467	9
detonate	0.342	21	0.250	10
			0.244	11

Indicators of validity scale:

The researcher obtained two validity indicators, namely:

1. The apparent honesty by presenting the scale items to a group of arbitrators.
2. Constructive validity by calculating the discriminatory strength of the items by the method of the two extremes, as well as by finding the coefficients of correlation of the scores of the items with the total score of the scale.

Reliability indicators:

The researcher used the index of the internal consistency coefficient using the (Cranach's-alpha) equation, and the scale reliability coefficient with this index reached (75%), which is a good reliability coefficient based on what is indicated by the measurement literature.

Second: Openness vs. closeness to experience

The researcher adopted and developed the openness to experience scale for Costa & McCrae (1992). The scale consists of (28) items, divided into six components (ideas, imagination,

aesthetics, values, art, and feelings), and in front of each item there are five alternatives graded between (Strongly agree, agree, somewhat agree, disagree, strongly disagree) and their weights (5, 4, 3, 2, 1) respectively.

Logical analysis of scale items:

The scale was presented in its initial form to a group of arbitrators who are specialists in educational and psychological sciences, and their number reached (4) arbitrators, and he requested their observations and opinions on the validity of each item in the scale.

Statistical analysis of items:

The researcher resorted to the method of the two extremes and the relationship of the item score to the total score of the scale in the item analysis process. As follows:

A- Extract the discriminatory power of items:

The researcher followed the same procedures that he followed in extracting the distinction for the "intellectual humility" scale (mentioned on page (12)), and Table (4) explains that:

Table (4) The discriminatory power of the Openness to Experience Scale items

The computed T-value	Lower group		Top group		Ser. No
	Std. Deviation	Mean	Std. Deviation	Mean	
8.341	.97744	3.2340	.89183	4.3723	1
0.239	1.09448	2.4681	1.33396	2.5106	2
7.517	1.16161	3.4894	.75575	4.5638	3
8.315	1.05141	3.7234	.53230	4.7340	4
7.877	1.06374	3.5532	.76350	4.6170	5
9.332	.99691	3.3191	.61552	4.4468	6
6.778	1.05293	2.3404	1.14055	3.4255	7
10.369	1.00149	3.1702	.64952	4.4468	8
7.290	.97884	2.3404	1.45582	3.6596	9
7.570	1.10716	3.0000	1.10866	4.2234	10
8.609	1.24934	3.2021	.90980	4.5745	11
.900	.98234	2.7872	1.11913	2.9255	12
5.972	1.10654	3.2553	.91111	4.1383	13
6.888	1.10571	2.6383	1.09678	3.7447	14
2.999	1.09176	2.2340	1.43847	2.6064	15
2.986	1.13088	3.1064	1.39549	3.6596	16

6.946	.98884	2.8936	1.00610	3.9043	17
11.859	.83094	3.3830	.61709	4.6489	18
3.847	1.06374	2.4468	1.38036	3.1383	19
3.936	1.16127	2.3511	1.28152	3.0532	20
6.879	1.03303	3.2872	.89125	4.2553	21
6.037	1.19979	3.7447	.78769	4.6383	22
10.272	.76178	3.3723	.71435	4.4787	23
13.000	.92110	2.9681	.72830	4.5426	24
7.663	1.28398	2.9149	.93485	4.1702	25
11.896	1.00200	2.7553	.88254	4.3936	26
5.088	1.17984	2.4787	1.52220	3.4894	27
7.788	1.10571	2.6383	1.00860	3.8404	28

It is clear from Table (4) that two of the scale items are Item No. (2) and Item No. (12) whose computed value was less than its tabular value², and thus it was excluded from the scale. Authenticity of items: Extracting the relationship of the score of each item to the total score of the scale: The items validity coefficients for the "openness to experience" scale were calculated using the Pearson correlation coefficient, that all the items of the scale are statistically significant, so that the critical value of the correlation coefficients is greater than the tabular value of (0.082) at a degree of freedom (347), and the level of significance (0.05) Table (5) explains that:

²The tabular T value is (1.98) at the degree of freedom (186) and the level of significance (0.05).

Table (5) Correlation coefficients of the item score with the total score

	Pearson Correlation	Ser. No.	Pearson Correlation	Ser. No.
	0.210	15	0.396	1
	0.319	16		2
	0.451	17	0.361	3
	0.602	18	0.480	4
	0.269	19	0.441	5
	0.289	20	0.498	6
	0.500	21	0.352	7
	0.559	22	0.570	8
	0.444	23	0.398	9
	0.515	24	0.475	10
	0.201	25	0.475	11
	0.458	26		12
	0.320	27	0.367	13
	0.424	28	0.378	14

Psychometric properties of the scale:

Indicators of validity scale:

The researcher obtained two validity indicators, namely: 1. the apparent honesty by presenting the scale items to a group of arbitrators. 2. Constructive validity by calculating the discriminatory strength of the items by the method of the two extremes, as well as by finding the coefficients of correlation of the scores of the items with the total score of the scale.

Reliability indicators:

The researcher used the (Alpha - Cronbach) equation to extract the stability of the internal consistency and it reached (78%), which is a good stability coefficient based on what is indicated by the measurement literature.

Ultimate application of the research two instruments:

After preparing and extracting the psychometric properties of the two research tools (intellectual humility, and openness to experience), the two tools became ready for implementation. The two online search tools were implemented through the (Google Forms) site, and the duration of the application lasted (15) days after the announcement and published it through (social

networking sites, WhatsApp Facebook chat groups), which includes teachers, university students, adults, and the elderly. Inviting them to participate by answering the two scales' items via the questionnaire link below:

<https://docs.google.com/forms/d/1znqv87-IMuJaloXHRoApc34sc0KjM-rTJU-nD5hiPYQ/edit#responses>

Statistical methods:

The researcher used the Statistical Package for Social Sciences (SPSS) to process the research data, as follows:

1. The t-test of two independent samples to calculate the discriminatory strength of the two scales' items
2. "Pearson" correlation coefficient to extract the relationship of the item score to the total score of the scale, as well as extract the correlation between intellectual humility and openness to experience.
3. The alpha - Kronbach equation to extract the internal consistency of the items.
4. The t-test for one sample for comparison between the theoretical average and the calculated mean for both measures.

5. The Z-test to find the differences in the relationship between intellectual humility and openness to experience depending on the variable of sex and age.

Chapter Four: Presentation and Discussion of Results:

The current chapter includes a presentation of the results according to the research objectives, their interpretation and discussion, as well as coming up with a set of conclusions, recommendations and proposals, as follows:

The first objectives: the development of intellectual humility in adults and the elderly according to two variables:

a. Age (18-30) (31-45) (46-59) (60 years and over).

The use of the T-test for one sample showed that the differences between the calculated averages and the theoretical average for adults and the elderly at all ages are statistically significant, as the calculated T values were greater than the tabular T value³, and Table (6), and the graph (1) illustrate that:

³The tabular value is (1.96) at the level of (0.05) with degrees of freedom (119, 94, 74, 85).

Table (6) The mean scores of adults and the elderly on the scale of intellectual humility and their standard deviations and T-values according to the variable of age

Denotation	T Value		Theoretical Medium	Standard Deviation	Mathematical Medium	No. of Sample Subjects	Ages
	Tabulated	Calculated					
detonate	1.98	15.293	63	8.15417	74.3833	120	18- 30years
detonate		12.931		7.50591	72.9579	95	31- 45 years
detonate		11.148		7.76861	73.0000	75	46- 59 years
detonate		9.848		7.36317	72.4407	59	60and more years

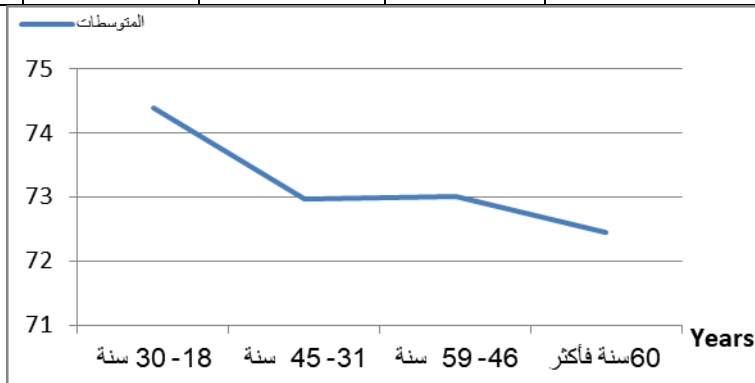


Figure 1. Average degrees of intellectual humility according to the variable of age

B. Gender (Male / Female):

The use of the T-test for one sample showed that the differences between the calculated averages and the theoretical mean for males and females are statistically significant as the calculated T value was greater than the tabular T value, and Table (7) explains this:

B. Gender (Male / Female): The use of the T-test for one sample showed that the differences between the calculated averages and the theoretical mean for males and females are statistically significant as the calculated T value was greater than the tabular T value, and Table (7) explains this:

Table (7) The mean scores of adults and the elderly on the intellectual humility scale, their standard deviations, and the T-values according to the gender variable

Table (7) The mean scores of adults and the elderly on the intellectual humility scale, their standard deviations, and the T-values according to the gender variable

Denotation	Denotation		Theoretical Medium	Standard Deviation	Mathematical Medium	No. of Sample Subjects	Sex
	Tabulated	Calculated					
detonate	1.98	19.298	63	8.07562	74.0200	200	Males
detonate		15.924		7.27976	72.4966	149	Females

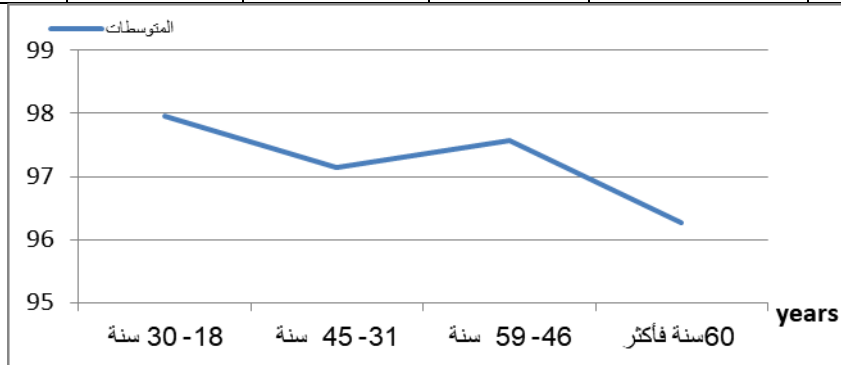
The second objective: the development of openness to experience among adults and the elderly according to two variables:

- a. Age (18-30) (31-45) (46-59) (60 years and over).

The use of the T-test for one sample showed that the differences between the calculated averages and the theoretical average for adults and the elderly at all ages are statistically significant, as the calculated T values were greater than the tabular T value⁴, and Table (8), and the graph (2) illustrate that:

Table (8) The mean scores of adults and the elderly on the openness to experience scale and their standard deviations and T-values according to the age variable

Denotation	T-Value		Theoretical Medium	Standard Deviation	Mathematical Medium	No. of Sample Subjects	Ages
	Tabulated	Calculated					
detonate	1.98	17.342	78	12.60745	97.9583	120	18- 30years
detonate		15.657		11.91992	97.1474	95	31- 45 year
detonate		15.908		10.65576	97.5733	75	46- 59 years
detonate		10.814		12.97854	96.2712	59	60years years



Average degrees of openness to experience according to the variable of age

⁴The tabular value is (1.96) at the level of (0.05) with degrees of freedom (119, 94, 4, 85).

B. Gender (Male / Female):

The use of the T-test for one sample showed that the differences between the calculated averages

and the theoretical average for males and females are statistically significant as the calculated T-value was greater than the tabular T-value, and Table (9) explains this:

Table (9) The mean scores of adults and the elderly on the openness to experience scale, their standard deviations, and the T-values according to the gender variable

denotate	T-Value		Mathematical Medium	Standard Deviation	Mathematical Medium	No. of Sample Subjects	Sex
	Tabulated	Calculated					
	1.98	20.495	78	12.76577	96.5000	200	Males
		23.052		10.90314	98.5906	149	Females

The third objective: the significance of the correlation between intellectual humility and openness to experience among adults and the elderly according to the two variables:

- a. Age (18-30) (31-45) (46-59) (60 years and over).

The use of the Pearson correlation coefficient between intellectual humility and openness to experience at all ages was statistically insignificant, as the values of the correlation coefficients were smaller than the critical value of the Pearson correlation coefficient, and Table (10) explains this:

Table (10) The values of the correlation coefficients between intellectual humility and openness to experience according to the variable of age

Denotation	CriticalCorrelation Coefficient Value	Correlation Coefficient Value	No. of Sample Subjects	Ages
nondetonate	0.082	0.055	120	18- 30years
non detonate		0.074	95	31- 45 years
non detonate		0.024	75	46- 59 years
non detonate		0.011	59	60and more years

B. Gender (Male / Female)

The use of the Pearson correlation coefficient between intellectual humility and openness to

experience showed that there is a statistically significant correlation relationship for males, while the relationship was not significant for females, and Table (11) explains this:

Table (11) Evaluate the correlation coefficients between intellectual humility and openness to experience according to the gender variable

Denotation	Correlation Coefficient Value	Correlation Coefficient Value	No. of Sample Subjects	Age
detonate	0.082	0.138	200	Males
non detonate		0.048	149	Females

The fourth objective: the significance of the differences in the correlational relationship between intellectual humility and openness to

experience among adults and seniors according to the two variables:

a. Age (18-30) (31-45) (46-59) (60 years and over).

The researcher extracted the Pearson correlation coefficient between intellectual humility and openness to experience according to the age group

variable, and to find the differences in the relationship between the two variables according to the age group variable, the researcher converted the Pearson correlation coefficient into standard values and used (the Z-test), and table (12 and 13) illustrate that:

Table (12) Correlation coefficients values and Fisher standardized values between intellectual humility and openness to experience depending on the variable of age

Fisher Standard Value	Correlation Coefficient Value	No. of Sample Subjects	Ages
0.055	0.055	120	18- 30Years
0.075	0.074	95	31- 45 Years
0.025	0.024	75	46- 59 Years
0.011	0.011	59	60and More years

Table (13)The x-values denote the correlation coefficients

Denotation	Z-Value		The Denotation Differences Due to Ages
	Tabulated	Calculated	
non detonate	1.96	-0.13686	(18 –30) Years (31– 45) Years
non detonate		0.207627	(18 – 30) Years(466 – 59) Years
non detonate		0.315767	(18 – 30)Years(60) Years and More
non detonate		0.317767	(31 – 45) Years (46 – 59) years
non detonate		0.371704	(31 – 45) Years (60) year and more
non detonate		0.072962	(46 – 59) Years (60 years and more)

The result indicates that the X-value computed for the differences in all the relationships is less than the tabular Z-value of (1.96) at the level of significance (0.05). Ie, there is no statistical significance.

value is less than the tabular, and Table (14) explains this:

B. Gender (Male / Female)

The researcher extracted the Pearson correlation coefficient between intellectual humility and openness to experience according to the gender variable, and it reached (0.138) for males and for females it reached (0.048). The computed X-value was (0.833305), and when compared to the tabular Z-value, which amounted to (1.96) at the level of significance (0.05), we find that the calculated Z-

Table (14) Correlation coefficients, standard Fisher values, and Z-values for the difference in the relationship between intellectual humility and gender openness to experience

Denotation	Z-Value		Fisher Standard Value	Correlation Coefficient Value	No. of Sample Subjects	Ages
	Tabulated Z	Calculated Z				
non detonate	1.96	0.833305	0.139	0.138	200	Males
			0.048	0.048	149	Females

Interpretation and discussion of results:

The researcher will discuss the findings of the current research and their interpretation in light of its indications according to the theoretical background and previous studies.

First: Intellectual Humility:

The results showed that adults and the elderly in the age groups (18-30) (31-45) (46-59) (60 years and over) possess intellectual humility, and this result is consistent with the study (Leary et al, 2017), and the study (Murray, 2017). (Schumann, 2018 & Porter), and Krumrei-Mancuso and Rouse (2016) argue that it is possible for religious beliefs to coincide with an openness to improving one's knowledge and intellectual humility. The researcher believes that the religious establishment played a great role in spreading the spirit of humility among individuals, as one of the honorable morals to which Islam was called and urged is the quality of humility, and that it was reported that the Prophet (PBUH) said: ((No One has in his heart the weight of a grain of mustard from old age shall enter the Heaven)).

Second: Openness to Experience:

The results showed that adults and the elderly in the age groups (18-30) (31-45) (46-59) (60 years and over) tend to be open to experience, and this result is consistent with the study (Leary et al, 2017), the study of (Schumann, 2018 & Porter), and the researcher believes that we live in a society of multiple ideas and opinions, and therefore the individual finds himself obligated to meet individuals from different backgrounds everywhere, in the university, work, street, markets, sports clubs, public places, social events and others. It also encounters different patterns of behavior and food products manufactured from countries of different languages, so an adult and elderly person always needs an open mind that helps to respect and accept these differences in

order to help him enjoy a happy life, positively influence those around him, and deal in a manner. Be fit with all the daily troubles he might encounter, whether it's with family members, work colleagues, or friends.

Third: the correlation between intellectual humility and openness to experience:

The results showed that there is no relationship between intellectual humility and openness to experience attributed to the variable of age, while there is a significant relationship attributed to the variable of sex and in favor of males, and this result differs with the study (Leary et al, 2017) and the study (Schumann, 2018 & Porter), and the researcher believes that it is a result of experiences and awareness. The perceptive approach reached by adults and older adults is that there is a great interest on the part of the intellectually humble individuals of adults and elderly males towards openness and getting to know the new experience, because this makes them feel comfortable and helps them form differences that are less personal, and also helps them to accept new ideas.

Conclusions:

1. Adults and the elderly in the ages (18-30) (31-45) (46-59) (60 years and over) possess intellectual humility and openness to experience.
2. Takes intellectual humility and openness to experience. An evolutionary, progressive, not continuous, path through aging.
3. The evolutionary path of the relationship between intellectual humility and openness to experience is not affected by age.
4. The evolutionary pathway of the relationship between intellectual humility and openness to experience with sex and for the benefit of males.

Recommendations:

1. The family has to play a big role in promoting the spirit of humility among its children from a young age and accustom them to admit mistakes and move away from the methods of parenting that lead to arrogance and arrogance.
2. The media (visual and audio) and places of worship should take their role in spreading the spirit of humility, familiarity and sympathy in their programs in order to achieve sound social and cognitive development for adults and the elderly.

The proposals:

3. Conducting studies dealing with the evolution of the correlation between intellectual humility and openness to experience in the stages of childhood and adolescence.
4. Conducting an evolutionary study to investigate the relationship between intellectual humility and some variables (wisdom, general humility, open thinking etc.).

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