

## Wisdom, Intelligence, Creativity

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### Abstract

*The wisdom is a structure that in psychology is expressed as a form of knowledge, understanding and insight, reflective thinking and a compilation of individual views and individual interests with the interests and welfare of others. Accordingly, wisdom (as a new relatively structure in psychology) that grows under the influence of people life' context (culture, experiences, environment), Creativity and intelligence involved (as psychological known structures). Because, there is a similar between the wisdom features with creativity and intelligence as experience factor-based. Therefore, this study examines the relationship between wisdom (3D-WS, ASII) with intelligence and creativity. In this study, number of 100 Iranian students (65 Females and 35 males) of Bu-Ali Sina University participated. Measuring tools used in this study include the Wechsler Adult intelligence scale, Abedi Creativity scale, wisdom three- dimension scale (3D-WS) and wisdom self-assessment scale (ASII) respectively. The results indicated that There is a significant positive correlation between the three of the psychological structure such as wisdom (3D-WS, ASII), intelligence and creativity. In this study, the results were shown that there is a significant positive relationship between general intelligence, verbal intelligence, actionable intelligence and creativity with Wisdom cognitive and emotional wisdom. Also, the results indicated a significant relationship between general intelligence, verbal intelligence, and actionable intelligence with reflective wisdom. But in this study, there was no significant relationship between Ardel's wisdom reflective dimensions with creativity.*

**Keywords:** Wisdom, Intelligence, Creativity

### 1. Introduction

First question in studying a relatively new psychological construct like wisdom (3D-WS- ASII) is how it relates empirically to other better-known psychological constructs like intelligence and creativity? Survey and interview data both show that people consider wisdom to be related to, but distinct from intelligence and creativity [1-3]. Sternberg has proposed one possible relationship between these three concepts: "One can be intelligent without being creative or wise. To be creative, one must be intelligent at some level, but one need not be wise. To be wise, one must be both intelligent and creative, because wisdom draws upon intelligence and creativity in the formulation of solutions to problems that take into account all stakeholder interests over the short and long terms [4].

All of these three constructs are Multidimensional. The question is which dimensions of these are related together. For example, Ardel [5-7] proposed three dimensions model for wisdom: cognitive, reflective, and compassionate. Ardel [7] defined three dimensions of her model as below: Cognitive dimension defined as an understanding of life and a desire to know the truth, *i.e.*, to comprehend the significance and deeper meaning of phenomena and events, particularly with regard to intrapersonal and interpersonal matters,

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includes knowledge and acceptance of the positive and negative aspects of human nature, of the inherent limits of knowledge, and of life's unpredictability and uncertainties. Reflective dimension definition is a perception of phenomena and events from multiple perspectives requires self-examination, self-awareness, and self-insight. Affective dimension defined as Sympathetic and compassionate love for others.

Intelligence is also a multidimensional concept. Building on the work of Cattell [8], Horn [9], and Carroll [10] is proposed a synthetic model of psychometric assessments of intelligence with 3 strata: General intelligence (g) divides into Crystallized intelligence and Fluid intelligence, each captured by many subtests. Fluid intelligence is the use of deliberate and controlled mental operations to solve novel problems that cannot be performed automatically. Crystallized intelligence is the knowledge of the culture that is incorporated by individuals through a process of acculturation. It is typically described as a person's breadth and depth of acquired knowledge of the language, information and concepts of a specific culture [11]. Fluid intelligence refers to those innate abilities that a person is born with. Crystallized intelligence is a person's abilities acquired through crystallizing his own experiences [12].

Research literature in scope of Creativity is showed that is another multidimensional construct. For example, Guilford and Torrence identified four key aspects commonly considered essential to creativity:

1. Flexibility: ability to cross boundaries and make remote associations.
2. Originality: Numbers of novel ideas are generated.
3. Fluency: ability to come up with many diverse ideas quickly.

4. Elaboration: the amount of detail is associated with the idea. Therefore, on the one hand, each of these transfer theories emphasize one aspect of transfer process from one stimulus to another so that it leads to an educational conflict between transfer models or cognitive approaches (theories that emphasize internal events) and behavioral approaches (theories that emphasize environmental events in learning transfer) (to determine what factor facilitates the learning transfer). The education system have faced uncertainty to present learning assignments for the effective transfer from educational situation to real situations to determine whether the transfer is the result of internal events (retrieval of knowledge and skills) or external events (For example, similar elements between two situations). Thus, progress and success in learning with its complex nature has always been a concern for educational systems, researchers, organizations and teachers. Central to this concern is the failure of a number of learners in learning. The role of prior experience concerning the nature of learning transfer from one situation to another has not been fully investigated.

### **1.1. Wisdom**

Wisdom is the most recent concept and the least well-defined. In a review of literature of wisdom, Bangen *et al.*, [13] reported, despite some variability, there is a significant degree of overlap among definitions. They found subcomponents of wisdom which is cited in at least half definitions they reviewed. The subcomponents relate to social decision-making/knowledge of life, prosaically values, reflection, and acknowledgement of uncertainty. Also, they reported these subcomponents as a common but appear in fewer than half of the definitions: emotional homeostasis, value relativism/tolerance, openness to new experience, spirituality, and sense of humor. At least two competing views of wisdom have been entertained:

## 1.2. Cognitive Dimension of Wisdom and Intelligence

Cognitive abilities play a main role in wisdom models in both western and eastern theories [14, 15, 5, 16]. Most focus on cognitive dimension of wisdom has mentioned in the Berlin wisdom Paradigm [17, 18]. In this paradigm wisdom is defined as expertise in the fundamental pragmatics of life. The term “expertise” implies that wisdom is a highly differentiated body of insights and skills usually are acquired through experience and practice [19]. To be such expertise one has to meet five criteria (two basic and three meta criteria). Having rich knowledge both factual and procedural about life, human natures, development, social norms and knowing strategies to deal with life conflicts are basic criteria. Meta criteria consist of life span contextualism, relativism on values and life priorities, recognition and management of uncertainty. Sternberg [20] considers wisdom, Successful intelligence, creativity and tacit knowledge in the theory of wisdom balance as the basis of wisdom and believes that the wisdom is application of successful intelligence, and creativity that been modified by value in order to achieve the common good first. The adjustment is accomplished of the balance between individual selfish interests (increase the reputation or spiritual well- being), intrapersonal (contributes to the formation of welfare, and welfare organizations) and interpersonal (consider the interests of others) in a long or short period of time that individual can adapt, change and choose the environment to the balance [20]. In general according to Sterenberg, wisdom is associated to practical intelligence. The purpose of practical intelligence is to maximize a result; that is, the use of intelligence for practical purposes, offering personal interests as much as possible. Actually, the wisdom is the use of academic intelligence is to access to individual interest and other interests and also to create a balance between their various interests (intrapersonal), other interests (interpersonal) and another's life aspects (super personal) such as city, Country, environment and God. On the other hand, the wisdom is different with academic intelligent because a wise one has different with an intelligent person. As we mentioned above cognitive dimension is one of three dimensions in Ardelt's wisdom model. In her view, wisdom is defined as a competences or personalities characteristic. Ardelt (5, , 6) defined wisdom as a combination of cognitive ...reflective ... and affective ... personality qualities. Also, Holiday and Chandler [1] believed wisdom consist of an exceptional understanding, judgment, communication and interpersonal skills, and social unobtrusiveness.

Recently, wisdom is defined as a mental capacity of combining intelligence with moral virtue in the process of gaining knowledge and acting [12]. In this point of view, to act wisely one has to equip with a certain level of intelligence to make a correct judgment about the complex problems and to find a solution effectively and efficiently. Besides having overlap parts, Wisdom and intelligence are not exactly same construct. Fengyan and Hong [12] found three differences between them: 1- they are different in meaning, 2- High IQ only refers to cleverness, but wisdom integrates cleverness with morality 3- They have different impacts on an individual's accomplishments and happiness, as well as on the progress of civilization.

Intelligence is a general psychological construct which is constituted by many abilities and skills. According to Wechsler [21] “Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment.” However, it is defined in many different ways; still no universally agreed definition [22]. Since wisdom is highly related to experience it is worth to study its relationship with fluid and crystallized intelligence separately.

## 1.3. Experience

Experience is the term that affects the thoughts, intentions, goals, skills and understanding and the environment on the other person (including people, objects, phenomena) and the results of this experience is effective in the next activity. Sometimes

experience means senses activity and when used as a relationalization activities. In some cases, experience means information or is used general knowledge. Sometimes repeating a certain thing called experience over time. Some persons are used experience means wisdom and knowledge. So, what is known as the experience of the person is dealing with the affairs and events or as a result of the encounters. Any experience is the product of an interaction between an individual with his environment, whether that environment is composed of persons or objects. In other word, the relationship is created positioning components together and their interaction with another and with the whole situation [23]. So experience are included any official activities (school, university, training courses) and informal (entertainment and travel) and even unplanned activities (vintage family, chance meeting with a neighbor) [24]. Hence, according to the importance of the concept of experience can be concluded that wisdom growth needs to experience. Because wisdom can not grow in a vacuum but in the difficulties of daily life appears terrain. In general, the successful transfer of important transitions of life are successful resolution of critical problems in life and adapt and stressful environments are wisdom grow all plants [25]. Because of the importance of experience in life, Webster expresses sync with Kramer [26], the earn of experience isn't lead to the wisdom, by itself, but the difficult experiences of life and the encounter with moral contradictions are degrees of depth that prepare the ground for intellectual growth. Morally challenging experience with the mature reflection seems wise prerequisites (necessary condition). Talk of life experiences of individuals and the role of this experience as one of the factors in personality development can be found in the ideas of living. These ideas are suggested that the persons in life direction are most probably faced on diverse experience and they have to scrimmage with negative events and absences [27]. Even after devastating experience, some people argue that as a result of exposure to negative events to have achieved a growth of personality. Such as giving more value to life, closer relations with others, gain a sense personal ability, knowledge of new possibilities and spiritual growth [28]. Other studies have reported that compassion, emotional regulation, self- understanding, honesty, trust and wisdom increase in exposure to negative experiences [29], so a number of related variables are related to wise by experience negative life events. In short, it can be said that the experiences perform an important role in the growth of wisdom. Although most people are facing great challenges in their lives, but do not access to the high levels of growth of wisdom. To earn wisdom simply to experience or to face is not limited to certain types of life events. In addition, people carry certain resources to face the difficult challenges and most likely the same resources are that grow through the experience [30, 31]. As Staudinger and Pasupathi [32] have addressed the experiential or knowledge component of intelligence, that is, crystallized intelligence, should be relatively more closely related to WRP (wisdom-related performance) than the speed of information processing, that is, fluid intelligence. In implicit theories of wisdom which assess the lay people opinions about wisdom, both fluid intelligence (such as logical thinking, good reasoning ability) and crystallized intelligence (knowledge and experience) were consistently mentioned as a characteristics of wisdom [33].

#### **1.4. Reflective dimension of wisdom, Self-transcendence and Creativity**

As Baltes and Smith [34] are addressed during adulthood, intelligence is not the most powerful predictor of wisdom-related knowledge. Instead, high predictive value comes from a combination of psychosocial characteristics and life history factors, including openness to experience, generativity, cognitive style, contact with excellent mentors, and some exposure to structured and critical life experiences.

Creativity is another construct that can be related to wisdom. There are some elements of creativity which is mentioned as wisdom dimension in different models. For example reflective thinking, humor, curiosity and higher level of tolerance for ambiguity categorized as motivational qualities of creative people [35]. These qualities put in

different wisdom models [5, 36]. Also, Csikszentmihalyi [37] suggested flow as an element of creativity. Flow refers to the sensations and feelings that come when an individual is intensely engaged in an activity. Flow can be experienced in anything from rock climbing to playing the piano, as long as the individual's abilities are a match for the challenges of the situation [38].

Strenberg [39] asserts wisdom includes creativity. So the wisdom involves creativity that wisdom person gives logic and reasonable solution to problem that it may be out of mind and believe however, some major political figures are thoughtful people but they aren't wisdom in different models of wisdom [40, 41], wisdom is mentioned as one of contingency factors. One of the distinctive features of creativity and creative thinking is the most important sources of growth and human progress. Human civilization is indebted to creative thought and durability without the use of creativity would be impossible. Creativity helps people to better relationships with family members, to be more positive attitude towards life and future prospects and measures to solve communication problems with others [42].

So what is creativity and which elements can be related to wisdom? Kaufman and Sternberg [43] summarized the ideas in different definitions of creativity in three components. First, those ideas must represent something different, new, or innovative. Second, they need to be of high quality. Third, creative ideas must also be appropriate to the task at hand. Thus, a creative response to a problem is new, good, and relevant.

Many artists seek truth, many wise people seek to convey insights in an effective way, and both artists and the wise are often engaged in problem-finding or in transcending prevailing approaches. So it was reasonable that our first undertaking was to compare similarities and differences in creative and wise people [44].

The dimension of reflection is showing self-reflection, self-awareness, and the ability to see things from different angles[5] and Ardel is defined the reflection to see things from different points of view, regardless of personal biases related to individual benefit[6] it seems that the reflection wisdom is associated with creativity. Because the creativity is defined more the relation to benefit and new concepts [45], new and benefaction is accepted production of an idea or product as a major feature of wisdom [46] creativity know psychological process that leads to problem- solving, opinion formation, conceptualizing, creating at work and theorist of new products that are used. Saville [47] creativity knows the state of mind in which multiple intelligences used in humans as a whole. In his view, creativity, learning ability has cognitive aspects that can be accurate and useful, all the power to bring together innovation. Another one of features of the wise is their passing and link to a greater whole that can be called self-transcendence. Kohlberg [48] has defined self-transcendence to its de centralization. A kind of consciousness hasn't any centrality about itself and the person goes further of personal interests and prejudices of his own. Levenson *et al.*, [49] have been defined self- transcendence to reduce reliance a social definitions of self, inner rise and have a strong sense of connection with the past and the future generational. Reduced reliance on social definitions of self, in the sense that the individual tries to find out the social plan and define its own independent such as job, social status, expertise, skill and family. It has self- transcendence of self and inner feelings of the need to feel independent. Their defined is also strengthened addition to the exterior role, the interior. Peterson and Seligman [50] have explained to force yourself to go beyond your face and get associated with a greater whole and the meaning of life.

Self-transcendence is an ultimate reflection; 'view from nowhere/everywhere'. Self-transcendence includes a decreasing reliance on social definitions of self, increasing interiority, and a greater sense of connectedness with past and future generations [49]. Levenson [51] asserted that self-transcendence is a change in Meta perspective that allows one to take the perspective of the other. This is more than a cognitive exercise in value

relativism, but rather involves a compassionate understanding of others, and allows one to identify with that which is greater than one's isolated self.

Our international data about self-transcendence scale [49] allows us to rework this into three dimensions: Cosmic: transcending time and place, (Sample item: I feel part of something greater than myself), Equanimity: psychological stability (Sample item: My peace of mind is not easily upset), Social-self Unconcern: not caring about social opinions or status (Sample item: My happiness is not dependent on other people and things) (Ferrari and Kordnoghi, on preparation).

### **1.5. Compassionate Dimension of Wisdom**

The only dimension of wisdom supposedly does not have any overlap with intelligence and creativity is compassionate. Compassionate dimension is affective and other related part of wisdom. In fact, they may all share a common core, with unique aspects that identify them. The ways to operationalize each of these constructs in psychology is extremely wide-ranging, from psychometric to qualitative. But the first place to start is surely considered how psychometric assessments of each of these three constructs relate to each other. Not just one's ideas about it (Sternberg implicit theory study) or attributes of nominations [52], but how performances on psychometric tests are related. Also, many people are unclear about the connections and differences among the concepts of wisdom, instinct, intelligence and knowledge. They tend to equate wisdom with high IQ (cleverness) or knowledge [12].

### **1.6. Present Study**

This study asks the following questions:

- 1- How much wisdom (3D-WS, ASTI), intelligence and creativity do overlap to each other?
- 2- How much variance of wisdom (3D-WS, ASTI) does explained by intelligence and creativity? Uniquely and shared?
- 3- Is there any difference between fluid and crystallized intelligence in order to relation to wisdom (3D-WS, ASTI)?

## **2. Method**

### **2.1. Participants**

In this research, the statistical sample was random. Therefore, 100 university students in Iran (65 female, 35 male) were recruited for fill out the scales. Mean age was 24.48 (rang from 19 to 35). Also, In this research, we have used the correlation design in order to study the relationship between wisdom, intelligence and creativity. At first, each of the tests (Wechsler test, creativity and wisdom) was performed on subjects. Then, the test scores of Wechsler intelligence, wisdom, and creativity were calculated. In the second stage, were calculated correlations between test scores of Wechsler intelligence with test scores of wisdom? Also, were calculated the correlation between tests scores creativity test scores of wisdom. To calculate the correlation, used was of the spss-20 software.

### **2.2. Instruments**

#### **2.2.1. Intelligence**

Iranian version of Wechsler Adult Intelligence Test (WAIS-R) was conducted on all participants. Eleven subtest consist of 6 verbal and 5 nonverbal (performance) assessed intelligence level (G Score) and verbal and nonverbal intelligence. Table (1) is showed

Verbal and performance subtests and major function measured by. Also, based on Horn and McArdle [53], composite score of Information, Vocabulary, Comprehension, and Similarities subtests used as crystallized intelligence and composite score of Picture Completion, Picture Arrangement, and Block Design subtests used as fluid intelligence. For subtests, scaled scores based on Iranian Norms [54] were used. Abedi [55] reports a retest reliability coefficient of 0.76 to 0.94 and a validity coefficient of 0.75 in Iranian population.

**Table 1. Verbal and Performance Wechsler Adult Intelligence Subtests**

<b>Verbal subtests</b>	<b>Major function measured</b>
Information	Range of knowledge
Vocabulary	Verbal knowledge and concept formation
Similarities	Concrete, functional and abstract concept formation
Arithmetic	Concentration and systematic problem solving ability
Digit-Span	Short term memory, attention and concentration, anxiety
Comprehension	Practical judgment, common sense, and the ability to understand and adapt to social customs
<b>Performance subtests</b>	
Picture completion	Alertness to details
Black design	Spatial problem solving, and manipulative abilities
Digit symbol	Visual motor speed and complexity
Picture arrangement	Nonverbal reasoning, understanding social cause and effect (known as social intelligence)
Object assembly	Analysis of part-whole relationships

### 2.2.2. Creativity: Abedi Creativity Questionnaire

Based on Torrance framework for creative thinking, Abedi [56] created a questionnaire for assessing creativity in Iran. The questionnaire consists of 60 items and measures four dimensions of fluency (16 items), flexibility (11 items), originality (22 items) and expansion (11 items). The test's score range from 1 to 3. Abedi has reported the Cronbach's Alpha for fluency component 0.75, for originality 0.67, for flexibility 0.61 and for expansion 0.61 in his report [56].

### 2.2.3. Wisdom

1. Three Dimensional Wisdom Scale (3D-WS): this scale was design by Ardelit [7] based on cognitive, reflective and affective dimension of wisdom. The scale consists of 39 items in Likret format. Answers to some items ranging from 1 (strongly agree) to 5 (strongly disagree) and to other items ranging from 1 (definitely true of myself) to 5 (not true of myself). The cognitive dimension is assessed by 14 items (*e.g.*, It is better not to know too much about things that cannot be changed), reflective by 12 items (*e.g.*, Things often go wrong for me by no fault of my own) and affective by 13 items (*e.g.*, Sometimes when people are talking to me, I find myself wishing that they would leave). Ardelit [5] reported adequate validity and high test-retest reliability. In a sample of 477 college students, alpha values for the cognitive, reflective, and affective wisdom dimensions were 0.71, 0.75, and 0.66, respectively, and the correlations between the wisdom dimensions ranged from 0.44 to 0.48 [7]. More recently, Bergsma and Ardelit [7] showed Cronbach's  $\alpha$ -values for the cognitive .72, for reflective .74, and for affective .66. This scale, predictive validity is strong and significantly dominated, welfare, purpose, health, fear of death symptoms of depression and avoids related deaths in the right direction. DWS3 hasn't any relationship with marital status, gender, race or in income, but has shown weak correlation with level of education. In addition, participants were assessed by others as

wise had significantly higher scores on this scale businesses [5]. Cognitive dimension of scale refers to the ability to understand life and get its deeper significance, particularly in the fields of personal and interpersonal. This perspective includes an awareness of the positive and negative aspects of human nature, the limits of knowledge, ambiguity and unpredictability of life. Items can measure the readiness and willingness of the participants to fully understand the situation. After reflection as a prerequisite for later cognitive function and the ability to perceive reality as it is without any major distortion has been described [5]. Reflection dimension requires that the person looking at the situation and events from different perspectives to achieve insight and self-awareness. It also conation's the element; avoid blaming others for the status. Emotional dimension, behavior person is sympathetic towards others and the compassion and love. The dimensions of emotions and behaviors manners toward other people and a lack of indifference, feelings, and behaviors negatively assess the others. It is important to note that the three dimensions are not independent of each other. In this way, Wisdom is seen more as a personality trait to a variable performance [57]. In Iran, the reliability of this scale was assessed by Cronbach's alpha coefficients for total scale of wisdom ( $\alpha = .81$ ), cognitive dimension ( $\alpha = .66$ ), reflection dimension ( $\alpha = .74$ ) and emotional dimension ( $\alpha = .06$ ), respectively. Also Kordnoghi, Jahan, Rashid and Rezai [58] also Cronbach's alpha has reported for the whole of scale 0/839, for cognitive dimension .738, for reflection dimension .565 and for emotional dimension. 589. The following table shows the full form of the scale.

**2. Adult Self-Transcendence Inventory (ASTI):** this scale measured another aspect of wisdom is called self-transcendence [49]. The scale consists of 14 items that is ranged participants' agreement from 1 (definitely true of myself) to 5 (not true of myself). Sample item: "My happiness is not dependent on other people and things". Levenson et al [49] reported acceptable internal reliability for ASTI ( $\alpha = .75$ ). Also, Self-transcendence was negatively correlated with neuroticism and was positively and modestly correlated with extraversion, agreeableness, conscientiousness, and openness personality measures.

Also, Kordnoghi *et al.*, [58] have reported Cronbach' alpha for this scale .781 and good convergent and divergent validity of the report. This tool by Levenson [49] is designed as self-transcendence and wisdom defines. Self-transcendence based on the concept of group facing [59] and analysis of philosophical has been defined wisdom literature in the West and East Curnow [60]. Curnow Wisdom has identified four general principles: personal knowledge, separation, Integration and processes. Levenson *et al.*, [49] have suggested that these principles be considered as intellectual growth stages. Personal knowledge, awareness of one's sources is a personal feeling in individual. Detachment means to understand the temporary nature unstable external sources such as relationship, roles material imported goods. Union, accepting is all personal aspects, including aspects that threaten one's personal fancies. Finally, self- transcendence means independence of the accepted definition out of one of his individuality and loss of rigid boundaries between themselves and others. According to these four components, ASII items refers to inner peace independent of external things, a sense of Integration with others and nature, happiness in life and a sense of inner integrity.

### 3. Results

#### 3.1. Correlations

##### 3.1.1. Intelligence, Creativity and Wisdom (3D-WS)

**Table 2. Bivariate Correlations Matrix between Wisdom Measures and Intelligence and Creativity**

	Wisdom (3D-WS)	Self-transcendence
IQ	.451**	.308**
Creativity	.415**	-.229**

\*\* . Correlation is significant at the .01 level

\* . Correlation is significant at the .05 level

As shown in Table 2, IQ scores demonstrated significant positive correlation with both measures of wisdom. Coefficient for 3D-WS (composite score of cognitive, reflective and compassionate dimensions of wisdom) is higher than Self-Transcendence. Also, creativity was significantly related to 3D-WS and ST. but, correlation for ST was negative. 3D-WS and self-transcendence as two measures of wisdom are correlated quite highly ( $r = .468$ ).

**Table 3. The Correlation Coefficient between Wisdom Components (cognitive, reflective, emotional) with General Intelligence, Verbal and Practical and Creative**

Source change	Wisdom		Cognitive wisdom		Reflective wisdom		Emotional wisdom	
	r	P	r	P	R	P	r	P
General intelligence	.451	.000	.422	.001	.364	.000	.448	.000
Verbal intelligence	.486	.000	.474	.000	.381	.000	.476	.000
Practical Intelligence	.285	.004	.254	.011	.225	.024	.304	.002
Creativity	.415	.178	.527	.000	.178	.076	.438	.000

According to the results of correlation analysis (Table 3), Correlation coefficient ( $P = .01$ ) generally demonstrated that general intelligence, verbal intelligence, practical intelligence and creativity with wisdom (3D-WS) there is significant relationship.

**Cognitive wisdom:** But as can be seen in correlation coefficient table ( $p = .01$ ) indicates that between general intelligence, verbal intelligence and creativity there is a significant relationship with wisdom. There is a significant relationship between actionable intelligence and wisdom ( $p = .05$ ).

**Wisdom-reflection:** As can be seen significant relationship between general intelligence and verbal intelligence with reflective wisdom there ( $p = .01$ ) and correlation coefficient ( $p = .05$ ) shows a significant relationship between actionable intelligence and wisdom-reflection. The results showed no significant correlation between creativity and Wisdom-reflection.

**Emotional wisdom:** The result show between general intelligence, actionable intelligence and creativity, there is a significant correlation with emotional wisdom ( $p = .01$ ).

### 3.1.2. Wisdom and Verbal Subtests

**Table 4. Bivariate Correlation between Wisdom Measures and Intelligence Subtests**

Subtests	3D-WS	ST
<b>Crystallized</b>		
Vocabulary	.495**	.439**
Information	.422**	.477**
Comprehension	.492**	.277**
Similarities	.181	.218*
<b>Fluid</b>		
Picture Arrangement	.43**	.254*
Digit-Span	.14	.207*
Arithmetic	.14	.016
Digit Symbol	.183	.143
Picture Completion	.13	.029
Block design	-.013	-.023
Object Assembly	.193	.07

\*p<.05; \*\*p<.01

To examine intelligence subtests related to wisdom measures, bivariate correlation were performed. According to Table (3), Information, Comprehension, and Vocabulary had significant coefficients to 3D-WS and ST. Also, Similarities and Digit-Span are significantly correlated to self-transcendence. In performance subtests, only Picture Arrangement showed significant correlations with two wisdom measures. All correlations were positive.

### 3.2. Predictors of Wisdom

**Table 5. Result of Regression Analysis to Predict Wisdom based on the Creativity, Practical Intelligence and Verbal Intelligence**

Source Change	df	sum of squares	average of squares	f	sig	R	R <sup>2</sup>
Regression	3	10.614	3.538	15.538	.008	.570	.324
Remaining	96	22.096	.230				
Total	99	32.710					

According to the result in Table (5), analysis of variance multivariate regression model indicates that significant regression model was applied and are allowed to use it (p<.001). As seen in the table above, according to the amount of R<sup>2</sup>, components of creativity, practical intelligence and verbal IQ predict a total of 32% of the wisdom. In other to investigate the role of components of creativity, practical intelligence and verbal intelligence multiple regression analysis, was attempted. Between creativity, practical intelligence and verbal intelligence were considered as explanatory variables. Result showed that factors verbal intelligence and creativity had the highest role. The finally result has showed in the model below multiple regression analysis, the coefficient of effective variables.

Variable (factor)	B	The standard error	Beta	T	sig
amount Constant	-1.646	.882	-	-1.866	.065
Verbal intelligence	.036	.009	.408	3.900	.036
Practical Intelligence	.000	.008	-.006	-.058	.000
Creativity	.012	.003	.308	3.538	.012

### 3.2.2. Crystallized-fluid intelligence and creativity

**Table 6: summary of regression analysis on crystallized and fluid intelligence and creativity scores in predicting wisdom (3D-WS)**

Variable	B	SE	B
Crystallized intelligence	.22	.04	.48**
Fluid intelligence	-.02	.05	-.03
Creativity	.01	.003	.30**

\*p<.05; \*\*p<.01

A multiple regression analysis were used for wisdom scores based on 3D-WS as a dependent variable and crystallized and fluid intelligence and creativity scores as independent variables. Results were summarized in table (4). Multiple R was significant statistically. Adj R<sup>2</sup>= .36, F (3, 96) =19.71, P<.001. Two out of three variables (crystallized intelligence and creativity) significantly predicted the wisdom but, fluid intelligence didn't show significant result.

Same results found for Self-transcendence (ST) as a dependent variable. Adj R<sup>2</sup>= .33, F (3, 96) =17.2, P<.001.

### 3.2.3. Intelligence subtests

**Table7: Results of regression analysis to predict wisdom by intelligence factors.**

Source Change	df	sum of squares	average of squares	f	sig	R	R <sup>2</sup>
Regression	11	13.816	1.256				
Remaining	88	18.894	.215	5.850	.000	.650	.422
Total	99	32.710	-				

According to the results in table (7), analysis of variance multivariate regression model indicates that significant regression model was applied and are allowed to use it (p<.01). As seen in the table above, according to the amount of R<sup>2</sup>, Eleven Factor intelligence predicts a total of 42% of the wisdom. In order to investigate the role of intelligence in multiple regressions analysis was attempted. The significant level of public information for variables, algorithms, similarities, numerical memory, encryption, complete images, design and assembly of more than 0/05 cubic come suggesting a lack of ability to predict these variables, therefore com pretension variables, adjust the images and vocabulary are considered as explanatory variables. Results showed that the vocabulary, comprehension and adjust images in order to have the most important role (As seen in the table below).

Variable (factor)	B	The standard error	Beta	T	sig
amount Constant	.872	.641	-	1.361	.177
general information	.032	.032	.106	1.019	.311
Comprehension	.088	.030	.316	2.882	.005
Algorithm	-.015	.031	-.044	-.480	.632
Similarities	-.009	.043	-.019	-.205	.838

Numerical memory	-.014	.330	-.044	-.430	.668
Vocabulary	.119	.049	.282	2.451	.016
Cryptography	.005	.038	.014	.137	.892
Completion Pictures	-.053	.034	-.144	-1.437	.154
Designed with cubes	-.054	.034	-.143	-1.437	.112
Set Pictures	.069	.030	.224	2.328	.022
Object assembly	.025	.031	.081	.804	.424

Based on WAIS, 11 different cognitive abilities were assessed (6 verbal and 5 performance). Which one of them can explain the wisdom variance significantly? Multiple Regression analysis variances showed 33% of total of wisdom variance (3D-WS) is explained by model: Adj R<sup>2</sup>= .35, F (11, 88) =5.85, P<.001. Beta coefficients for 3 out of 11 subtests were significant. Comprehension ( $\beta$ = .316), Vocabulary ( $\beta$ = .282), Picture arrangement ( $\beta$ = .224).

When ST entered to the model as dependent variable 25% of its variance was explained by 11 subtests. Adj R<sup>2</sup>= .25, F (3, 96) =4.02, P<.001. Information ( $\beta$ = .323) and Vocabulary ( $\beta$ = .285) were only subtest which were significant.

### 3.2.4. Creativity Dimensions

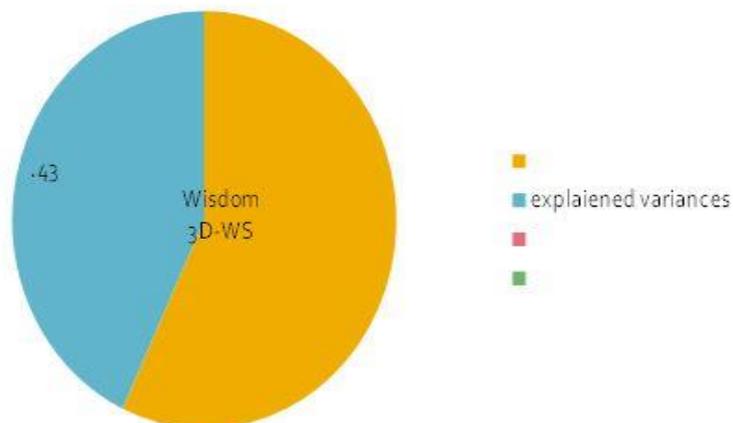
**Table 8. Result of Regression Analysis to Predict Wisdom based on the Creativity Factors**

Source Change	df	sum of squares	average of squares	f	sig	R	R <sup>2</sup>
Regression	4	8.003	2.001				
Remaining	95	24.707	.260	7.693	.000	.495	.245
Total	99	32.710	-				

According to the results of table 8, analysis of variance multivariate regression model indicates that significant regression model was applied and are allowed to use it ( $p < .01$ ). As seen in the table above, according to the amount of R<sup>2</sup>, components of creativity predict 24% of the wisdom. To investigate the role of creativity multiple regression analysis was attempt. The significant level for variables, innovation, Expansion, flexibility and Dominance was more than 0/05, which a lack of ability to predict these variables, therefore, Expansion is considered as explanatory variable (as seen in the table below).

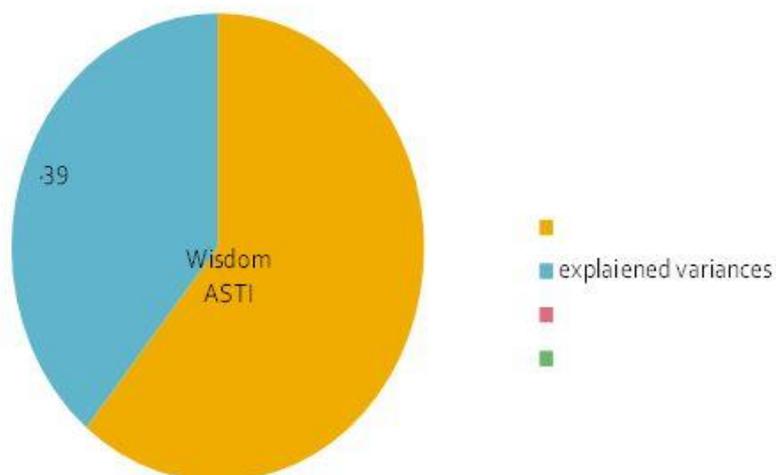
Variable (factor)	B	The standard error	Beta	T	sig
Amount Constant	2.038	.242	-	8.419	.000
innovation	.013	.015	.139	.860	.392
Expansion	.075	.022	.412	3.391	.001
flexibility	-.011	.022	-.062	-.492	.624
Dominance	.002	.018	.018	.081	.903

Four dimensions of creativity consist of fluency; elaboration, originality, and flexibility were entered to the model as predictive variables. Results showed by this model we can explain 21% of total of wisdom variance based on 3D-WS. Adj R<sup>2</sup>= .21, F (4, 95) =7.69, P<.001. Beta was significant only for Elaboration aspect. Model for ST as dependent variable was significant weakly. Adj R<sup>2</sup>= .06, F (4, 95) =2.51, P<.05. But, none of dimensions' Beta was significant.



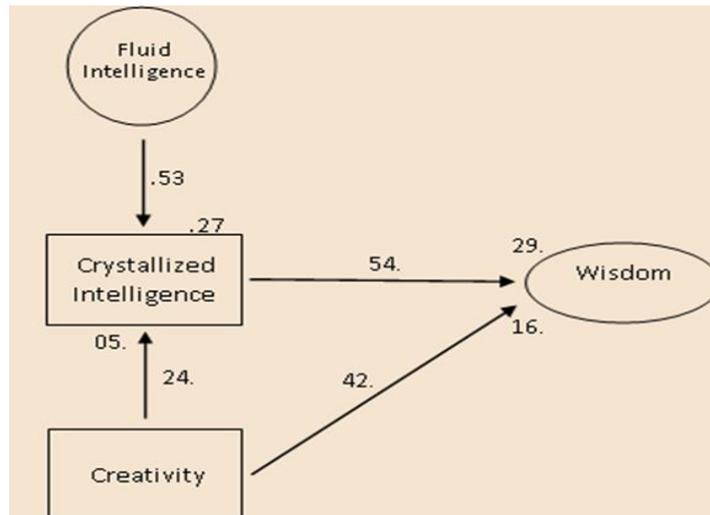
**Figure 1. Variance Explained by Elaboration, Comprehension, Vocabulary, and Picture Arrangement for 3D-WS**

When we made a model by 3 intelligence subscales and 1 creativity dimensions which all were significant in their models 43% of total of 3D-WS variance is explained (Figure 1).



**Figure 2. Variance Explained by Fluency, Vocabulary, and Information for Self-Transcendence (ST)**

For explaining Self-Transcendence variance as a wisdom indicator, we put 3 predictors consist of Fluency, Vocabulary, and Information. As it can be seen in Figure 2, 39% of total of Self-Transcendence variance is explained by this model.



**Figure 5. The Regression Model of Wisdom**

Figure 5 showed the direct and indirect influences of predictive variables on wisdom.

#### 4. Discussion and Conclusion

Wisdom as measured in this research by 3D-WS (Three Dimensional Wisdom Scale) and ASTI (Adult Self-Transcendence Inventory) were significantly correlated with intelligence and creativity. All correlation coefficients were positive (with one exception between creativity and self-transcendence) which means wisdom can find more in intelligent and creative people. The results showed that wisdom (3D-WS) with general intelligence, verbal and practical and creativity work has a significant positive relationship. The results also showed that general intelligence, verbal intelligence and creativity with wisdom (3D-WS) there is significant relationship. In this study it was shown that between general intelligence, verbal intelligence, actionable intelligence and creativity with wisdom. In cognitive and emotional wisdom there is a significant positive relationship. The result showed a significant relationship between general intelligence, verbal intelligence, and actionable intelligence with reflective wisdom there. But in this study, there was not observed between the reflective Ardel's wisdom and creativity. Probably due to the difficulty in validating measures and implementation are inappropriate research tools. Because, There are similarities because the wisdom reflective properties (the ability to see things from different angles) with the characteristics of creativity (novelty and usefulness produce an idea).

The relationship between intelligence and wisdom (3D-WS), we can say that between wisdom and intelligence structure in many respects, there are some common points. For example, the Wechsler, intelligence is person's General talent to do meaningful work, logical thinking and deal effectively with the environment that includes verbal intelligence and practical intelligence that can related with Wisdom (3D-WS). Because, intelligence construct is included general cognitive abilities (thought), social (social skills), emotional intelligence (five basic skill: self-awareness, control of emotions, spontaneity empathy and regulation of relation) so that can be expressed that this aspect also in the structure of wisdom (3D-WS) is visible because of the perspective Ardel, wisdom is included cognitive (cognitive dimension indicates the desire to know the truth and achieve a deeper understanding of life, including acceptance of the contrasts in one human nature, the limits of knowledge, and unpredictable life), reflective (later revised first two sub-components: ability and willingness to see things and events from different perspectives, the lack of subjectivity and projection) and emotional (love, empathy and caring for others). The relationship between intelligence and wisdom can be expressed that the

general wisdom is that be included intelligence structures. In fact, intelligence is one of the critical factors for wisdom. Wisdom determines the right direction. Intelligence makes machines and wisdom determines how to use it [24].

As Fengyan and Hong [12] proposed to be wise ones has to be equipped with mental capacity of intelligence. Sternberg [4] mentioned Intelligence, wisdom, and creativity build on each other. Wisdom draws upon intelligence and creativity in the formulation of solutions to problems that take into account all stakeholder interests over the short and long terms. In relationship between wisdom and creativity, Craft [61] suggested if we bring wisdom to the fore in nurturing creativity in the classroom, then effectively we encourage both teachers and their pupils to consider the impact of their ideas not only on themselves but also on others, and with their wider environment. Also, Helson and Srivastava [44] found wisdom and creativity are related together but some personality characteristics like openness and complexity are involved. As the theorists in the field of wisdom claim there is a relationship between wisdom and creativity, on the other hand, the results of this study indicates a significant correlation between wisdom and creativity, therefore it can be concluded that creativity which according to Gliford includes elements of fluidity (ability to offer different solutions for problems), expansion(ability to plan and organize different matters), invention (leave the thought based on habit), flexibility (ability to create new patterns of thinking and not to rely on current thinking patterns) is correlated with Ardel's theory. This shows that wisdom as a general variable embraces creativity and creativity is one of the essential factors for wisdom.

Result was significant only for Crystallized intelligence not for Fluid intelligence. Crystallized intelligence comes from experience as wisdom does. Crystallized intelligence is acquired knowledge [11] and wisdom is expertise include rich factual and procedural knowledge about life [62]. Also, some researchers consider crystallized intelligence to intelligence-as-knowledge [63] which is much closer to wisdom as expertise. In fact, crystallized intelligence is the ability to use knowledge, skills and experience to solve problems can be obtained in the process of acculturation. This intelligence is the breadth and depth of knowledge is acquired through language and concepts in a particular culture [11] Crystallized intelligence is dependent an experience and further your verbal intelligence indicates the end of life is increasing. Of course, for those who continue their intellectual activities. It seems that due to the characteristics of both types of intelligence is more connected wise. This has been confirmed in research in Iran [64]. In this study, Wechsler Adult Intelligence Crystallized in verbal tests measure the wisdom of the people had a significant positive correlation. While in tests of nonverbal Wechsler Adult Intelligence representing fluid did not show significant results. Only nonverbal subtests that intelligence showed a significant positive correlation with wisdom score in the test images that represent the individual's social intelligence. However, Staudinger and Gluck [65] argue that both fluid intelligence and crystallized intelligence is both wise men of more than ordinary people. According to the results of research on the relationship wisdom with crystalized intelligence, can be said that linking factor between of these two constructors (wisdom and crystallized intelligence) is experience. As experience points to the relationship between individual and the environment, it can be stated that the factor of experience plays an important role in wisdom growth, intelligence and creativity, because when individuals encounter different experiences, they obtain a deep comprehension about them.

Probably experience is a common point of connection between the three factors crystallized intelligence, creativity and wisdom. These studies support the idea that the experience of wisdom, creativity and crystallized intelligence linking to each other. factor experience cannot itself grounds for wisdom growth, creativity and crystallized intelligence, the experience of life time can play an important role in the structure of crystallized intelligence, creativity and wisdom that people have a deep understanding and interpretation gained rich experience them. Since the main source of wisdom is one's own

experiences, openness to new experiences, one of the features is wise. The Big Five Personality is one of the main factors, openness to experience. In this model, openness to experience includes respect for art, emotion, adventure, unusual ideas, curiosity and diversity of experience. Openness, intellectual curiosity, creativity and novelty and diversity encompasses preferred. The imagination is strong and independent character more openness explaining his life. But, the question is how the three structures (wisdom, intelligence, and creativity) are interrelated by experience can be defined through life experiences model. For example, Gluck and Bluck [66] model as "Life Experience Model" provided that the four sources of mastery, openness, reflectivity, emotion regulation and called Empathy that is short' MORE'. MORE ability to have four people who experience that wisdom increases during the life of their welcome. Coping with these experiences to promote wisdom growth and eventually they integrate such experiences in their life stories that allow them to grow and learn through the experiences of the past.

Significant Intelligence Subtests for 3D-WS were Comprehension, Vocabulary, and Picture Arrangement. These subscales assess verbal knowledge and concept formation, practical judgment, common sense, and the ability to understand and adapt to social customs, nonverbal reasoning, understanding social cause and effect (known as social intelligence). Therefore, wisdom is related to cognitive skills which assess by verbal intelligence subtests and also social skills like social intelligence. 3D-WS consist of three dimensions of cognitive, reflective and compassionate but not social. In an interpretation of these findings, we can say wisdom is a social-cognitive skill.

Significant Intelligence Subtests for ASTI based on Regression model were Information and Vocabulary. According to abilities which are assessed by these subtests Self-Transcendence related to range of knowledge, verbal knowledge and concept formation. It means people who have breath knowledge and abilities to making meaning can go beyond of themselves to reaching something greater. Consistent with Le and Levenson [67], self-transcendence is the ability to move beyond self-centered consciousness, and to see things as they are with clear awareness of human nature and human problems.

Fluid and crystallized intelligence are related together. According to Cattell Investment Theory [69, 8, 68], fluid intelligence has a causal influence on Crystallized intelligence. Many researches support this idea [70].

Finally, we propose adaptive social expertise as wisdom definition. This extends the Berlin paradigm, wisdom is expertise in fundamental pragmatics of life. But we see from this study that wisdom is not just a knowledge system (crystalized knowledge), but includes creativity (making it adaptive as in Dreyfus model of skill development; without intuitive creativity, expertise is mere proficiency). An expertise needs to intelligence and creativity for sure. But, another part of wisdom still remain. Wisdom is expertise in social life used to understand and help others. For socially experiences structures that provide growth substrate for wisdom. In fact, social experiences is defined as any event that correlates the individual and the environment and make a mutual relationship between them in a way that the individual attain a deep comprehension of the mutual relationship. Also, in consistent with Sternberg [39] "wisdom inheres in an interaction among person, task, and situation" (PP 287) we consider wisdom has to be adaptive.

Based on the results, we can say that probably the experience factor (Deep and meaningful interaction between the individual and the environment and the interpretation of it) plays an important role in linking creativity and intelligence with wisdom. Because the structure of wisdom, intelligence and creativity under the influence of different experiences that grow on this basis can be concluded that structural wisdom is required as the ultimate perfection of human intelligence and creativity.

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