

The Psychometric Properties of Moral Intelligence Scale for Secondary Stage Adolescents in the Arab Environment

Mohamed Sayed Abdellatif^{1,2*}

¹Department of Educational Sciences, Faculty of Education in Wadi Aldawasir, Prince Sattam Bin AbdulAziz University, Saudi Arabia, ²Department of Educational Psychology, Faculty of Education in Assiut, Al-Azhar University, Egypt.

* Correspondence: Mohamed Sayed Abdellatif m.heby@psau.edu.sa ; Tel.: 00966532385349

ABSTRACT

This research aimed to develop the moral intelligence scale for Secondary stage Adolescents in some Arab countries, to verify the psychometric properties of the scale (internal consistency, validity, and reliability), and to identify the differences between participants in moral intelligence according to gender and specialization variables. The researcher examined two samples from five countries (Egypt, Saudi Arabia, Yemen, Jordan, and Iraq). The first sample comprised (530) male and female students to verify the psychometric properties of the moral intelligence scale, and the second sample comprised (480) male and female students to identify the differences between students in the moral intelligence scale according to gender and academic specialization variables. For data analyses, the researcher utilized exploratory factor analysis, confirmatory factor analysis, Cronbach's alpha, and Pearson's correlation coefficient. Results demonstrated the validity of the presented scale for measuring moral intelligence among the research sample in the Arab environment. Confirmatory factor analyses revealed eight components of moral intelligence (fear of the Almighty Allah, Patience and self-control, mercy and sympathy, forgiveness and tolerance, respect, fairness, responsibility, and courage). The moral intelligence scale is also characterized by high internal consistency, validity, and reliability. Besides, results found out that there were no statistically significant differences between the means of the students' scores in the moral intelligence scale due to gender and specialization.

Keywords: Psychometric properties, moral intelligence, adolescent students, Arab environment.

Article Received: 10 August 2020, Revised: 25 October 2020, Accepted: 18 November 2020

Introduction

The adolescence stage is one of the most crucial stages that affect the student's life, as he is exposed to many problems that make him unable to feel comfortable and psychologically adapt. Therefore, he needs to satisfy his needs, realize himself, and develop a sense of identity and self-esteem. He also needs adults who can listen to him, understand and appreciate his personality. Besides, this stage is well-known for violent conflicts and practices, which necessitates presenting speed therapeutic and educational interventions (Al-Morshedy, 1990; Zahran, 1990; Al-Fiqhi, 2015).

Today, our societies in general and schools, in particular, are witnessing a decline in moral values and a widespread of immoral behaviors and aggression in all its forms, so developing moral intelligence has become an urgent need (Al-Laithi et al., 2015). With the emergence of positive psychology, morals have become one of its pillars that are related to happiness and welfare (Griffiths et al., 2009). So that, morals should be the focus of research and study according to experimental

methods, while benefiting from the philosophers' points of view (Peterson & Seligman, 2004).

Moral intelligence is a very important phase for people of the current century, as they face many social diseases than those of the previous generations, and therefore they must be immunized from such changes with strong moral intelligence that they can acquire through their parents (Borba, 2001). The school then follows up what the family offers, because discussing ethical dilemmas driven from the classroom situations requires great effort from the teacher and great attention to handle them in a way developing moral intelligence among learners (Elliott, et al., 2000; Borba, 2013; Alhadabi et al., 2020). In this regard, Coles (2007) believed that if the individual lacks moral intelligence, he misses all kinds of other intelligence and becomes outside the society's moral controls.

Adolescents are the most affected individuals to problems, pressures, and challenges imposed by the rapid successive scientific and technological developments, which represents a fundamental feature of this era that leads to the increase of many psychological, emotional, and behavioural

problems and disorders. Therefore, they need a personality characterized by moral intelligence to be capable of facing such challenges (Coles, 2001; Borba, 2003; Alhadabi et al., 2020).

From this perspective, the researcher noticed that most of the moral intelligence studies in the Arab environment adopt what is mentioned in foreign environments studies, noting that the Islamic heritage is rich with many good morals that many researchers overlook. Besides, the researcher noticed that the Arab library lacks a scale consisting of behavioural situations for measuring moral intelligence among adolescent students and that there is a kind of contradiction in research and studies that tried to determine moral intelligence components. Hence, the current research seeks for revealing the components of moral intelligence, building the moral intelligence scale for adolescent students in some Arab countries, verifying the psychometric properties of the scale (internal consistency, validity, and reliability), and identifying the differences between participants in moral intelligence according to gender and specialization variables.

Literature Review

Moral Intelligence

Coles (1997) published the first scientific article in this field entitled (Moral Intelligence for Children" and defined it as: "the ability to clearly distinguish between right and wrong and to make informed decisions that benefit the individual and others around him". Then this concept is developed through many articles and research by Borba (Borba, 2001; Borba, 2003). Borba (2003) defined it as the individual's ability to determine right and wrong and the possession of moral conventions that enables him to act in the right way based on possessing seven moral convictions that direct his behaviour and they are empathy, conscience, self-control, respect, kindness, tolerance, and justice.

Through reviewing literature and the numerous definitions of moral intelligence (Gullickson, 2004; Lennick & Kiel, 2007; Nobahar & Nobahar, 2013; Saleh, 2014; Mahmoud, 2016; Hidia et al., 2016; Al-Sharif, 2019; Abdullah, 2020), the researcher concluded that moral intelligence is a multi-component concept that includes kindness, compassion, forgiveness,

tolerance, justice, responsibility, and mutual respect and these components are driven by the self-internal engine through conscience and religious commitment that make the individual start his dealings with others by offering goodness and warding harm.

For the purpose of this research, the researcher defined moral intelligence as the individual's ability to follow the correct behaviour with his belief in fear of Almighty Allah that prompts him to work without compensation or supervision from anyone through sharing others emotionally and helping them when needed, respecting them, treating them fairly, and demonstrating tolerance with them. Participants' moral intelligence is measured in this research by the results they obtained in the moral intelligence scale with its components (fear of the almighty Allah, patience, and self-control, mercy and sympathy, forgiveness and tolerance, respect, fairness, responsibility, and courage).

The components of moral intelligence provide an opportunity for each individual to enhance his empathy towards others while adhering to moral standards, conscience, and moral specialization. Additionally, thinking and behavioural management help to organize ideas and actions in order to stop internal and external pressures to act with integrity and to confront injustice and violence. Various researchers investigated components of moral intelligence from different points of view (Gardner, 1999; Borba, 2001; Hussien 2003,2005; Lennick, & Kiel, 2007; Rizk, 2006; Coles, 2007; Shehata, 2008; Rodney & charken ,2009; Kassim, 2010; Weinstein, 2011; Jelic, 2012; Fard, 2012; Hosseini et al., 2013; Saleh, 2014; Al-Ammar & Mohamed, 2014; Orabi, 2016; Al-Shawoura & Al-Sarayra, 2017; Al-Amber and Al-Khalidi, 2019; Al- Subhin et al., 2019; Al- Smadi & Al-Zaghloul, 2019; Abdul Latif, 2020; Khalifa & Khalifa, 2020; Lotfi et al., 2020). After reviewing related literature and previous studies, the researcher determined the components of moral intelligence within the context of this research as follows:

- *Fear of the Almighty Allah:* It refers to compatibility between what the individual believes in the existence of Almighty Allah and what he does in a way that enabling his soul to do the right actions according to the Sharia guidelines in Islam even in the presence

of temptations, and his ability to determine right and wrong and feel blame and reprimand in the case of doing mistakes.

- *Patience and Self-control*: It refers to the individual's ability to fully control his actions during stressful situations, curb his emotions, think carefully, and act by doing what is right, as required by Al-Sharia and reason.
- *Mercy and Sympathy*: It refers to sharing the feelings of others (human or animal) and interacting with them in situations of pain, pleasure, or danger, by offering help through spending time, effort, and money, seeking a reward from Almighty Allah without any material or moral compensation.
- *Forgiveness and Tolerance*: It refers to the individual's ability to forgive and tolerate the mistakes of others by leaving blame, anger management, and not delay in providing aid to those who disagree with them.
- *Respect*: It refers to the individual's ability to treat others the way he would like to be treated, not interrupting others, not ridicule others, and appreciating their opinions even if they contradict his ideas.
- *Fairness*: It refers to the individual's ability to make impartial judgments and act upon them according to the rules and principles of Sharia without prejudice to any party, to give everyone his right impartially, and to stand by the oppressed.
- *Responsibility*: It refers to the individual's ability to take responsibility for the actions assigned to him and their results, recognition of mistakes and failure, the desire to assume the responsibility of others he cares for, and preserving the environment and the properties of others.
- *Courage*: It refers to the individual's ability to encounter different social situations boldly, his self-confidence, initiation to help others at the time of danger, and his ability to take responsibility for the decisions of his actions without repudiating them in order to achieve benefit for him or others.

Adolescence

Mansi (2001) defined adolescence as the emotional transition period between childhood and adulthood, which is characterized by many physical changes and the emotional changes associated with these variables. Adolescence is

considered as the most changing stage of development in the physical, sexual, psychological, and cognitive aspects that lead to a change in the social demands of adolescence for independence and a change in relations between adolescents and members of society. Baza (2002) & Desouki (1998) mentioned that adolescence is a stage preceding adulthood where the individual reaches full maturity. It extends from adolescence to adulthood, in this regard it extends until the individual reaches 21 years.

Methods

Research hypotheses

- The moral intelligence scale has acceptable internal consistency coefficients.
- The moral intelligence scale has acceptable validity coefficients.
- The moral intelligence scale has acceptable reliability coefficients.
- There are no statistically significant differences between the means of the participants' scores on the moral intelligence scale and its components due to the gender variable (male-female).
- There are no statistically significant differences between the means of the participants' scores on the moral intelligence scale and its components due to the academic specialization variable (scientific –literary).

Methodology

The current research utilized the descriptive research approach as it is the most suitable approach for the research objectives.

Participants

The researcher examined two samples from five Arab countries. The first sample comprised (530) male and female students to verify the psychometric properties of the moral intelligence scale, Egypt (186), The Kingdom of Saudi Arabia (97), Jordan (105), Iraq (87), Yemen (73), with (age mean=17.43), SD=1.44), and the second sample comprised (480) male and female students to identify the differences between students in the moral intelligence scale according to gender and academic specialization variables, (age mean=17.13, SD= 1.06).

Measures

The Moral Intelligence Scale

This scale aims to measure and determine some moral intelligence components among a sample of adolescents in the Arab environment. For building the scale, the researcher reviewed related literature, studies, and measures regarding this variable (Borba, 2001; Lennick, & Kiel, 2007; Rodney & Charken, 2009; Weinstein, 2011; Hosseini et al., 2011; Shehata, 2008; Kassim, 2010; Al-Ammar & Mohamed, 2014; Orabi, 2016; Al-Shawoura & Al-Sarayra, 2017; Al-Amber and Al-Khaldi, 2019; Al-Smadi & Al-Zaghloul, 2019; Al-Sharif, 2019; Abdul Latief, 2020; Lotfi et al., 2020). The scale in its initial form comprised 12 situations: respect tolerance and fairness, emotional assimilation, self-control, self-censorship, honesty, trust, responsibility, and courage. These situations were chosen as they are the most frequently mentioned in the theoretical literature and measures, the relevance of these components to the nature of Muslim societies in the Arab environment, and these components fit the participants' age, interests, and behaviors in life situations.

Twelve sub-scales were prepared in the form that is related to the adolescents' behaviors and interests. Each component included a group of (60) situations that were collected on one scale, related to the adolescents' real life. The researcher limited the scale to (60) situations for fear of students' reluctance to participate. Each situation has three alternatives and the student has to choose one of them by putting (✓)

The scale was presented in its initial form to (3) Sharia experts and professors and (7) mental health and psychology professors as attributors to determine the suitability of the scale components and situations. They suggested adding, modifying, integrating some components. The scale in its final form consisted of (50) situations distributed into (8) components: Fear of Almighty Allah, Patience and Self-control, Mercy and Sympathy, Forgiveness and Tolerance, Respect, Fairness, Responsibility, and Courage.

For the scale correction, each situation has three alternatives in front of it and each choice is given a score as follows:

- Individual items from situation 1-49 (3-2-1).
- Even items from situation 2-50 (1-2-3).

The student has got (3) scores if the response represents high moral intelligence, (2) if the response represents average moral intelligence, and (1) if the response represents low moral intelligence. Hence, the highest score for the scale is 150, while the lowest score is 50.

Data Analysis

The eight sub-scales included in the Moral Intelligence Scale were applied to a sample of (530) male and female students in Egypt, Saudi Arabia, Jordan, Yemen, and Iraq to verify the scale psychometric properties which are: internal consistency, construct validity, Cronbach's alpha, and composite reliability.

Results

The first hypothesis result: "The moral intelligence scale has acceptable internal consistency coefficients":

To verify the scale internal consistency, the researcher investigated the extent to which the degree of each item correlates with the total score of the dimension it belongs to by calculating Pearson's correlation coefficients. Table (1) indicates the internal consistency of the moral intelligence scale after omitting the (16-21-25-34) items because their correlation with the dimension score was low (> 0.3).

Moreover, the correlation coefficients between the dimensions of the scale and the total scale degree were also calculated, after omitting the dimension's degree from the total score of the scale as shown in table (2).

It is evident from tables 1 and 2 that all correlation coefficient values were significant at the level of (0.01), which confirms the scale's internal consistency and the scale, in general, is valid and reliable.

Table 1. Internal Consistency for Moral Intelligence Scale

Dimensions	Items	Correlation with Dimension	Dimensions	Items	Correlation with Dimension
Fear of Almighty Allah	1	0.665	Respect	24	0.582
	2	0.653		25	0.552
	3	0.599		26	0.450
	4	0.516		27	0.485
	5	0.632		28	0.584
	6	0.653		29	0.454
	7	0.585		30	0.507
	8	0.663		31	0.707
	9	0.631		32	0.584
	10	0.683		33	0.638
Patience and Self-Control	11	0.518	Fairness	34	0.507
	12	0.606		35	0.536
	13	0.636		36	0.619
	14	0.555		37	0.649
	15	0.575		38	0.650
Mercy and Sympathy	16	0.680	Responsibility	39	0.561
	17	0.559		40	0.622
	18	0.670		41	0.473
	19	0.676		42	0.601
	20	0.593		43	0.623
Forgiveness and Tolerance	21	0.478	Courage	44	0.445
	22	0.629		45	0.539
	23	0.477		46	0.644

All correlation coefficients in the table are significant at (0.01)

Table 2. Correlations between Dimensions and the Total Score of Moral Intelligence Scale

n	Dimension	Correlation with the total score of the scale
1	Fear of the Almighty Allah	0.641
2	Patience and Self Control	0.539
3	Mercy and Sympathy	0.599
4	Forgiveness and Tolerance	0.456
5	Respect	0.693
6	Fairness	0.571
7	Responsibility	0.474
8	Courage	0.485
All correlation coefficients are significant at (0.01)		

The Second hypothesis result: "The moral intelligence scale has acceptable validity coefficients":

To ensure the scale validity, the researcher verified construct validity of the moral intelligence scale through calculating exploratory and confirmatory factor analysis on a sample consisted of (530) students who were divided into two groups of (265) for each statistical method. Exploratory factor analysis was used by the method Principal Axis Factoring. Bartlett's test value was (8356.65) with degrees of freedom of (1081), which is a statistically significant value at (0.01), and the value of the Kaiser-Meyer-Olkin (KMO) test (0.898), which is a value greater than 0.8.

The factors whose latent root is greater than (1) were retained and accordingly, (8) factors were extracted, which explained (47.39) of the total variance of the scale. The diagonal rotation was also conducted by the Promax method. Table (3) shows factor loads on the eight factors after rotation.

Table (3) indicated the following:

- Items from (1:8) were more loaded on the first factor as the value of the latent root was (3.57) and the explained variance of this factor was (7.77). Investigating the content of these items revealed that they deal with the (Fear of the Almighty Allah) dimension.
- Items from (34:39) were more loaded on the seventh factor, as the value of the latent root

- Items from (40:46) were more loaded on the second factor, as the value of the latent root was (3.25) and the explained variance ratio of this factor was (7.07). Investigating the content of these items revealed that they deal with the (Courage) dimension.
- Items from (24:29) were more loaded on the third factor, as the value of the latent root was (2.86) and the explained variance ratio of this factor was (6.23). Investigating the content of these items revealed that they deal with the (Respect) dimension.
- Items from (15:19) were more loaded on the fourth factor, as the value of the latent root was (2.70) and the explained variance ratio of this factor was (5.88). Investigating the content of these items revealed that they deal with the (Mercy and Sympathy) dimension.
- Items from (9:14) were more loaded on the fifth factor, as the value of the latent root was (2.65) and the explained variance ratio of this factor was (5.77). Investigating the content of these items revealed that they deal with the (Patience and Self Control) dimension.
- Items from (30:33) were more loaded on the sixth factor, as the value of the latent root was (2.53) and the explained variance ratio of this factor was (5.51). Investigating the content of these items revealed that they deal with the (Fairness) dimension.
- Items from (47:52) were more loaded on the eighth factor, as the value of the latent root was (2.31) and the explained variance ratio of this factor was (5.02). Investigating the

content of these items revealed that they deal with the (Responsibility) dimension.

- Items from (20:23) were more loaded on the eighth factor, as the value of the latent root was (2.16) and the explained variance ratio of

this factor was (4.69). Investigating the content of these items revealed that they deal with the (Forgiveness and Tolerance) dimension.

Table 3. Exploratory Factor Analysis (with Principal Axis Factoring) for Moral Intelligence Scale

Items	Extracted factors								communalities
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	
1	0.529	0.058	0.137	0.267	0.211	0.143	0.307	0.201	0.573
2	0.561	0.021	0.308	0.039	0.109	0.016	0.111	0.191	0.472
3	0.574	0.095	0.041	0.069	0.032	0.013	0.259	0.241	0.471
4	0.616	0.040	0.074	0.262	0.230	0.046	0.036	0.121	0.526
5	0.487	0.228	0.116	0.014	0.096	0.035	0.199	0.017	0.353
6	0.551	0.015	0.391	0.261	0.085	0.160	0.146	0.080	0.585
7	0.574	0.030	0.199	0.139	0.023	0.079	0.272	0.352	0.594
8	0.554	0.149	0.083	0.060	0.025	0.078	0.030	0.232	0.401
9	0.031	0.224	0.056	0.050	0.537	0.074	0.401	0.035	0.513
10	0.039	0.108	0.018	0.116	0.583	0.025	0.092	0.118	0.390
11	0.015	0.014	0.117	0.209	0.542	0.033	0.023	0.019	0.354
12	0.157	0.059	0.101	0.030	0.540	0.204	0.032	0.085	0.381
13	0.016	0.172	0.042	0.128	0.458	0.024	0.176	0.076	0.295
14	0.063	0.226	0.316	0.134	0.612	0.071	0.012	0.027	0.553
15	0.139	0.146	0.015	0.602	0.053	0.175	0.174	0.067	0.471
16	0.269	0.100	0.019	0.481	0.044	0.195	0.116	0.204	0.409
17	0.312	0.026	0.019	0.689	0.010	0.243	0.047	0.028	0.635
18	0.045	0.050	0.283	0.730	0.165	0.343	0.051	0.060	0.769
19	0.072	0.296	0.340	0.532	0.011	0.116	0.027	0.216	0.552
20	0.021	0.030	0.026	0.251	0.055	0.015	0.132	0.659	0.520
21	0.032	0.171	0.217	0.069	0.227	0.040	0.166	0.497	0.410
22	0.299	0.352	0.052	0.211	0.033	0.052	0.021	0.468	0.484
23	0.087	0.038	0.126	0.075	0.032	0.034	0.211	0.555	0.385
24	0.115	0.177	0.432	0.036	0.318	0.121	0.134	0.034	0.367
25	0.237	0.234	0.469	0.060	0.032	0.147	0.169	0.020	0.386
26	0.113	0.071	0.703	0.235	0.047	0.065	0.140	0.189	0.629
27	0.016	0.066	0.528	0.122	0.103	0.061	0.515	0.026	0.579
28	0.065	0.022	0.604	0.063	0.061	0.126	0.306	0.059	0.490
29	0.315	0.028	0.479	0.017	0.030	0.077	0.023	0.242	0.396
30	0.287	0.041	0.044	0.096	0.206	0.103	0.537	0.034	0.438
31	0.322	0.019	0.065	0.075	0.161	0.048	0.525	0.042	0.420
32	0.019	0.058	0.017	0.141	0.359	0.015	0.564	0.099	0.481
33	0.185	0.162	0.025	0.065	0.202	0.129	0.445	0.081	0.327
34	0.284	0.062	0.122	0.124	0.156	0.511	0.011	0.022	0.401
35	0.220	0.191	0.224	0.079	0.055	0.489	0.016	0.056	0.387
36	0.163	0.062	0.255	0.081	0.263	0.732	0.074	0.203	0.754
37	0.228	0.287	0.231	0.101	0.239	0.536	0.011	0.275	0.618
38	0.199	0.109	0.168	0.163	0.074	0.476	0.261	0.134	0.424
39	0.078	0.073	0.185	0.183	0.152	0.615	0.079	0.049	0.489
40	0.024	0.523	0.139	0.239	0.014	0.079	0.023	0.370	0.494
41	0.058	0.446	0.071	0.203	0.160	0.013	0.089	0.273	0.357

Items	Extracted factors								communalities
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	
42	0.048	0.471	0.053	0.079	0.057	0.281	0.076	0.116	0.335
43	0.134	0.606	0.170	0.049	0.077	0.046	0.232	0.027	0.479
44	0.199	0.528	0.124	0.135	0.039	0.184	0.023	0.021	0.388
45	0.207	0.741	0.020	0.142	0.203	0.073	0.058	0.047	0.665
46	0.011	0.760	0.200	0.082	0.149	0.028	0.019	0.036	0.649
eigenvalue	3.57	3.25	2.86	2.7	2.65	2.53	2.31	2.16	Total variance
Ratio of the variance	7.77	7.07	6.23	5.88	5.77	5.51	5.02	4.69	47.93%

Besides the confirmatory factor analysis was utilized to verify the scale validity using Maximum Likelihood Estimation (MLE). The

scale measurement model for the moral intelligence scale was tested. The model consisted of (46) items as indicated in table 4.

Table 4. Confirmatory Factor Analysis for Moral Intelligence Scale

Item s	standardized regression weights	Standard error	Z value	Item s	standardized regression weights	Standard error	Z value
Fear of the Almighty Allah				Respect			
1	0.689	0.096	7.21	24	0.684	0.043	16.00
2	0.604	0.049	12.39	25	0.656	0.035	18.50
3	0.569	0.057	10.01	26	0.600	0.069	8.69
4	0.617	0.035	17.76	27	0.538	0.064	8.34
5	0.466	0.047	9.87	28	0.740	0.041	17.85
6	0.796	0.073	10.85	29	0.684	0.040	17.21
7	0.633	0.045	14.13	Fairness			
8	0.693	0.038	18.08	30	0.555	0.050	11.18
Patience and Self Control				31	0.657	0.044	14.85
9	0.622	0.038	16.24	32	0.798	0.045	17.93
10	0.503	0.034	14.57	33	0.487	0.044	11.08
11	0.691	0.049	14.10	Responsibility			
12	0.574	0.033	17.51	34	0.507	0.034	14.73
13	0.785	0.041	19.14	35	0.606	0.037	16.53
14	0.631	0.037	17.24	36	0.770	0.041	18.81
Mercy and Sympathy				37	0.518	0.038	13.71
15	0.692	0.038	18.32	38	0.608	0.034	17.65
16	0.629	0.040	15.64	39	0.749	0.056	13.46
17	0.672	0.035	19.11	Courage			
18	0.870	0.036	24.47	40	0.575	0.047	12.31
19	0.731	0.039	18.72	41	0.650	0.060	10.83
Forgiveness and Tolerance				42	0.666	0.050	13.43
20	0.572	0.041	13.91	43	0.722	0.047	15.45
21	0.643	0.041	15.68	44	0.652	0.050	13.06
22	0.511	0.051	10.02	45	0.507	0.038	13.18
23	0.670	0.037	18.33	46	0.575	0.032	18.17

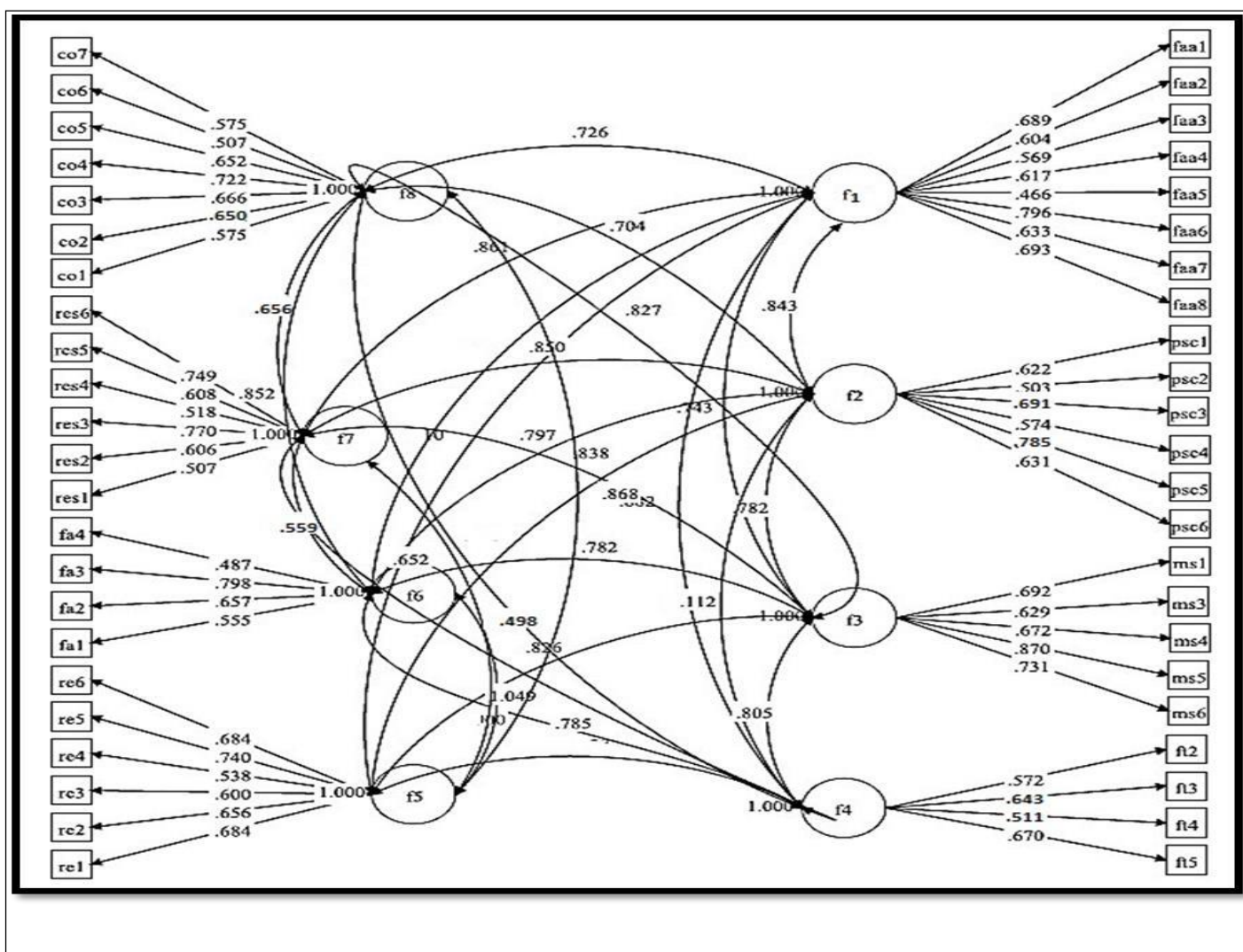
All z values are significant at (0.01)

Results from table (5) also illustrated that the values of fit indices were good and fall within the acceptable limits, indicating the fitness of the measurement model with the moral intelligence scale actual data. This is revealed also in figure 1.

All loading values are more than 0.4 and statistically significant at 0.01, which indicated the scale construct validity.

Table 5. Model Fit Statistics for Moral Intelligence Scale

Goodness of Fit Indices	Model Fit Statistics	Accepted value
	Chi square = 2666.47 df = 1054	Chi-square/df<3
Chi-square		
Chi square/df	2.53	
Comparative Fit Index (CFI)	0.965	CFI≥95
Root Mean Square Error of Approximation (RMSEA)	0.056	RMSEA≤0.06
Tucker–Lewis index (TLI)	0.951	TLI≥95
Goodness of Fit Index (GFI)	0.962	GFI≥95
Incremental Fit Index (IFI)	0.959	IFI≥95

**Figure 1.** Measurement Model with Standardized Regression Weights for Moral Intelligence Scale

To ensure the scale validity, the researcher utilized the discriminant validity or what is called peripheral comparison validity, which means comparing between the upper set (the highest 25%

scores), and the lower set (the lowest 25% scores) the pilot study participants' obtained in the moral intelligence scale, as illustrated in the following table:

Table 6. Discriminant Validity for Moral Intelligence Scale

Dimensions	group	n	Mean	St.dv	df	T value	Sig.
<u>Fear of the Almighty Allah</u>	High	133	20.86	0.39	264	15.27	0.01

Patience and Self Control	Low	133	17.62	2.41	264	24.19	0.01
	High	133	17.21	0.77			
Mercy and Sympathy	Low	133	12.48	2.12	264	16.51	0.01
	High	133	17.69	0.58			
Forgiveness and Tolerance	Low	133	14.65	2.04	264	18.79	0.01
	High	133	11.87	0.38			
Respect	Low	133	8.95	1.76	264	18.41	0.01
	High	133	17.95	0.24			
Fairness	Low	133	14.62	2.08	264	16.75	0.01
	High	133	11.95	0.24			
Responsibility	Low	133	9.53	1.65	264	23.38	0.01
	High	133	17.35	0.84			
Courage	Low	133	13.29	1.82	264	19.56	0.01
	High	133	20.30	1.01			
Total scale	Low	133	15.86	2.42	264	33.78	0.01
	High	133	138.18	1.45			
	Low	133	109.86	9.56			

It is evident from the previous table that all "t" values are statistically significant at (0.01), which indicates the discriminant validity of the moral intelligence scale, and this confirms its validity for application.

The third hypothesis result: "The moral intelligence scale has acceptable reliability coefficients":

To confirm the scale reliability, Cronpha's alpha was used, where the moral intelligence scale was applied to a sample of 530 male and female adolescent students.

Table 7. Reliability with Cronbach's Alpha for Moral Intelligence Scale

n	Dimensions	Alpha Coefficient
1	Fear of the Almighty Allah	0.728
2	Patience and Self Control	0.803
3	Mercy and Sympathy	0.774
4	Forgiveness and Tolerance	0.749
5	Respect	0.747
6	Fairness	0.722
7	Responsibility	0.715
8	Courage	0.809
	Total score	0.744

The values of the composite reliability coefficients (CR) were calculated (where the composite stability is defined as the ratio of the variance in the real degree to the variance in the total degree), and the composite stability coefficient was calculated according to the following equation (Kline, 2013, 313) where CR=

composite reliability, λ_i = standardized regression weights, ϵ_i = Standard error.

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + (\sum \epsilon_i)}$$

Table 8. Composite Reliability for Moral Intelligence Scale

n	Dimensions	Composite reliability (CR)
1	Fear of the Almighty Allah	0.882

2	Patience and Self Control	0.914
3	Mercy and Sympathy	0.933
4	Forgiveness and Tolerance	0.895
5	Respect	0.898
6	Fairness	0.898
7	Responsibility	0.910
8	Courage	0.894
	Total scale	0.902

It is evident from the previous table that the composite reliability coefficients (CR) for the moral intelligence scale were all greater than (0.7), which indicates the construct reliability of the scale.

The Scale Final Form

The final form of the Moral Intelligence Scale consisted of (46) items distributed into the eight

components of the scale as revealed by the confirmatory analysis, and the following table (9) shows the distribution of situations on the components of the scale in its final form.

Table 9. The Moral Intelligence Scale Final Form and Its Correction Method

Components	Total Number of Situations	Numbers of Situations	Correction Key	
			Situations Corrected (3-2-1)	Situations Corrected(1-2-3)
Fear of the Almighty Allah	8	1:8	1-3-5-7	2-4-6-8
Patience and Self Control	6	9:14	9-11-13	12-12-14
Mercy and Sympathy	6	15:19	15-16-18	17-19
Forgiveness and Tolerance	5	20:23	21	20-22-23
Respect	6	24:29	24-26-28	25-27-29
Fairness	4	30:33	30-31-33	32
Responsibility	6	34:39	35-37-39	34-36-38
Courage	7	40:46	41-43-45	40-42-44-46

The fourth hypothesis result: There are no statistically significant differences between the means of the participants' scores on the moral intelligence scale and its components due to gender variable (male-female)":

To validate this hypothesis t-test for independent samples was utilized and the following table indicated the results

Table 10. Arithmetic Mean, Standard Deviation, (t) Value and Its Significance for the Differences between the Mean Scores of the Research Sample on the Moral Intelligence Scale and Its Dimensions According to Gender Variable

Dimension	Gender	n.	Mean	Std. Deviation	df	t-value	Sig.
Fear of the Almighty Allah	Male	210	19.25	2.05	253	1.67	not significant
	Female	278	19.58	1.77			
Patience and Self Control	Male	210	15.13	2.32	253	0.18	not significant
	Female	278	15.10	2.22			
Mercy and Sympathy	Male	210	16.40	1.86	253	2.17	0.05
	Female	278	16.72	1.39			

Dimension	Gender	n.	Mean	Std. Deviation	df	t-value	Sig.
Forgiveness and Tolerance	Male	210	10.40	1.66	253	2.40	not significant
	Female	278	10.74	1.46			
Respect	Male	210	16.89	1.68	253	0.68	not significant
	Female	278	16.78	1.70			
Fairness	Male	210	11.08	1.33	253	0.20	not significant
	Female	278	11.6	1.28			
Responsibility	Male	210	15.36	1.92	253	0.38	not significant
	Female	278	15.43	1.86			
Courage	Male	210	18.48	2.21	253	0.78	not significant
	Female	278	18.33	2.10			
Total Degree	Male	210	126.00	11.45	253	0.71	not significant
	Female	278	126.69	10.35			

Table 10 clarified that there were no statistically significant differences between the two genders in the moral intelligence scale and its dimensions, while there were statistically significant differences at the level of (0.05) between the means of the scores at the dimension of (Mercy and Sympathy) according to gender in favor of female students.

The fifth hypothesis result: There are no statistically significant differences between the means of the participants' scores on the moral intelligence scale and its components due to the academic specialization variable (scientific-literary)":

To validate this hypothesis t-test for independent samples was utilized and the following table indicated the results

Table 11. Arithmetic Mean, Standard Deviation, (t) Value and Its Significance for the Differences between the Mean Scores of the Research Sample on the Moral Intelligence Scale and Its Dimensions According to Academic Specialization Variable

Dimension	Specialization	n.	Mean	Std. Deviation	df	t-value	Sig.
Fear of the Almighty Allah	Literary	251	19.47	1.92	253	0.23	not significant
	Scientific	237	19.43	1.88			
Patience and Self Control	Literary	251	15.13	2.32	253	0.19	not significant
	Scientific	237	15.9	2.20			
Mercy and Sympathy	Literary	251	16.61	1.60	253	0.33	not significant
	Scientific	237	16.56	1.63			
Forgiveness and Tolerance	Literary	251	10.51	1.61	253	-1.29	not significant
	Scientific	237	10.69	1.49			
Respect	Literary	251	16.84	1.70	253	0.20	not significant
	Scientific	237	16.81	1.69			
Fairness	Literary	251	11.04	1.35	253	-0.42	not significant
	Scientific	237	11.09	1.25			
Responsibility	Literary	251	15.53	1.92	253	1.62	not significant
	Scientific	237	15.26	1.84			
Courage	Literary	251	18.39	2.27	253	-0.30	not significant
	Scientific	237	18.4	2.01			
Total Degree	Literary	251	126.49	11.25	253	0.21	not significant
	Scientific	237	126.29	10.40			

Table 11 illustrated that there were no statistically significant differences between the two

specializations (scientific and literary) in the moral intelligence scale and its dimensions.

Discussion

Moral becomes the primary issue in human life. High moral quality is needed by the adolescent to be successful in their personal and educational life. In response to this necessity in this era, the current research aimed to build the moral intelligence scale for adolescent students in some Arab countries, to verify the psychometric properties of the scale (internal consistency, validity, and reliability), and to identify the differences between participants in moral intelligence according to gender and specialization variables.

Results of the first, second, and third variables asserted the validity of the moral intelligence scale to measure moral intelligence among adolescent students in the Arab environment. Also, Confirmatory factor analysis found that there are eight components of moral intelligence in the targeted environment which are: Fear of Almighty Allah, Patience and Self-control, Mercy and Sympathy, Forgiveness and Tolerance, Respect, Fairness, Responsibility, and Courage. The scale is also characterized by high internal consistency, validity, and reliability.

Some of these components agree with the components reached by the results of various studies (Borba, 2001, Hussain, 2003; Lennick, & Kiel, 2007, Rizk, 2006; Rodney & Charken, 2009; Weinstein, 2011; Smadi and Zaghoul, 2019; Abdellatif, 2020). This may be due to the fact that these components are shared by all the monotheistic religions and the common sense of the human being without differentiating between one person to another and between one society to another.

Whereas the Fear of Almighty Allah and Courage morals distinguish the current scale from previous measurements of moral intelligence scale because of the nature of the Muslim Community targeted in the current research. These communities believe in Allah, make Allah sergeant for all his actions. Individuals in such communities believe that Allah knows what he conceals and what he declares, and that he is accountable for his actions on Judgment Day. Likewise, Courage morality is also related to the belief in fate and destiny. The Arab community is also proud of courage which is prompted by Islam. Besides, parenting in the Arab society enhances moral intelligence in their socialization process, as parents model ideals and

morals for their children in terms of how to present appropriate moral responses in social situations and interactions.

In light of the research results, it is clear that the current moral intelligence scale can reveal the level of moral intelligence of adolescents in the Arab environment. The validity and reliability of the scale emphasized the quality of the scale's content in measuring moral intelligence, and that it has the discriminatory ability that distinguishes between high and low moral intelligence. In general, the Moral Intelligence Scale has high psychometric properties that allow it to be used and applied to any sample of adolescent students in the Arab environment. The scale can also be used to see the extent to which adolescent students possess the components of moral intelligence.

The results of this research can benefit those in charge of the educational process in revealing the level of moral intelligence and pay their attention to the need to support and develop components of moral intelligence among adolescents and direct their attention to the interest in creating a learning and educational environment that guarantees and develops the components of moral intelligence among adolescent students.

Results of the fourth hypothesis indicated that there were no statistically significant differences between the two genders in the moral intelligence scale and its dimensions, while there were statistically significant differences at the level of (0.05) between the means of the scores at the dimension of (Mercy and Sympathy) according to gender in favor of female students., are in line with the results of several studies (Shehate, 2008; Al-Zuhairi, 2013; Mahasneh, 2014). These results are also in line with Kohlberg's theory of moral development, revealing no differences between genders (Donenberg & Hoffman, 1988). While they differ from the results of Farghali (2013), Momani (2015), Abu Roomi and Khaldi (2017), and Al-Samadi and Zaghoul (2019) which revealed differences in favor of females, as well as the study Al-Subhi et al. (2019), which demonstrated that there were differences in favor of males.

The researcher interprets this result as being natural and logical, as males and females are subject to the same cultural conditions, social and family upbringing. They are raised in the Arab environment on the same honorable morals.

Besides, the principles of the Islamic religion are directed at both males and females. However, the differences in favor of females in the component (mercy and sympathy), is naturally due to the nature of the female character (Al-Samadi and Zaghloul, 2019), as they are predominantly compassionate.

Finally, results of the fifth hypothesis revealing that there were no statistically significant differences between the two specializations (scientific and literary) in the moral intelligence scale and its dimensions are consistent with Al-Subhi et al. (2019), Al-Samadi and Zaghloul (2019) and differ with the results of Momani (2015) and Abu Rumi & Al-Khalidi (2017), which revealed that there were differences in favor of the scientific specialization s.

This result is also explained by the fact that all members of the sample (scientific and literary specializations) are subject to the same cultural conditions, social and family upbringing, and that their education in the Arab environment is based on equal generosity and morals. In summary, parenting methods in the Arab community promote the development of moral intelligence for all individuals, as well as educational institutions in all specialization s.

Conclusion

The theoretical and practical implications of the research results are adding more insight into the components of moral intelligence for adolescent students in the Arab environment. The research has practical implications for stakeholders, teachers, and those in charge of adolescent education in mapping their students' moral intelligence to face the challenges of this era morally.

Limitation and Further Studies

A limitation of this research is its population, which were adolescent students in 5 Arab countries. Further studies are recommended to validate and develop this scale in more countries and more developmental stages. The study also does not identify the mediated variables such as the socioeconomic status of the students. Therefore, further studies are recommended to examine the effectiveness of other variables on moral intelligence.

Acknowledgment

I would like to express our sincere and appreciation to Dr. Fawaz Hassan Shehada (University of the Middle East Joran), Dr. Mohamed Hassan Al-Abyad (Sana'a University, Yemen), Dr. Khaled Gamal Jassem (Baghdad University, Ira`), Mr. Mahmoud Rushdi and Mr. Mohamed Rageb (Ministry of Education, Egypt), The Educational Administration of Wadi Al-Dawaser Governorate (Saudi Arabia) for their efforts in assisting the researcher in applying the scale electronically and following up students while completing the scale, and the Deanship of Scientific Research at Prince Sattam bin Abdulaziz University in Al-Kharj, Saudi Arabia

References

- [1] Aalajin, M.. (1977). *Islamic moral education* (1st ed.). Cairo: Al-Khanji Library.
- [2] Abdullah, S. (2020). Moral Intelligence in relation to the orientation of achievement goals of students of the College of Education in Sohag. *The Educational Journal of the Faculty of Education, Sohag University*, (73), 596-636.
- [3] Abdul Latif, S. (2020). Psychometric characteristics of the moral intelligence scale for university students. *Journal of the College of Education, Al-Azhar University*, 5 (187), 353-382.
- [4] Abu Rumi, R., & Khalidi, J. (2017). The level of moral intelligence and its relationship to the gender and college variables among students of the Al-Zaytoonah University of Jordan. *Journal of Al-Quds Open University for Research and Educational and Psychological Studies*, 5(17), 112-126.
- [5] Al-Amber, A., & Al-Khalidi, T. (2019). *The impact of moral intelligence on the reputation of Jordanian private universities*. Unpublished master's thesis, Al al-Bayt University.
- [6] Al-Ammar, F.& Mohamed, I. (2014). From the ethics of Islam: a psychometric

- study of the scale of the moral characteristics of the Muslim personality on a sample of students from the International Islamic University Malaysia. *Journal of Educational Sciences, College of Education, King Saud University*, 26, (2), 407-429.
- [7] Al- Fiqhi, M. (2005). *Behavioral problems among adolescents deprived of family care in the Kingdom of Saudi Arabia, a survey study of residents of social education homes at the intermediate and secondary levels*. Unpublished Master Thesis, Naif Arab University for Security Sciences.
- [8] Alhadabi, A., Aldhafri, S., Alkharusi, H., Al-Harthi, I., Alrajhi, M., & AlBarashdi, H. (2019). Modeling parenting styles, moral intelligence, academic self-efficacy and learning motivation among adolescents in grades 7–11. *Asia Pacific Journal of Education*, 39(1), 133-153. DOI: [10.1080/02188791.2019.1575795](https://doi.org/10.1080/02188791.2019.1575795)
- [9] Al-Laithi, S; Al-Nujairi, M. & Abdelaal, M.. (2015). The effectiveness of a program based on the dimensions of social responsibility in developing moral intelligence among aggressive pupils in the elementary stage. *Port Said College of Education Journal*, (17), 254-281.
- [10] Al-Morshedy, M. (1990). *Developmental Psychology, Concepts, and Theories*. Beirut: The Manhag House for Publishing and Distribution.
- [11] Al- Smadi, W. & Al-Zaghloul, R. (2019). *Predictive Power of Moral Identity and Ethical Intelligence in Ethical Behavior*, Unpublished Doctoral Thesis, Yarmouk University, Irbid.
- [12] Al-Sharif, G. (2019). The effectiveness of a program based on Borba's theory to develop some components of moral intelligence among first-grade secondary students. *Journal of the Faculty of Education, Port Said University*, (25), 628-655.
- [13] Al-Shawoura, G. & Al-Sarayra, A. (2017). *Moral Intelligence and its Relation to Emotional Representation among Students of Mu'ta University*. Unpublished MA Thesis, University of Mu'tah.
- [14] Al-Subhin, A.; Al-Qudah, M.; Al-Anzii, A.; Al-Didan, A.; Hilat, M. (2019). Moral intelligence and its relationship to conflict resolution skills among King Saud University students in light of some variables. *The Arab Journal for Quality Assurance of University Education: University of Science and Technology*, 12 (40), 107 - 132.
- [15] Al-Zawaida, H. & Al-Rimawi, M. (2012). *The effect of a training program based on the Coles model on developing moral intelligence among a sample of fifth-grade students in Amman, Jordan*. Unpublished Doctoral Thesis, University of Jordan, Amman.
- [16] Al-Zuhairi, M. (2013). Moral intelligence and its relationship to social tolerance among middle school students. *Educational Studies*, (6), 9-38.
- [17] Baza, A. (2002). *Mental Health and Psychotherapy*. Cairo: The Anglo-Egyptian Library.
- [18] Barbara, A. (2013). *The use of short-term group music therapy for female college students with depression and anxiety*. Doctoral Dissertation, Arizona State University.
- [19] Borba, M. (2001). *Building Moral intelligence, the seven essential virtues that teach kids to do the right thing*. San Francisco: Jassey - Bass.
- [20] Borba, M. (2003). Tips for building moral intelligence in students. *Curriculum Review*, 42(7), 23-30.
- [21] Borba, M. (2013). *Moral intelligence*, usersmanchester.edu.
- [22] Clarken, R. (2009). *Moral Intelligence in the Schools*. Michigan Academy of Science, arts, and letters, Wayne State University.
- [23] Coles, R. (1998). *The moral intelligence of children*. A&C Black.

- [24] Coles, R. (2001). *Lives of moral leadership: Men and women who have made a difference*. Random House.
- [25] Coles, R. (2007). *It's Complicated: The American Teenager*. New York: Random House.
- [26] Desouki, K. (1998). *Repertoire of Psychology, (Volume One)*. Cairo: The International House for Publishing and Distribution.
- [27] Donenberg, G. R., & Hoffman, L. W. (1988). Gender differences in moral development. *Sex Roles*, 18(11-12), 701-717. DOI: [10.1007/BF00288055](https://doi.org/10.1007/BF00288055)
- [28] Elliott, S.; Kratoch, M.; Cook, J.; & Travers, J. (2000). *Educational Psychology: Effective Teaching, Effective Learning*. Boston: McGraw Hill.
- [29] Fard, S. S. (2012). Ethical leadership and moral intelligence. *Arabian Journal of Business and Management Review (Oman Chapter)*, 2(5), 103.
- [30] Farghali, J. (2013). Moral intelligence and its relationship to mental health in a sample of adolescents. *Journal of the College of Education, Al-Azhar University*, (154), 77-137.
- [31] Gardner, H. E. (2000). *Intelligence reframed: Multiple intelligences for the 21st century*. Hachette UK.
- [32] Griffiths, J.; Sharkey, D.; & Furlong, J. (2009). *Student engagement and positive school adaptation*. In R. Gilman, E. S. Huebner, & M. J. Furlong (Eds.), *Handbook of positive psychology in schools* (p. 197-211). Rutledge / Taylor & Francis Group.
- [33] Gullickson, T. (2004). *The moral intelligence of children, how to raise a moral child*. New York: Bantam Books.
- [34] Hidia, F., & Al-Brince, H., Al-Buhairi, M. (2016). Moral intelligence and its relationship to psychological security in a sample of children. *Journal of Childhood Studies*, 19 (71), 53--61.
- [35] Hosseinia, S. A., Khalili, H., & Nazemipour, B. (2013). The effect of managers' moral intelligence on business performance. *International Journal of Organizational Leadership*, 2(2), 62-71.
- [36] Hussein, M. (2005). *The School of Multiple Intelligences (1st ed.)*. Gaza: University Book House.
- [37] Hussein, M. (2003). *Human brain education. (1st ed)*. Amman: Dar Al-Fikr.
- [38] Jelic, M. (2012). The Impact of Ethics on Quality Audit Results. *International Journal for Quality Research*, 6(4).
- [39] Kassim, S. (2010). Moral intelligence and its relationship to the ego identity and the effect of a program for developing moral intelligence on the formation of the ego identity among students of the College of Education. *Ismailia College of Education Journal*, (17), 197 - 226.
- [40] Khalifa, A. (2020). Reflection skills of the Noble Qur'an and moral intelligence among students of the Islamic University (a predictive study). *Journal of the College of Education, Al-Azhar University*, 3 (188), 538-594.
- [41] Kline, P. (2013). *Handbook of psychological testing*. Routledge.
- [42] Lennick, D., & Kiel, F. (2007). *Moral intelligence: Enhancing business performance and leadership success*. Pearson Prentice Hall.
- [43] Lotfi, M; Ghanim, M.; & Abdul Ghaffar, M. (2020). Psychometric characteristics of the Moral Intelligence Scale for children (9-12) years old. *Journal of Educational and Social Studies, Helwan University*, 26, 107-144.
- [44] Mahasneh, A. M. (2014). The level of moral competence among a sample of Hashemite university students. *Canadian Social Science*, 10(1), 159-164. DOI: [10.5829/idosi.mejsr.2014.19.9.11888](https://doi.org/10.5829/idosi.mejsr.2014.19.9.11888)
- [45] Mahmoud, S. (2016). Constructivist modeling of the relationships between wisdom, moral intelligence, personal intelligence, and social intelligence among undergraduate students. *Arab*

- Studies in Education and Psychology*, (76), 69-109.
- [46] Mansi, M. (2001). *Developmental Psychology*. Alexandria: Alexandria Book Center
- [47] Momani, A. (2013). The level of moral intelligence and its relationship to the variables of gender and educational branch of secondary school students in the northern Jordan Valley in Jordan. *The Jordanian Journal of Educational Sciences: Yarmouk University - Deanship of Scientific Research*, 11, (1), 17-30.
- [48] Nobahar, N., & Nobahar, M. (2013). A study of moral intelligence in the library staff of Bu-Ali Sina University. *Advances in Environmental Biology*, 7(11), 3444-3448.
- [49] Orabi, M. (2016). Moral intelligence and its development in children. *Islamic Awareness Magazine, Ministry of Endowments and Islamic Affairs, Kuwait*, 53 (613), 82-83.
- [50] Park, N.; & Peterson, C. (2009). Character Strengths: Research and Practice, *Journal of College & Character*, 4, 1-10.
- [51] Peterson, C.; & Seligman, M. (2004). *Character strengths and virtues: A handbook and classification*. New York: Oxford University Press and Washington.
- [52] Rizk, M. (2006). Moral Intelligence in its Relationship to Distinguished Parenting Characteristics from the View of Childre. *Journal of the College of Education, Mansoura University*, 60, 3-5.
- [53] Rodney, H. C., & Charken, R. H. (2009, March). Moral Intelligence in the Schools. In the *annual meeting of the Michigan Academy of Sciences, Arts and Letters Wayne State University, Detroit, MI*.
- [54] Saleh, M. (2014). A study of the components of moral intelligence and their relationship to self-esteem and some variables among university students. *Journal of the Faculty of Education, Aswan University*, (28), 381-430.
- [55] Shehata, A. (2008). *Moral Intelligence and its Relation to Some Variables of the School and Family Environment among First-Grade Secondary Students*. Unpublished Doctoral Thesis, College of Education, Minia University.
- [56] Weinstein, B. (2011). *Ethical intelligence: five principles for untangling your toughest problems at work and beyond*. California: New World Library.
- [57] Zahran, H. (1990). *Psychological Guidance and counseling (3rd ed.)*, Cairo: The World of Books.