A survey of the relationship between religiosity indices and personality on showing creative behaviors of people

Nayyereh Rahimi¹*, Hussein Khedmatgozar²

Abstract

Today, it is proved that innovation is an important factor for the development of communities. The policy makers and planners in different countries are highly intended to know the method of increasing innovation and motivate the incentives to improve and increase innovation to achieve much progress. The basic views in psychology consider innovation basis in psychological features. Whether these views are true or not should be investigated. One of the most important dimensions in this regard in psychology is personality and religiosity and their effect on innovation can be important in explaining this issue. This study is aimed to evaluate the relationship between religiosity and personality traits with innovation of students. By assuming positive relationship in religiosity, personality traits and innovation, the following steps are taken: At first, different approaches to religiosity and personality traits and innovation and relevant effects on approaches and relevant studies are raised. Then, structural definitions of each of variables of views of theorists about the concept and structure of variables and recent researches are explained. Regarding the significance of this issue, we can say the true recognition of the relationship between religion and individual and social variables and behaviors can solve the scientific problem of these relations and be useful in policy making in religion and behaviors. The data collection method is field study. The study measure is a questionnaire. The study population is students of Tarbiat Modarres University. The study sample is 285 Master and PhD students. The study analysis is descriptive-correlation with regression analysis. The results showed that 21% of changes of innovation of subjects were predicted with religiosity features. 48% of their innovation features were predicted with personality traits. Although religiosity and personality features are effective on innovation, personality features are effective on innovation. One of the main results of this study is verification of the relationship between religiosity and personality traits of students with their creativity.

Keywords: Innovation, Religiosity, Personality traits, Students.

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Introduction
One of the great concerns of policy makers and planners all around the world is how to increase innovation and motivate the incentives to improve innovation to achieve much progress. Although religiosity is the main privilege of human being compared to other creatures and all tribes, even the primary men worshipped and they had religion. This religion was important in all fields of human communities. From psychological aspects, religion is complex and includes a set of psychological items including emotion, beliefs, values, behaviors and social environment (Faghihi et al., 2006, 47). The researches show that personality is mutually associated with religiosity. It means that religiosity and its components are effective elements on personality and personality traits are effective on religiosity. The study of Truett, Evanz and Mirs (1992) showed that 16% of variance in religion were due to hereditary and it was not only dedicated to religious habits and there should be some religiosity attributes. Various studies (with personality traits) have verified the relationship between personality and religiosity. The meta-analysis of Sargolu (2010) on the studies of religion and personality traits in different countries showed that all religion dimensions (religiosity, spirituality and fundamentalism) had positive correlation with agreeableness and Conscientiousness and agreeableness are emerged as major features of religious personality. Among different dimensions of religiosity, gender, age, group and country, personality measures, model and level are equal and can be considered as important factors of individual change. The third dimension of this investigation is innovation as considered as a behavior in this study. Various theories are raised regarding innovation. Gelford (1986, 1960, 1959, 1956) believe that creative thought requires divergent thought emphasizing on dynamics of flexibility, originality and extension. In addition, it requires sensitivity to the issue and its re-definition as re-interpretation of thought transfer and getting rid of action to guide unique solutions. Based on these points, we can say whether innovation of students is associated with religiosity and their personality? This is the main question to achieve its response in the framework of population and study sample. Some studies have been conducted regarding the effective factors on innovation. These investigations show that the effect of religion on it is less considered.

A sample of previous researches

Khamse (2011) in a study “Evaluation of the relationship between semantic memory and creativity in two groups of intelligent and normal students: Neuro-psychologic approach showed the data processing by multi-dimensional (visual, auditory, audio-visual, right and left visual field and processing with both hemispheres of brain) and by semantic launch and the relationship between this processing and creativity thought features were considered. This study has been conducted on intelligent and normal students in high school. The present study aimed to evaluate the semantic memory processes and creativity of Abedi (Abedi, 1995) and semantic memory and creativity were measured. The results showed that neural functions in intelligent people had low energy and reaction time was rapid. Two groups didn’t show significant difference in terms of creativity. The results were discussed in terms of multi-dimensional intelligence (Hovard gardner, 1998; renzdly 1998) and a multiple-representation model was presented from semantic aspects as helpful in educational plans and development of
creative talents. Borjali and Pirkhaefi (2012) evaluated clinical applications of creativity therapy among students (a new view in psychological clinical therapy). They attempted to show that mental health was a multi-variate concept and was associated with different factors. On clinical therapy, the effect of the role of creativity on mental health is less considered. The present study aimed to evaluate the clinical roles of creativity in prediction and determine of mental health.

Method: The study sample is 120 female and male students in Tehran University as selected randomly by multi-stage cluster sampling method. The study is conducted in Solomon four group experimental designs. The study measure consists of Tornes creativity test, keldberk health questionnaire, sharer self-efficacy and Lazarus coping up with psychological stress. It was shown that creativity activation in the study sample had significant impact on increase of psychological health, self-efficacy and their coping method. Based on the results, motivating the components of creativity can facilitate mental health, self-efficacy and adjustment method. Other studies are shown and more samples are shown in next chapter. Avril and Natli (1992) defined the elements of this type of creativity. Based on this definition, emotional creativity is authenticity, novelty by which thought trend is extended and his interpersonal relations are increased (effectiveness). According to this definition, authenticity, effectiveness and novelty are three main elements of emotional creativity. Novelty means the ability of change in common emotions and creating new emotional state as despite the norms and standards or it is a new combination of common emotions. Effectiveness refers to the coordination of creative response or social and cultural backgrounds as good relationship with others is established and improves individual thought method. According to Avril (1999), if the changes have not mentioned effectiveness, neuroteam behaviors like Alexitima are formed. Authenticity in emotions means that emotions should be based on one’s beliefs. According to this criterion, if a person shows emotion based on conditions and despite his own belief, authenticity is not observed and emotional creative is not considered. The love to beloved in mystics is a good example of emotional creativity in which three criteria are obvious. To achieve his beloved, the lover experiences two contradictory emotions of pain and enjoyment at the same time. Novel emotion based on his real feeling (authenticity) and acts as his thought and relations with beloved can approach him to the beloved (effectiveness). In addition to the mentioned three criteria, Avril and Thomas Nals (1992) believe that people competent in creative emotion dedicate their time more than others to recognize emotions and attempt and have much focus on the emotions of self and others. This feature is called Preparedness and is equal to achieving information and knowledge in cognitive creative models. Cognitive creativity is defined by researchers and theorists from different views. Some definitions are Process oriented (special type of thought), others Product oriented (tangible phenomena) and others Person oriented (creative person properties). Various models including primary models, creative problem solving models, rotational model, intelligence models, attributive models and systematic models have explained the elements and dimensions of cognitive creativity. Among all models, preparedness stages mean achieving information (definition of issue, observation and study), Incubation stage (not considering the issue at time interval), Illumination (appearance of new idea) and finally verification (evaluation of mental product). Based on the new concept of emotional creativity, there are not more studies in this regard namely in Iran. Since raising emotional creativity concept, three major issues were raised. First, what are the correlations of this type of creativity? Second what is the association between
this type of creativity and cognitive creativity? In other words, is emotional creativity distinctive from cognitive creativity? Third issue as along two first questions is regarding the results of these types of creativities. Regarding the relationship between emotional creativity and personality traits, Avril (1999) found that among five personality factors of McCrae (1992), openness in experience and neurotic behavior had positive and significant association with novelty, extraversion and neurotic behavior had negative and significant correlation with effectiveness. Also, total score of emotional creativity with openness in experience had positive and significant correlation and had negative and significant correlation with neurotic behavior dimension. In the mentioned study, there was no significant association between total score of emotional creativity and extraversion and introversion behaviors. Lim (1995) in his PhD thesis investigated the relationship between emotional creativity and interpersonal relationship as a personality trait and found that the people with emotional creativity were less dominated by others and had social autonomy. In other words, this group of studies showed that the people with emotional creativity regulate their emotions better in terms of individual and social relations.

Kim et al., (2004) found that religion had positive association with positive emotions as good mood, affection, self-confidence, attention and comfort. Desmond et al., (2008) found that religiosity had positive and significant association with self-control even after control of gender, age, race, social-economic status, parents education, family structure and attachment of parents. Jafari et al., studied the relationship between family efficiency and religiosity and mental health of students. The findings of their study showed that there was a significant association between family efficiency, religiosity and mental health of students. However, there is no significant association between the relationship of girl and boy students. Faghihi et al. studied the relationship between trust in God and anxiety among students of Tehran University. The result of their study showed that the number of students with high trust is less than the group with low trust. The relationship between religiosity and happiness among students is studied.

**Operating definition**

Religiosity: In this study religiosity is measured with religiosity questionnaire of Khodayarifard provided based on mentioned components.

Personality: In this study, five-factor Neo personality questionnaire is used to evaluate personality traits of respondents.

Creativity: Creativity (innovation) in this study is measured based on Kohls & Van den Brock questionnaire.

**Review of literature**

Based on the review of literature about religiosity and personality, the findings show that there is an association between personality and religiosity and this relationship is effective on creativity. In religion domain, religious personality psychology is placed. The researches about religious person psychology support this hypothesis as religiosity is associated with some individual differences. The studies in this regard show that different cultures have convergence and religion is associated with low neuroticism. Religious people have high responsibility factor. Religiosity
is also associated with extroversion. Personality psychologists also deal with forgiveness, gratefulness, direction of action and religiosity, faith and its effect on personality and the relationship between personality and meaning systems. The results of studies show that religious people are generous, grateful and with meaning systems based on self-excellence. Some demographic factors as age and gender in the studies show that old people are much religious and there is no difference between two genders in terms of gender.

Relative stability in personality issues can show that religiosity in association with personality is stable over time but it is important to say that three cognitive, emotional and behavioral systems are important in this regard. Most of the studies in foreign papers regarding the relationship between religiosity and personality with positivism trend are presented based on mere scientific framework. The spiritual dimension of human being with combination with other dimensions is different from other aspects by nature. Religion is present in all fields of spiritual life of human being and its ultimate meaning is formed. Human being is not biological, mental, and social, he is biological, mental, social and spiritual and any psychological intervention should include the entire dimension. According to Alport, there is an unsolved metaphysic issue behind any problem. Alport states that that type of psychology forbidding the understanding of religious talents is not proper to be considered as science aware of human soul. It seems that this issue is not considered in our country much. The increasing development of psychology from quantity aspects, quality and its sensitivity can be affected. The lack of basic studies, avoiding most studies as statistical levels have led into the lack of development of humanities and psychology with cultural, social and religious criteria. Religious personality psychology is a good field to evaluate growth, performance and a person changes in life as we are directed to some features as creativity. Thus, religiosity is effective on personality and both are effective on creativity. This is the basis of our study. As it was said, significance of researches about the relationship between religiosity and personality traits of students with innovation is felt.

Study hypotheses
Main hypothesis
There is a positive association between religiosity and personality traits of students with innovation.

Sub-hypotheses:
There is a positive association between religiosity and innovation of students.
There is a positive association between personality traits and innovation of students.

Study method
The study method is correlation analysis in which at first data collection measure and method and then analysis method are defined.

Study measures
We collected data with survey and measures. As it was said, random sampling of students in dormitory of University is applied. Based on Cochran’s formula, the sample of study population of students of Tarbiat Modarres University with confidence interval 5 is 284. In order to generalize these results to students of University, we distributed the questionnaires among the population of study and at least 320 respondents filed out the questionnaire. Of these
questionnaires, some of them were excluded as incomplete and finally 285 questionnaires were used.

Three questionnaires are used in this study:

1- Innovation questionnaire of Kohls & Van den Brock: This questionnaire is designed by Kohls & Van den Brock (2007). This is a self-report paper-pencil scale with 18 items. The subjects responded to five items of totally disagree, disagree, no Idea, agree, totally agree. These items are scored based on 1, 2, 3, 4, and 5. This questionnaire consist of 3 sub-scales as:
   a. Knowing style, b planning style, c. creating style.

2- A. Short student scale of religiosity: The main measure of this scale is 113 items as designed with Khodayarifard et al., (2006) with considering the basic cognitive, emotional and behavioral dimensions and is consistent with three basic elements of beliefs, ethics and rules in definitions of religion (Motahari, 1989) and is based on four relationship of human being with God, God with others and the world in two parallel types, a, b. This scale consists of four subscales of religious cognition, religious belief, religious emotions and obligation to religious duties. Short form of this questionnaire is made and tested by Khodayarifard et al., (2013) with 40 items. This questionnaire is also applied in our study.

   Face validity of this questionnaire is verified by selection of agreed questions of 80% of expert members and its construct validity is controlled by factor analysis with some questions with factor load more than 40% and its criterion validity is performed by Azerbaijani questionnaire (2006) with positive and significant correlation. The total Cronbach’s alpha coefficients of questionnaires 1, 2(source of this questionnaire) after performance on 403 people are 97%, 96%, respectively. The final performance of this questionnaire in population 15386 has verified the construct, criterion validity and its test re-test reliability (95%, 86%, 92%).

3- Five factor Neo personality questionnaire (60-item short form): The mentioned questionnaire is built based on factors analysis and is one of the most applied tools in personality as introduced by Mac care and Kasta (1985) as Neo personality questionnaire. This questionnaire assess the five item of personality as neuroticism, extroversion, openness or flexibility, agreeableness and conscientiousness. Neo questionnaire for conscientiousness ranging 75% to 89% for neuroticism is shown and its sub-scales show good internal consistency (67%, 75%). Generally, Mac care and Kasta (1992) reported Cronbach’s alpha coefficients 68% for agreeableness to 86% for neuroticism.

   This test is performed and normalized in 1999, 2003 and its Cronbach’s alpha in the sample 512 for neuroticism, extroversion, openness to experience, agreeableness and conscientiousness are 80%, 60%, 51%, 54%, 67%.

### The results of Cronbach’s alpha test for reliability of questionnaire

<table>
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<th>Cronbach’s alpha</th>
<th>Number of items</th>
<th>Test</th>
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<td>0.851</td>
<td>146</td>
<td>Considering all items</td>
</tr>
<tr>
<td>0.873</td>
<td>118</td>
<td>Items with Likert scale</td>
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</table>
Analysis method:
In this method, regression analysis method is used to analyze the relationship between religiosity, personality and innovation. In statistical investigation, SPSS 19 software is applied. The analysis of data of study is done above descriptive and inferential statistical analyses. At first, the data of variables entered the software and then descriptive statistics results are achieved and then the test of model is performed. In evaluation of gender, marital status, degree factors, dummy variables (1,0) are given and to evaluate main variables of creativity, personality and religiosity, measures of 3 questionnaires are used. In analyses, the computation of correlation coefficient and regression coefficients are estimated for test. In our main model, religiosity, personality are independent variables and creativity (innovation) is a dependent variable.

Conclusion
Main hypothesis: There is a positive association between religiosity and personality traits of students with their innovation.
Sub-hypotheses: There is a positive association between religiosity and innovation of students.
There is a positive association between personality traits and innovation of students.

Descriptive statistics of study variables

<table>
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<tr>
<th>SD</th>
<th>Mean</th>
<th>Range</th>
<th>Max</th>
<th>Min</th>
<th>F</th>
<th>Variable</th>
<th>No.</th>
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<td>2.61</td>
<td>5</td>
<td>2.39</td>
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<td>Creativity</td>
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<td>0.58</td>
<td>3.96</td>
<td>2.75</td>
<td>5</td>
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<td>Religiosity</td>
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<td>0.21</td>
<td>3.17</td>
<td>1.55</td>
<td>3.9</td>
<td>2.35</td>
<td>285</td>
<td>Personality</td>
<td>3</td>
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Correlation between personality and religiosity variables

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<td>0.043</td>
<td>Pearson correlation coefficient</td>
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<td>0.237</td>
<td>Significance level</td>
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Correlation between religiosity and creativity variables

<table>
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<tr>
<th>Religiosity and creativity</th>
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Correlation between personality and creativity variables

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<th>Variable</th>
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Partial correlation coefficient of predictive and criterion variable

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<th>Predictive variable</th>
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<td>0.000</td>
<td>0.293</td>
<td>Religiosity</td>
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<tr>
<td>282</td>
<td>0.000</td>
<td>0.241</td>
<td>Personality</td>
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Results of estimation of regression model

First step model

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<th>SD</th>
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<th>Coefficient</th>
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<td>-</td>
<td>17.519</td>
<td>3.052</td>
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<td>5.175</td>
<td>0.225</td>
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<td>0.000</td>
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<td>F</td>
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<td>Fit statistics Regression</td>
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Results of estimation of regression model

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<th>Model 4</th>
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<tbody>
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<td>Variable</td>
<td>Coefficient</td>
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<td>Intercept</td>
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<td>Religiosity</td>
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<tr>
<td>Personality</td>
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<td>Regression fit statistics</td>
<td>$R^2$</td>
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<tr>
<td></td>
<td>$\bar{R}^2$</td>
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Discussion and Conclusion

Here, we discuss three study hypotheses separately and come to a conclusion.

Main hypothesis: There is a positive association between religiosity and personality traits of students with their innovation. In regression study, these two have positive effect on innovation.
of respondents. This study evaluated the relationship between these three factors and innovation is the main focus. The scientific investigation regarding the simultaneous association of personality and religiosity with creativity is not considered and this is a new issue and it can have a good position in the study. Gilford (1956, 1959, 1960, and 1986) believes that creative thought requires divergent thought emphasizing on dynamics of flexibility, authenticity and extension. In addition, it requires sensitivity to re-definition as re-interpretation of thought transfer and avoiding action stability to direct unique solutions to a person. As innovation is defined with different methods, it is considered as a sign or a set affected by different factors of personality, genetic arrangement, and social environment, biological factors and culture (Torens, 1988; Fouli and Park, 2005, Ranko, 2007). Sternberg and Lobart (1996) believe in an investment model in which creativity and innovation have six types of sources: Intelligence, knowledge, cognitive style, motivation, personality and environmental context. We can expect innovation is affected by personality traits and religiosity. The result of multi-variate covariance analysis with repetitive measures showed that the effect of process training over time had stable effect on scientific thought, creativity and innovation of students. These studies regarding the relationship between religiosity and personality of people with other features showed the association between religiosity and personality with other traits. They can support the results of our study regarding the positive association between religiosity and personality with the creativity feature of respondents. We can say there is a positive correlation between innovation and religiosity and personality component. Our study can be a great step in recognition of the relationship between psychological factors as religiosity and personality and innovation. Also, additional steps should be taken.

First sub hypothesis: There is a positive association between religiosity and innovation of students. In religiosity psychology literature, the main privilege of human being compared to other creatures and all tribes, even the primary men worshipped and they had religion. This religion was important in all fields of human communities. Most of the religious communities’ behaviors and the behavior of religious people were different from that of other communities. From psychological aspects, religion is complex and includes a set of psychological items including emotion, beliefs, values, behaviors and social environment (Faghihi et al., 2006, 47). Religion as a wide system with many programs for guiding human being consists of self-control elements as special ethical rules are presented for self-control and avoiding some behaviors (Khodayarifard et al., 2010). Despite wide investigations regarding religiosity and its evaluation, there is no direct study testing the relationship between religiosity and creativity.

One of the effective psychological factors on people behaviors is religiosity. We can say, no study has been found to reject the relationship between religiosity and innovation. We can accept the findings of study in this regard. Based on these findings, religiosity variable is a predictive variable for innovation.

Second sub-hypothesis: There is a positive association between personality and innovation of students. Rogers emphasized on self-concept regarding the structure and personality traits (Ganji and Ganji, 2012, 47). It introduces one view with five factors as neuroticism, extroversion, openness or flexibility, agreeableness, responsibility (Conscientiousness). This five-factor personality theory is presented by Mac care and Kasta in the late 80s and is accepted widely. Some studies have been conducted on the relationship between religiosity and personality and
most of the studies show the relationship between these two variables. Of these studies, Keshavarz, Shahnazari and Kalantari (2009) evaluated the relationship between personality traits and believing in religious beliefs among studies and found that there is a positive and significant association between agreeableness and Conscientiousness with acting to religious beliefs. There was no significant association between extroversion and acting to religious beliefs. Also, there was a negative and significant association between neuroticism and flexibility with acting to religious beliefs. Cheraghi and Molavi (2006) investigated the relationship between different dimensions of religiosity and general health among students of Isfahan University. The results of study showed that there was a significant association between general religiosity score and general health. Khodapanahi and Khavaninzadesaryazdi (2000) in a study evaluated the role of personality creation in religious orientation of students. The relationship between religiosity and personality is supported. These studies and other studies support the relationship between religiosity and personality. In our study, first hypothesis showing this association is not supported. One of the reasons is the educated population in this study and their selections are wise and personality had less effective on their beliefs.

Financial conclusion
These studies and wide studies regarding religiosity and personality of people with their other properties support the relationship between religiosity and personality with other features of people. They can support the results of our study regarding the positive association between religiosity and personality with creativity of respondents. Our study is a great step to recognize the relationship between psychological factors as religiosity and personality with innovation. Also, better steps should be taken in this regard. We can say there is a positive correlation between innovation and religiosity and personality.
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