The Relationship between Spirituality and Engineering(work) Ethics in the Workplace: A Case Study in Iran Telecommunication Research Center

Hossein Ghanbarnejad and Sina Majidian

Department of Management of Allameh Tabatabai University, Tehran, Iran.
Department of Electrical engineering of Shahid Beheshti University, Tehran, Iran.

Abstract: The recent shift in the attitude of organizations toward human beings has led to the formation of various non-instrumental variables that affect the performance of organizations. The advent of such factors as morality, work ethic, spirituality, and self-control in organizations supports this claim. Today, increasing conscientiousness and work ethic in the employees is one of the first objectives of managers. Therefore, organizational structures, policies, procedures, and strategies are formulated in a way as to improve these factors. Workplace spirituality is a new concept that has recently emerged in the Western literature on management and business and it has led to the development of a new paradigm in organizational science. After a 400-year attempt to separate the material and spiritual affairs, the Western World now seeks to unify them. The effect of spirituality or religiousness on organizational efficiency has been examined in many studies. The present research is carried out with a new perspective on the engineering community of Iran Telecommunication Research Center and it examines the relationship between work ethic or engineering ethics and spirituality. The results suggest that there is a significant positive relationship between the components of spirituality and work ethic.

Key words: ethics, engineering ethics, work ethic, spirituality.

Work Ethics:

For long there have been many discussions on the issue of ethics; for instance, Hippocrates Oath was obligatory for physicians. Moreover, many modern groups such as engineers, nurses, and jurists have undertaken certain criteria that determine their professional behavior (Haji-Heidari, H., 2007). Ideally, research in applied ethics starts with realizing a problem and goes on with the motivation of finding a solution to that problem. Applied ethics is in many cases interdisciplinary. A research program is often inspired by technological advancement and it is this advancement that has incorporated the issue of applied ethics into many areas of science (Almond, Brenda, 1998).

Bahadorinejad (2009) believes that one can commit an unethical act due to several reasons:
1. Lack of awareness of one’s responsibilities
2. Lack of reward in return for one’s good work and punishment in return for mistakes
3. Negligence and irresponsibility in work and lack of a sense of belonging to one’s organization, society, or country
4. Selfishness and mere regard for one’s personal interests that can be motivated by wealth, fame, or power
5. Desperation (to the point of life and death)
6. Compulsion due to desperation

The most common of these factors among Iranians are reward and punishment, negligence and irresponsibility, and selfishness and these factors are major obstacles on the way to technological advancement, welfare, peace of mind, and happiness. Thus, our duty is to reduce and ultimately remove these obstacles (Bahadorinejad, M., 2009).

Engineering Ethics:

An engineer is a person with full knowledge of their specialty, who always keep their knowledge up-to-date, and who can solve such practical problems as health, education, agriculture, industry, etc. with their expertise and ingenuity. An engineer can also create various weapons to allow for more casualties in less time! Although engineers can employ their ingenuity and knowledge for different purposes, it is engineering ethics that makes them use their knowledge and skill for the enhancement of human welfare and the environment. Respecting human values and ethics can endow engineers with peace of mind, satisfaction, and true happiness. The mission of an engineer with engineering ethics is to earnestly provide the most efficient of services (Bahadorinejad, M., 2006).
At this point, we need a clear definition of ethics in engineering, but ethics is a very general concept and there are many definitions of engineering ethics. The word “ethics” is defined as the principles of right and wrong that are accepted by an individual or a social group. However, this definition is very general, for moral values appear in different forms—sometimes as responsibilities, sometimes as ideals, and sometimes as social policies. Meanwhile, engineering ethics is a system of moral principles that apply to the practice of engineering (this system can be based on religion, reason, or law). Ethical principles are a contract between professionals. Anyone who enjoys the benefits of a profession must obey its rules. For instance, consider a physician who gains credibility by joining the medical community and many patients visit the hospital because of their trust in his or her reputation. Any act that violates the moral principles of his or her profession can considerably damage the credibility of the physician as well as the profession. This example also holds for engineering. Moral principles include responsibilities that ultimately lead to human welfare and progress and they also serve as guidelines for any professional engineer.

As it was mentioned earlier, professional engineering communities have formulated instructions and guidelines for engineers and now one of the requirements of joining such communities is to abide by these rules. This has also been done in chemical engineering and, for instance, the American Institute of Chemical Engineers (AIChE) and Canadian Society for Chemical Engineering (CSChE) have both formulated such rules. However, a more comprehensive set of principles has been provided by the National Society of Professional Engineers (NSPE) in 1974 and was completed and updated in 1996. What follows are the fundamental canons of the engineering ethics codified by AIChE:

1. Hold paramount the safety, health, and welfare of the public in performance of their professional duties.
2. Perform services only in the areas of their competence.
3. Engineers shall issue public statements only in an objective and truthful manner.
4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
5. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
6. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the profession.
7. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

These canons not only provide engineers with a set of ethical guidelines, but they also lead to consistent ethical decisions in vague situations. They also prevent engineers from making unethical decisions, and make an appropriate reference in discussions and conflicts (Davis, M, 1998).

Respecting professional ethics, diligence, hard work, and responsibility can put an individual in a difficult situation if the individual has to overlook certain facts or true values. An individual with professional ethics respects the working principles and the rights of other people based on their conscience and not because of legal requirements, social monitoring, and external rewards and punishments.

**Work Ethic:**

Conscience is an aptitude, faculty, intuition, or judgment of the intellect that distinguishes right from wrong. An individual with stronger conscience has a nobler character and greater influence (Bakhshi, A.A., 1992). Work ethic is one of the most important aspects of the conscience and refers to the sense of responsibility and all-embracing commitment of an individual to the tasks assigned to them. In other words, the individual tries to carry out tasks completely and efficiently, avoid any negligence and inactivity, make logical use of facilities, and constantly monitor their own activities (Mamizadeh, J., 1996). In fact, if individuals see a long-term relationship with the organization and how the organization will attain its goals (especially when this success includes their promotion), the individuals will be more satisfied with their job and their own individual growth (Wright, b, Davis, 2003). Ali ibn abi Talib argues in Nahj al-Balagha that work ethic is: “a moral force that distinguishes right from wrong; an internal mentor that consciously recognizes the good, introduces it, purifies the intention, motivates the individual, and monitors the progress with diligence—it plays the role of an expert auditor. It acts as a powerful judge, passes the final verdict, chastises itself in case of making a mistake, punishes itself in case of severe abuse, and rewards itself for good deeds. All the while, it protects itself from its foe: ego.”

**Development of Work Ethic:**

A structure is needed upon which to build lasting work ethic among the employees. An important part of this structure is to define the boundaries of a person’s responsibility and authority; to clearly specify the responsibilities of the employees. Work ethic is the result of:
1. Participation of employees in organizational affairs: Managers must believe in the participation of all the employees in this regard.
2. Ethical leadership: Managers must be charismatic and a model of work ethic so as to gain the trust and respect of their subordinates.
3. Reduction of restrictive rules and regulations: Rules and regulations must not mar the character of the employees.
4. Creation of a proper cultural environment: Building a proper organizational culture has received increasing attention among managers and employees.
5. Friendly relationship with the subordinates: The managers must establish affable relationships with the subordinates.
6. Constant employee training: It is imperative to believe that training is not a cost and that in the long term it can lead to progress and productivity.
7. Choosing employees based on their interests and specialty: Employees must be assigned to tasks that correspond to their interests and specialty.
8. Appropriate reward and punishment system: Employees must be rewarded or punished with respect to their performance.
9. Correspondence between employees’ task and ability: If observed closely, this can play a significant role in increasing the work ethic of employees.

**Reinforcing Work Ethic:**

There are factors that can reinforce work ethic: Correct beliefs regarding the factors that affect one’s destiny can reinforce work ethic, while superstitious beliefs such as environmental and historical determinism, misunderstanding of issues such as chance, fate, and asceticism, and even a negative attitude toward working in some societies can each be an obstacle on the way to work ethic and can foster indolence and social atavism. In Islam, such falsehoods are either totally rejected or a positive understanding of them is provided. Moreover, in Islam, individuals determine their own destiny and there is no room for determinism or superstition. Religious teachings provide a correct understanding of such issues as fate, asceticism, and destiny and give much credence to working: “And that there is not for man except that for which he strives”. Attachment to work and satisfaction with it play a remarkable role in reinforcing work ethic. Islam places a great importance on earning legitimate income and in the history of Islam hardworking people have been given much credit and people who burden others with their own responsibilities will not taste God’s mercy (Hosseinabadi, M., 2010).

**Concept of Religion:**

The research carried out in the area of religion has discussed various philosophical, sociological, and psychological views on this concept. Religion is undoubtedly one of the main distinctions of human beings. From the philosophical viewpoint, a religious person is one who is faced with existential and metaphysical questions, e.g. origin and end of the universe, and finds an answer to them (Hume, R.E., 1957; Yinger, J.M., 1970; Batson, C.D., 1993). From the sociological perspective, religion is a social institution with basic functions such as order, integrity, and happiness, and its lack can threaten the survival of the society (Martin, Mike W., 2004). Finally, religion has also been examined from a psychological viewpoint, especially in terms of mental health and psychotherapy. William James defines religion as “the feelings, acts, and experiences of individual men in their solitude as they apprehend themselves to stand in relation to whatever they may consider the divine” (Fukuyama, M.A., 1999).

We cannot regard religion as a simple, one-dimensional phenomenon. Religion is psychologically complex and involves emotions, beliefs, values, behaviors, and the social environment (Aryan, K., 1999). Verbit (1970) treats religion as a multi-dimensional construct and enumerates six dimensions for it:

1. Rituals
2. Doctrine
3. Emotion
4. Knowledge
5. Ethics
6. Community

However, the view of religion itself about the definition and components of religiosity is an important issue that requires another research (Verbit, M.F., 1970).

Muslim thinkers have also viewed religion as a structural phenomenon that has influenced all the aspects of human life and guides them toward a general and sublime goal: felicity and bliss. Sayyid Qutb states that religion means a path and Islam is a path toward felicity which is the ultimate goal of humankind. Allameh Tabatabaei (1974) believes that satisfies those earthly needs that are in accord with otherworldly perfection. Interpreting the Quran and Hadith, Javadi-Amoli (1988) defines religion as a set of beliefs, ethical principles, rules and regulations whose aim is to guide human societies and to cultivate human beings (Allameh Tabatabaei
This definition can be found in the works of the majority of religious scholars (Taleban, M.R., 1999). To sum, religiosity can be defined as follows: knowledge of and belief in the God Almighty, Holy Prophets, and Divine laws as well as kindness to oneself, others, and the world for the sake of closeness to God and following one’s religious duties (Khodayarifard, M., 2006).

Reinforcing Moral Values:

According to the social control theory, deviance and criminality arises when a person’s bonds to society are weak or broken (Hirschi, T., 1969). Hirsch specified the elements of social bonding:

1. Attachment: A person’s sensitivity to an interest in others.
2. Commitment: A person who has an investment in society is also tied to the norms of the society.
3. Involvement: Heavy involvement in conventional activities.
4. Belief: Adhering to the values and moral principles shared by a social group.

Based on this theory, religiosity and belief in values and moral principles are important factors in reinforcing the bonding of a person to the group and preventing deviation and crime. One of the most essential roles of religion in social settings is to support and reinforce moral values. Even law enforcement and establishment of social order is feasible only by respecting moral values. In many situations and human relations, law has not stipulated the details and it is commitment to moral values that increases the inner control of individuals, thus enabling law enforcement in the society. Religion, in general, and divine religions, in specific, encourage humankind to internalize ethics and introduce pious humans as balanced in their personal and social relations and guided toward bliss and beneficence. For the majority of people, moral values are not taken into much consideration unless they are recommended by a superior force. Religion supports ethics and shows human beings that observance of moral values will not be without reward (Azerbaijani, M., 2001).

Religion ensures ethical behavior in the society and it is the main factor that controls human whims and desires (Allameh Tabatabaei (1974). In private and in public, ethics assumes the responsibility of a diligent police officer or a law enforcer. The main characteristic of the divine religions that plays a significant role in preventing crimes and sins is the belief in life resurrection. Allameh Tabatabaei (1966) states that: “belief in resurrection means the individual accepts that this world has a God that is all-present, all-knowing, who is not overpowered by anything, and who returns every soul to Himself. He rewards the benevolent and punishes the malevolent and they will remain in bliss or agony for eternity.” A person who believes in resurrection acknowledges that they are constantly monitored by God Almighty and that a day will come when his account in this world will be carefully audited (Allameh Tabatabaei (1974). Morteza Motahhari (1980) argues that “religious belief, more than anything else, internalizes piety and chastity in human conscience and validates moral values. Some Western scholars also believe in immortality and its effect in encouraging moral behavior.

In sum, it can be concluded that religion interferes with human behavior in two ways and encourages humankind to respect moral values and refrain from sins and deviations: (1) through belief in God and (2) through belief in life hereafter and fear of punishment. Not only does religion introduce and endorse moral values, but it also employs its own mechanisms for morally teaching its followers. Sermon is one of these mechanisms and it is based on certain religious beliefs such as the immortality of human soul, God’s love and mercy for human beings, His presence and observation, evanescence of earthly desires, and concern for death and resurrection. Moreover, by providing outstanding moral role models to human beings, religion facilitates our understanding of moral values based on the concept of observational learning (Aryan, K., 1999). Thus, the sociological effects of religion include: inner control as a result of social bonding, commitment to moral values as a result of religious belief, reduced crime and social order due to belief in resurrection, social support for reducing social isolation, enhancement of mental health as a result of meaningful social relations, emotional integrity, and a positive attitude toward life.

Components of Religiosity:

Based on the research of Khodayarifard (2006), the components of religiosity are specified as follows:

A. Religious Knowledge and Belief:

1. Knowledge: Understanding of the fundamentals of religion, i.e. belief in God, Hereafter, and holy prophets, as well as awareness of the aspects of religion.
2. Faith: Acceptance and acknowledgement of religious principles. Argyle (2000) believes that beliefs are the most pivotal aspect of religiosity and include the following elements: Acceptance of God, acceptance of prophets, acceptance of the hereafter (i.e. Paradise, Hell, and Purgatory), acceptance of the scriptures and God’s will, acceptance of angels.
B. **Religious Emotions:**

Religious emotions include all the positive and negative emotions; positive emotions are the result of acceptance of God, prophets, saints, ordinances, and the Hereafter, while negative emotions are the result of animosity toward the enemies of God, divine religions, and the prophets.

The positive emotions (love) are:
1. Positive emotions toward God (love of God, fear of God’s dissatisfaction, and hope and trust in God)
2. Positive emotions toward oneself (self-esteem and self-confidence)
3. Positive emotions toward others (prophets, Imams and apostles, parents, teachers, believers, and people)
4. Positive emotions toward the universe.

The negative emotions (hatred) are animosity or hatred of the enemies of God and His messengers who prevent the expansion of religion by sabotage and assassination campaigns, or those who fight against religion or religiosity. These emotions include:
1. Negative emotions toward the enemies of God
2. Negative emotions toward the enemies of prophets and saints

C. **Commitment To Religious Duties:**

Following faith in the God, prophets, and saints and the subsequent emotional attachment to them, the religious person feels committed to carry out their religious duties in individual, social, and economic areas. This component consists of certain elements:

1. Individual behavior: This includes all the actions that are related to a person’s relationship with themselves and God, and the person feels obliged to carry them out. These actions are: prayer, fasting, trust, obedience, piety, abstinence, sincerity, praise and thanksgiving, self-esteem, willfulness and good judgment, physical and mental health, development of intellectual abilities, acquisition of knowledge and sciences, virtuousness, patience, etc.
2. Sociopolitical behavior: This includes all the social and political action that are expected of a religious person in accordance with Islamic Sharia: Cooperation, loyalty, generosity, humility, benevolence, sacrifice, obeying the law, good temper, forbidding that which is evil, mercy and forgiveness, empathy toward believers, enmity toward perpetrators, Jihad and aiding the oppressed, Hajj, attempting to establish theocracy, and obeying the theocrat.
3. Economic behavior: Economic behavior involves the Islamic approach to healthy economic growth and legitimate income that the religious person is required to follow. This includes: Economic work and production, fair distribution, proper consumption, and avoidance of indulgence and avarice [19].

The Conceptual Model of the Research:

![Diagram of Conceptual Model](image_url)

Methodology:

Hypotheses:

The hypotheses addressed in the present article are as follows:

- **The Primary Hypothesis:**
  There is a significant relationship between religiosity and work ethic in the engineers of Iran Telecommunication Research Center (ITRC).
Secondary Hypotheses:
H1: There is a significant relationship between religious knowledge and work ethic in the engineers of ITRC.
H2: There is a significant relationship between religious emotions and work ethic in the engineers of ITRC.
H3: There is a significant relationship between religious beliefs and work ethic in the engineers of ITRC.
H4: There is a significant relationship between commitment to religious duties and work ethic in the engineers of ITRC.

Procedure:
The present research is descriptive-survey in terms of its purpose and correlational in terms of its method.

Instruments:
In the present research, library sources such as books, journals, theses, and articles have been examined in order to review the literature and the theoretical discussions on the topic. Two questionnaires are used for data collection. One questionnaire is related to work ethic and contains 30 items ranked on a 4-point Likert scale. The second questionnaire contains 113 items. The first part of this questionnaire addresses the demographic characteristics of the participants and the second part addresses spirituality and its components which is ranked on a 5-point Likert scale.

Validity and Reliability:
- Content validity:
  All the items in the questionnaire used for construct evaluation were based on previous studies and the questionnaires were also examined and verified by some university professors. Thus, the content validity of the questionnaires can be confirmed.

- Reliability:
  Cronbach’s alpha was used to examine the reliability of the questionnaires. The alpha obtained for the work ethic questionnaire is 0.73; thus, the questionnaire has sufficient reliability. As for the spirituality questionnaire, the religious knowledge subscale has an alpha of 0.52-0.64, the religious emotions subscale has an alpha of 0.53-0.59, the religious belief subscale has an alpha of 0.44-0.52, and the religious duties subscale has an alpha of 0.59-0.64. Therefore, it can be argued that this questionnaire has sufficient reliability.

Population:
The population of the present research consists of all the engineers of Iran Telecommunication Research Center (ITRC); i.e. 212 engineers and technicians. A sample of 142 engineers was selected based on Cochran’s formula and Morgan’s table. Finally, 160 engineers were selected as sample in order to increase the reliability of the results and the questionnaires were distributed among them. 152 questionnaires were completed and returned.

Data Analysis:
Descriptive (mean, standard deviation, variance, and standard error) and inferential (Pearson product-moment correlation coefficient) statistics were used for data analysis.

Normality of the Population:
Based on Kolmogorov-Smirnov test, the normality of the population was tested at 5% significance level. Since the observed p-value was greater than 0.05, the normality of the population was accepted and a parametric test, i.e. Pearson product-moment correlation coefficient, was used for data analysis and hypothesis testing.

Results:
The primary hypothesis:
There is a significant relationship between religiosity and work ethic in the engineers of Iran Telecommunication Research Center (ITRC).

<table>
<thead>
<tr>
<th>variable</th>
<th>N</th>
<th>Correlation Coefficient</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religiosity/ work ethic</td>
<td>152</td>
<td>0.678</td>
<td>0.001</td>
</tr>
</tbody>
</table>

As shown in Table 1, there a significant positive correlation between religiosity and work ethic in the engineers of ITRC at 5% significance level ($p = 0.001$).

Secondary hypotheses:
H1: There is a significant relationship between religious knowledge and work ethic in the engineers of ITRC.
As shown in Table, there is a significant positive correlation between religious knowledge and work ethic in the engineers of ITRC at 5% significance level ($p = 0.037$).

H2: There is a significant relationship between religious emotions and work ethic in the engineers of ITRC.

As shown in Table, there is a significant positive correlation between religious emotions and work ethic in the engineers of ITRC at 5% significance level ($p = 0.001$).

H3: There is a significant relationship between religious beliefs and work ethic in the engineers of ITRC.

As shown in Table, there is a significant positive correlation between religious beliefs and work ethic in the engineers of ITRC at 5% significance level ($p = 0.016$).

H4: There is a significant relationship between commitment to religious duties and work ethic in the engineers of ITRC.

As shown in Table, there is a significant positive correlation between commitment to religious duties and work ethic in the engineers of ITRC at 5% significance level ($p = 0.001$).

Considering the theoretical discussion of the research and the review of the literature, it was expected that the results would suggest a significant relationship between the components of religiosity and work ethic. The Pearson correlation coefficient for this relationship is 0.678, and since this coefficient is positive, there is a positive relationship between the two variables; that is, work ethic increases with religiosity in the studied population. Moreover, the correlations between the components of religiosity and work ethic are as follows:
Conclusion:
The present research was carried out to examine the relationship between spirituality and work ethic or, in other words, engineering ethics. The religiosity construct consisting of four dimensions (religious knowledge, religious emotions, religious beliefs, and commitment to religious duties) and the work ethic construct were measured. Using Pearson product-moment correlation coefficient, it was shown that there is a positive correlation between these variables and the sum of the results empirically supported the research hypotheses. Therefore, one of the ways of increasing professional ethics in the engineering community is to increase the religiosity or spirituality of employers in the workplace that significantly affects work ethic and consequently improves organizational performance.

Practical Recommendations:
Here are some recommendations for future research in this area:
- The effect of religiosity components on organizational performance
- Strategies for increasing workplace spirituality
- Identification of the factors that disrupt workplace spirituality
- Engineering ethics and its relationship with social capital
- Work ethic and social capital
- Social capital and the necessity to increase workplace spirituality

REFERENCES