What Modern Education Needs in Globalization Dilemmas? Multiple Intelligences and General Self- Efficacy Among University Students' in Public and Private Universities in North West of Iran

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Abstract

One of the new and modern techniques in the modern education system is empowering students with new strategies that empower them in their real life. One of the shortage of the education systems is that students cannot start their own business after their graduation, because they do not have learn dynamic capabilities. This paper aims to introduce two important factors in Education i.e. multiple Intelligences and General Self Efficacy among the students of North West of Iran in both public and private universities in different disciplines.

Keywords

Multiple Intelligences, General Self-Efficacy, public and private universities, North West of Iran

Definition of Intelligence

Intelligence is defined as general cognitive problem-solving skills. A mental ability involved in reasoning, perceiving relationships and analogies, calculating, learning quickly… etc. Earlier it was believed that there was one underlying general factor at the intelligence base (the g-factor), but later psychologists maintained that it is more complicated and could not be determined by such a simplistic method (Brain Matrix, 2013). For many years, intelligence has been one of the most controversial concepts (Eysenck & Kamin, 1981). This concept, like many other concepts in psychology, is not well defined. Psychologists have not reached an agreement on what intelligence is (Valsiner & leung, 1994). Although intelligence is a possession prized by most people, the term has no objective, agreed-upon referent either among the general public or contemporary psychologists. Characteristics such as age, weight, or height in individuals have proper referents, but we cannot point to a single observable characteristic of a person to indicate his or her intelligence (Kail & Pelligrino, 1985). The problem resides in the fact that intelligence is an abstract concept. It doesn't have any tangible, exact and physical basis. Intelligence is a general concept for a group of processes which are inferred from people's explicit behaviors and responses. For example, we can observe the problem solving strategies and measure the result of using such strategies precisely, but intelligence which is supposed to create such techniques is not observable (Moafian, 2008). However, there have been lots of attempts to define intelligence. According to Kline (1991)'' intelligence is popularly defined as the ability to learn, understand and deal with novel situations. The intelligent person is seen as quick-witted, acute, keen, sharp, canny, astute, bright and brilliant. At the other end of the scale the unintelligent person is described as dim, dull, thick, half-witted or stupid'' (p. 1).

Is Intelligence Inherited?

It is generally accepted that intelligence is inherited but can also be related to the environment. While studies showed that heredity is an important factor in determining intelligence; it was also suggested that environment is a critical factor in determining the extent of its expression. An investigation done recently revealed that 70 percent of the differences in the twins' I.Q. scores were attributable to inherited traits. Previous studies had suggested that about 50 percent of the differences in scores were inherited. Studies showed that the grey matter volume is strongly determined by genes, and reflected cognitive performance. It was also suggested that there is a strong genetic influence on IQ, verbal and spatial abilities, so in short our genes determine the quality of our intelligence, our ability to integrate and process information. The level of our intelligence determines how well we cope with changes in our environment. It is believed that race and culture have their share in intelligence as well, but so far there is no confirmed conclusion that intelligence varies from race to race. Environmental factors can play a role as well, but in fact they are capable of slowing down our mental processes more than enhancing it. There is no evidence to indicate that our environment can increase intelligence to a relatively high level. It is also inherently easier to degrade brain tissue than to create more complex brain tissue. Enhancements in brain structure require long periods of evolutionary selection, in addition to the availability of extraneous sources of energy. While brain degradation can happen in a relatively shorter time (Brain Matrix, 2013).

Multiple Intelligence Theory

Gardner's theory has a very solid biological basis. In this theory, the brain has been taken into account as a major physical determinant of intelligence. By studying individuals who had speech impairment, paralysis, or other disabilities, Gardner could find the parts of the brain that were specialized to perform the specific physical functions. He compared the rains of people with disabilities with those who did not have a disability and found that in the disable people there was damage in specific areas. In

his studies, Gardner found seven different parts of the brain; as a result, in his theory, he suggested seven different intelligences including musical, mathematical, linguistics, spatial, kinesthetic, interpersonal and intrapersonal, each associated with a specific area of the human brain. Later, Gardner added an eighth one, naturalist, to his list of multiple intelligences (Gardner, 1995; cited in Hosseini, 2003: Noruzi & Rahimi, 2010, pp 2-3).

Gardner's MI theory posits that human beings possess at least eight intelligences, to a greater or lesser extent. They are as follow (Armstrong, 2009, pp.6-7):

Once this broader and more pragmatic perspective was taken, the concept of intelligence began to lose its mystique and became a functional concept that could be seen working in people's lives in a variety of ways. Gardner provided a means of mapping the broad range of abilities that humans possess by grouping their capabilities into the following eight comprehensive categories or "intelligences":

Linguistic

The capacity to use words effectively, whether orally (e.g., as a storyteller, orator, or politician) or in writing (e.g., as a poet, playwright, editor, or journalist). This intelligence includes the ability to manipulate the syntax or structure of language, the phonology or sounds of language, the semantics or meanings of language, and the pragmatic dimensions or practical uses of language. Some of these uses include rhetoric (using language to convince others to take a specific course of action), mnemonics (using language to remember information), explanation (using language to inform), and met language (using language to talk about itself).

Logical-mathematical

The capacity to use numbers effectively (e.g., as a mathematician, tax accountant, or statistician) and to reason well (e.g., as a scientist, computer programmer, or logician). This intelligence includes sensitivity to logical patterns and relationships, statements and propositions (if-then, cause-effect), functions, and other related abstractions.

The kinds of processes used in the service of logical-mathematical intelligence include categorization, classification, inference, generalization, calculation, and hypothesis testing.

Spatial

The ability to perceive the visual-spatial world accurately (e.g., as a hunter, scout, or guide) and to perform transformations upon those perceptions (e.g., as an interior decorator, architect, artist, or inventor). This intelligence involves sensitivity to color, line, shape, form, space, and the relationships that exist between these elements. It includes the capacity to visualize, to graphically represent visual or spatial ideas, and to orient oneself appropriately in a spatial matrix.

Bodily-kinesthetic

Expertise in using one's whole body to express ideas and feelings (e.g.,as an actor, a mime, an athlete, or a dancer) and facility in using one's hands to produce or transform things (e.g., as a craftsperson, sculptor, mechanic, or surgeon). This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed).

Musical

The capacity to perceive (e.g., as a music aficionado), discriminate (e.g., as a music, critic), transform (e.g., as a composer), and express (e.g., as a performer) musical forms. This intelligence includes sensitivity to the rhythm, pitch or melody, and timbre or tone color of a musical piece. One can have a figural or "top-down" understanding of music (global, intuitive), a formal or "bottom-up" understanding (analytic, technical), or both.

Interpersonal

The ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of other people. This can include sensitivity to facial expressions, voice, and gestures; the capacity for discriminating among many different kinds of interpersonal cues; and the ability to respond effectively to those cues in some pragmatic way (e.g., to influence a group of people to follow a certain line of action).

Intrapersonal

Self-knowledge and the ability to act adaptively on the basis of that knowledge. This intelligence includes having an accurate picture of oneself (one's strengths and limitations); awareness of inner moods, intentions, motivations, temperaments, and desires; and the capacity for self-discipline, self-understanding, and self-esteem.

Naturalist

Expertise in the recognition and classification of the numerous species—the flora and fauna—of an individual's environment. This also includes sensitivity to other natural phenomena (e.g., cloud formations, mountains, etc.) and, in the case of those growing up in an urban environment, the capacity to discriminate among inanimate objects such as cars, sneakers, and CD covers (Noruzi & Rahimi, 2010, pp 3-5).

Self-efficacy

Self-efficacy was defined by Albert Bandura as a person's belief in their capability to successfully perform a particular task. Self-efficacy theory is an important component of Bandura's (1986) more general social cognitive theory, which suggests that an individual's behavior, environment, and cognitive factors (i.e., outcome expectations and self-efficacy) are all highly inter-related. Bandura, 1978, p. 240 defined self-efficacy as "a judgment of one's ability to execute a particular behavior pattern." Wood and Bandura (1989) expanded upon this definition by suggesting that self-efficacy beliefs form a central role in the regulatory process through which an individual's motivation and performance attainments are governed. Self-efficacy judgments also determine how much effort people will spend on a task and how long they will persist with it. People with strong self-efficacy beliefs exert greater efforts to master a challenge while those with weak self-efficacy beliefs are likely to reduce their efforts or even quit (Bandura & Schunk, 1981; Brown & Inouyne, 1978; Schunk, 1981; Weinberg, Gould & Jackson, 1979; Staples et al, 2005: Sariolghalam & Noruzi, 2010, pp 132-133).

It is a person's belief in their capability to successfully perform a particular task. Together with the goals that people set, self-efficacy is one on the most powerful motivational predictors of how well a person will perform at almost any endeavour. A person's self-efficacy is a strong determinant of their effort, persistence, strategizing, as well as their subsequent training

and job performance. Besides being highly predictive, much is also known about how self-efficacy can be developed in order to harness its performance enhancing benefits (Heslin & Klehe, 2006; Noruzi, Rahimi, 2010, pp 3-4).

Methodology and Instruments

This project has been done by two questionnaires with high reliability and validity among 412 (202 Male and 210 Female) students in public and private universities in North West of Iran.

General Self-Efficacy, The General Self-Efficacy Scale is a 10-item psychometric scale that is designed to assess optimistic self-beliefs to cope with a variety of difficult demands in life. The scale has been originally developed in German by Matthias Jerusalem and Ralf Schwarzer in 1981 and has been used in many studies with hundred thousands of participants. In contrast to other scales that were designed to assess optimism, this one explicitly refers to personal agency, i.e., the belief that one's actions are responsible for successful (Schwarzer, 2006 Sariolghalam & Noruzi, 2010).

MIDAS Questionnaire

To measure teachers' MI, Multiple Intelligence Developmental Assessment Scale (MIDAS) questionnaire was used, which consists of one hundred and nineteen questions about eight intelligences which are mentioned in Gardner's MI theory. In this questionnaire, a number of questions for each intelligence come as follows:

	Musical	Kinesthetic	Mathematic	Spatial	Linguistic	Interpersonal	intrapersonal	Naturalist
The number of questions	14	13	17	15	20	18	9	13

The results of factor analysis revealed that the questionnaire measures eight hypothetical constructs (Shearer, 1996; cited in Hosseini, 2003).

Research Questions

1. Is there significant relation between students' Multiple Intelligences and Self efficacy among public and private universities of North West of Iran?

1-1. Is there significant relation between students' Musical Intelligences and Self efficacy among public and private universities of North West of Iran?

1-2. Is there significant relation between students' Kinesthetic Intelligences and Self efficacy among public and private universities of North West of Iran?

1-3. Is there significant relation between students' Mathematic Intelligences and Self efficacy among public and private universities of North West of Iran?

1-4. Is there significant relation between students' Spatial Intelligences and Self efficacy among public and private universities of North West of Iran?

1-5. Is there significant relation between students' Linguistic Intelligences and Self efficacy among public and private universities of North West of Iran?

1-6. Is there significant relation between students' Interpersonal Intelligences and Self efficacy among public and private universities of North West of Iran?

1-7. Is there significant relation between students' intrapersonal Intelligences and Self efficacy among public and private universities of North West of Iran?

1-8. Is there significant relation between students' Naturalist Intelligences and Self efficacy among public and private universities of North West of Iran?

Data Analysis

To assess normal distribution, Descriptive statistics was applied. To determine the relationship between students' Multiple Intelligences and General Self-efficacy, Kendall's tau-b test was used. Gender roles and the tendency to check the Critical Thinking and student Self-efficacy, independent t test were used.

Results

Table 1, shows the results of descriptive statistics for the two instruments – MIs and Self-efficacy questionnaires - used in the study (see table 1).

Table 1: Summary of chi-square tests and research hypotheses

- Independent Variable- and Dependent Variable	Test	Amount	DF	Level on Significance	Result
General Self Efficacy and Multiple Intelligences	Chi Square	170	4	0.001	Significant
	Kendall's tau-b	0.48	-	0.002	Significant
General Self Efficacy and Musical Intelligences	Chi Square	90.8	4	0.001	Significant
	Kendall's tau-b	0.40	-	0.001	Significant
General Self Efficacy and Kinesthetic Intelligences	Chi Square	132.9	4	0.003	Significant
	Kendall's tau-b	0.39	-	0.000	Significant
General Self Efficacy and Logical Intelligences	Chi Square	111.5	4	0.000	Significant
	Kendall's tau-b	0.62	-	0.000	Significant
General Self Efficacy and Spatial Intelligences	Chi Square	84.2	4	0.012	Significant
	Kendall's tau-b	0.33	-	0.000	Significant
General Self Efficacy and Linguistics Intelligences	Chi Square	160.6	4	0.000	Significant
	Kendall's tau-b	0.49	-	0.000	Significant
General Self Efficacy and Intrapersonal Intelligences	Chi Square	72.12	4	0.000	Significant
	Kendall's tau-b	0.29	-	0.000	Significant
General Self Efficacy and Interpersonal Intelligences	Chi Square	90.12	4	0.002	Significant
	Kendall's tau-b	0.40	-	0.007	Significant
General Self Efficacy and Naturalistic Intelligences	Chi Square	60.7	4	0.005	Significant
	Kendall's tau-b	0.26	-	0.001	Significant

As table 1, shows there are significant relationship between Multiple Intelligences and general self efficacy. It also reveals that every dimension of multiple intelligences has meaningful relationship with general self efficacy also. And the degree of relationship can be understood from the Kendall's tau-b in this table shows the intensity of the relationship between two factors i.e. dependent and independent variables and also the Chi Square and the degree of freedom related to the significance of variables i.e. are the two variables significant or not.

Discussion and Implications

As a student who has a good Multiple Intelligences, MIs and general self efficacy, GSE can cope with the market and organizational facts well than others who do not have more so a student who has a good MI can manage the situation and run the business more successfully than the others too (Noruzi & Rahimi, 2010).

The table 1 revealed that there is significant relationship between MI and GSE and also among dimensions of MI and GSF. It is logical in the real world because if someone has a high intelligence then he/she can manage the situation better and will have better ability to develop the organization to higher ranks and this will lead to self-efficacy in students. In the following we bring some practical steps to help the developing of both MI and GSF in the organization.

Universities practical guides for developing MIs and GSE for students come in the following:

There are certainly ways to increase one's intelligence and GSE, also called intelligence amplification/ enhancing, by practicing many proven cognitive tools such as mnemonics, problem-solving heuristics, creativity techniques and decision-making tools. An increase in the intelligence level can only result in a better life, health, and standard of living.

Below you will find some simple intelligence and GSE boosters:

Deep thinking

In life it's not enough to just react to events, and situations, rather we should have a conscious objective and select our actions to get nearer our objective. Also it's important to think about consequences of our actions, to minimize the possibilities of errors and regret. Deep thinking would normally help you live better, and reach your goals.

Good reasoning

It is the key to success, especially if performed consciously and in the proper order:
1) Have an objective,
2) make a general sensing about it,
3) determine your decision based on your sensing,
4) Make alternate plans (along the main objective),
5) Select the best response/ plan.
5) start by carrying out your plan,
6) Observe results,
7) Store experiences (for future reference).

Learning from past experience

It is believed that many inventions were actually re- inventions; for example Egyptians 2000-4000 years ago were using some unique techniques to build their temples, buildings… but since the early Egyptians were not good at keeping records of what they were doing, many of their inventions/ techniques were lost, and they had to be reinvented many centuries after them, which means that we had to start from point zero again because we didn't keep records of our discoveries.

Practice: you cannot learn swimming from a book, the same thing should be taken into consideration when dealing with "thinking"; you cannot learn to think without practicing. And as mentioned earlier, a good way to start is with cognitive tools such as brain exercises: mnemonics, problem-solving heuristics, creativity techniques, brainstorming, puzzles, brain teasing games… etc. (Brain Matrix, 2013).

Other steps that universities should take consideration for the students.
1. Holding purposeful seminars and workshops for development of both MIs and GSE.
2. Students should learned by intellectual standards (relevance, accuracy, precision, clarity, depth, and breadth).
3. GSE should be developing via intellectual factors of the employee with self-discipline.
4. Because the thinker can identify the elements of thought present in workshop or meetings and they want to make logical connection between the elements and the problem at hand so the feedback is highly needed.
5. Students should be helped in self-assessing and self-improving.
6. The students should know why they learn MIs strategies or GSE affairs. They should know that learning these strategies will help them to be improved.
7. The multimedia training and learning in the sleep strategy will increase students GSE and students can use from that strategy also (Noruzi & Hernandez, 2010).

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