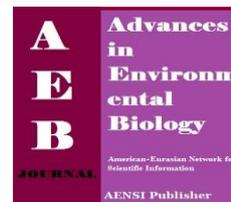




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The Relation Between Processing Strategies and Learning Beliefs, and Self-Directed Learning ,Case study: Students of West Mazandaran Universities

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ABSTRACT

Objective:The present research aims to study the relation between processing strategies, and beliefs related to self directed learning on students of West Mazandaran Universities. **Background:**The research method is correlative-descriptive with Islamic universities in Western Mazandaran, Iran, as the sample population including 32500 students. The subjects were chosen through cluster random sampling which included 90, 50, 70, and 40 students from Chalous, Noshahr, Nour, Tonekabon, and Ramsar universities respectively. Two standard questionnaires of learning style ILS, and self-directed learning were used as data collection tools. To analyze the data, Pearson's correlation test, multivariate regression correlation coefficient, and independent t-test were used. **Results:**Findings show a positive, $p \leq 0.01$ significance between deep processing strategies, step-by-step processing, concrete processing, knowledge absorption, knowledge accumulation, use of knowledge, stimulating teaching and self-directed learning. **Conclusion:**Moreover, there is a positive relationship between all the components of self-directed reading, and those of strategic processing and beliefs about learning. The highest correlation coefficient was found between the components of desire for learning and step-by-step processing, while the lowest was found between knowledge absorption, and self-management. Findings also show that 2 of 7 components of (deep, step-by-step, and objective) processing strategies and learning beliefs (absorption, knowledge increase, knowledge application, stimulating teaching) at 0.01 significance level can significantly predict self-directed learning. **Keywords:** processing strategies, learning beliefs, self-directed learning.

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INTRODUCTION

One of the serious challenges in teaching learning procedure is that learners remain as conditional individuals who depend on environment, and respond to external stimuli rather than becoming strategic learners. One major emotional objective in modern educational systems is to train learners who can independently go through their educational path with self-direction and gradually become self-determined and be capable of handling ambient risks and use what they have acquired in any environment. Learning school subjects or any scientific books, a student has to do certain activities, and use methodology different from that of others. Moreover, ambitions, approaches, and notions about learning are different among students.

Quoting Fisher *et al* [8], Knowls consider self-direction as a procedure through which dependently or independently, students recognize their needs, set their objectives, identify their financial and human sources learning, select and apply suitable learning strategies, and assess their learning consequences and take the initiative. What especially intensifies processing strategies, and learning notions in humanistic studies in educational systems is their outcome. Education envisages students, so a minor-mistake/ error could impose irrecoverable losses not only on an education systems, but also on the society as a whole. As a system with internal-external relationship, a higher education system includes elements which in correlation with each other, aim to educate human beings with their special complexities, and issues. Therefore, it is logical and even necessary that higher education set a condition in which it could lead to one's self-management. That is how learners can be introduced to participate in self-directed learning system in order to educate people with ideal thoughts with the rapid mental, political, economical, and social developments which are increasingly sensitive.

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By "deep processing", we mean the innovative methodology learners use by which they create a relationship between various subjects and seek a general line in every subject. These students organize matters by designing tables and seeking consistency, and try to figure out an author's real purpose while reviewing their own viewpoints. In step-by-step processing, learners analyze and memorize concepts and focus more on details. In objective or applied processing, students process data objectively; they include students who like to learn subject pertinent to realities in their environments. They continuously try to build a mental picture of the subjects they learn. For this group, an abstract concept is comprehensible only when there is a concrete instance for it. In absorption of knowledge (referred as reality learning in this text), the focus is on realities included in text books, or mentioned by teachers. Learner is supposed to learn, and internalize data, and acquire how to retain them. In accumulation of knowledge, learner might believe in accumulate or combine knowledge with insight. He may feel responsible in deciding on the time to set a curve or take a note from a text. Using his knowledge, a learner believes that sooner or later, he has to be able to use what he has learned, and he believes he is apt to do so. This group of learners always tries to relate theory to practice. In stimulating teaching, students believe that teachers should stimulate learning in them; these people are more interested in studying, but believe that the teacher decide on what to study.

Quoting Stroud [27], Mayer defines learning strategies as behaviors from a learner which affect data processing by a learner. Yet, since learning is traditionally realized through changes in behavior, and these changes imply learning new things, learning strategies can more accurately be defined as behaviors from a learner which affect the manner of collecting data by a learner.

Deep approach focuses on internal motivation and personal interest in learning. It enables students to build their knowledge and seek new knowledge; it is suitable for students who have their own manner of learning. Surface strategy of learning is suitable for students who adapt themselves to the necessary situation with minimum attempts. It is related to students who have to rather than like to do something. Several definitions have been suggested for methodology of learning: It is a manner in which a learner collects processes and perverse data [4], Quoting Entwistle [7], Feral et. al divided learning approaches as cognitive and meta-cognitive. Learning approaches include activities a student accomplishes to learn something. Cognitive approaches in learning are related to such students activities as memorizing, connecting elements, and defining without deep learning. It is also related to independent, qualified, and meaningful learning which leads to deeper perception since self-directed learning focuses on cognitive processes (eg. autonomy and independence) of which students are aware, facilitate learning, programming, self-discovery, reviewing, and meta cognitive learning in general [2]; [23], In knowl's major paper, quoting Fisher, King, and Tague [8], self-directed learning has been defined as a process in which a person take initiative to identify their learning needs, set learning objectives, identify sources, and subjects for learning. In this definition, two elements come to mind: First, self-directed learning as a learning process or manner. Second, commitment as a necessary component and a self-directed learning results from it.

Recent findings show a positive relation between processing approaches and self-direction. In a research titled " Student's learning strategies"; [19], mental model and learning consequences in subject-based curriculum and traditional curriculum in a medical course show that students have shown a higher level of conceptualization, and self-direction to learning in subject-based curriculum than the other. Assessing undergraduate student's understanding of similarities of linear courses which facilitates self-directed learning, Boruse [3], found out that considering students' ideas, involving them in so the Socratic manner, allowing a long period of time for assignments, and self-awareness, and allocating interesting assignments has been useful in increasing students' ability for self-selection, self-assessment, and self-regulation to doing some assignments, and selections headlines, and reading-worthy texts. In garrison's model of self- directed learning (2010) – introductory validation, and evaluation, and their relationship with academic success –students answered questionnaires including 3 psychological categories pointed out in the model, including self- management, self-inspection, and motivations. Intermediary analyses showed that these three psychological categories were interconnected, and motivation regulated the connection between self-management and self-inspection. analyses of model formation showed that these 2 categories could significantly predict a 2-term academic success; among which self-management was considered a stronger predicting medium. Motivation significantly predicted academic success in only 2 terms. The effects of these findings on self- directed learning and academic success are discussed in a traditional classroom environment.

On the basis of the above literature, the present research studies the relationship between processing strategies, and learning belief with self- direction on students in Western Mazandaran Universities in Iran, the following ten hypotheses has been studied:

There is a relationship between deep processing, and self-directed learning.

There is a relationship between step-by-step processing, and self- directed learning.

There is a relationship between objective processing, and self-directed learning.

There is a relationship between knowledge, and self-directed learning.

There is a relationship between accumulation of knowledge, and self- directed learning.

There is a relationship between use of knowledge and self- directed learning.

There is a relationship between stimulating teaching, and self-directed learning.

There is a relationship between elements of processing strategies (deep, step-by-step, and concrete) and elements of self-direction and learning (self-management, interest in learning, and self-control).

There is a relationship between elements of belief of learning, and elements of self-directed learning.

Elements of processing strategies, and beliefs of learning can explain self-directed learning.

MATERIALS AND METHODS

The present research is of a correlation type and sample population included approximately 32500 students in universities in West Mazandaran, Iran. The sampling method was random clustering. Finally 250 subjects were selected randomly.

The following two questionnaires were used to collect data:

1. Inventory learning styles (ILS) questionnaire designed by Jan, Vermunt, and Rijswijk to be used in higher education in educational psychology. It was first designed by Vermunt and qualified by Vermunt et al (1998) to measure 4 factors. Navidi, Boyle, Duffy, and Dunleavy reported that the questionnaire was tested using confirmation factor analysis, the analysis showed that this tool is suitable for measuring the four factors focused by Vermunt. The "ILS" questionnaire was designed to study learning methodology of high school and higher education students. The four elements it measures include: processing strategies, disciplinary strategies, directions and motivations of learning, notions and beliefs of learning. The first 2 elements are related to learning activities to which 55 items in the questionnaire are pertinent to, the next 25 items are related to the assessment of motivations of learning, and the last 40 are allocated to study learner's notions and beliefs. Each component has subdivisions and totally include 16 subdivisions assessed by the ILS questionnaire. The questionnaire was used in Iran first by Navidi. At the present, it is used by researchers at the Iranian behavioral science studies institution. 2. The self- direction questionnaire was designed by Fisher et al [8], and customized by Navid et al. It consists of 40 expressions ranging from "I absolutely agree" to "I absolutely disagree", and includes 3 components i.e. self-management, interest in learning, and self-control. To ensure its face validity, the tool was given to several experts who confirmed it.

Results:

The results of testing hypotheses 1-7 are shown in table 1. They show that there is a relation between the components of strategic processing (deep, objective, step by step) and learning beliefs(knowledge absorption, knowledge increase, using knowledge, motivating teaching), and self-direction.

		Deep processing	Step by step processing	Objective processing	Knowledge absorption	Knowledge enhancement	Using knowledge	stimulating teaching
Self direction	Pearson's correlation	0.341**	0.397**	0.314**	0.226**	0.320**	0.231**	0.189**
	Significance level	0.000	0.000	0.000	0.000	0.000	0.000	0.003
	number	250	250	250	250	250	250	250

Table 1 shows that there is a significant relationship between self-direction and learning processing strategies, and beliefs of learning in significance level ($p \leq 0.01$). There is also a relationship between self-direction, and deep processing (0.340), step-by-step processing (0.397), accumulation of knowledge (0.320), respectively. Moreover, findings of this study about hypothesis 8 are presented in table 2 which shows a relationship between the components of process strategies and the components of self-directed learning.

		Self management	Interest in learning	Self control
deep	Pearson's correlation	0.290**	0.365**	0.285**
	Significance level	0.000	0.000	0.000
	number	250	250	250
Step by step	Pearson's correlation	0.363**	0.425**	0.311**
	Significance level	0.000	0.000	0.000
	number	250	250	250
objective	Pearson's correlation	0.269**	0.274**	0.230**
	Significance level	0.000	0.000	0.000
	number	250	250	250
absorption	Pearson's correlation	0.167**	0.263**	0.209**

	Significance level	0.008	0.000	0.001
	number	250	250	250

table 2 shows that there is a meaning between all the elements of self-direction, and those of processing strategies in significance level of ($p \leq 0.01$). The highest correlation coefficients is between the element of interest in learning, and step-by-step processing, and then between interest in learning and objective processing, and deep processing, while the lowest correlation is between absorption, self-direction, and self-control, 0.425, 0.377, 0.365, 0.167, and 0.209, respectively.

Therefore, null hypothesis in all the elements at the significance of ($p \leq 0.01$) is rejected, and the research assumption is accepted, and with a 0.99 reliability, it can be said that there is a relationship between all the elements of self-direction, and those of processing strategies. The findings about hypothesis 9 are presented in table 3. Table 3. correlation between the components of self-directed learning and components related to learning beliefs.

		Self management	Interest in learning	Self-control
Knowledge enhancement	Pearson's correlation	0.229**	0.367**	0.288**
	Significance level	0.000	0.000	0.000
	number	250	250	250
Using knowledge	Pearson's correlation	0.104	0.329**	0.228**
	Significance level	0.101	0.000	0.000
	number	250	250	250
Motivating teaching	Pearson's correlation	0.093	0.213**	0.213**
	Significance level	0.141	0.001	0.001
	number	250	250	250

Table 3 shows that all elements of self-direction but two - self-management with the use of knowledge (0.104), and stimulating teaching (9.093)- have a significant relationship with all beliefs of learning at ($p \leq 0.01$). The maximum correlation coefficient exists between interest for learning, and accumulation of knowledge, and then between interest for learning and use of knowledge (0.329), and the minimum correlation coefficient exists between stimulating teaching, interest for learning, and self-control (0.213), respectively. Null hypothesis for the seven components mentioned above is rejected at ($p \leq 0.01$), and research hypothesis is accepted. Moreover, it can be said with 0.99 reliability there is a significant relationship, on the one hand, between self-management and accumulation of knowledge, and on the other hand, between self-control and 3 elements of belief of learning, and also between interest for learning, and 3 elements of belief of learning. Moreover, the findings about hypothesis 10 are represented in table 4.

steps	variable	R	R2	Standard R2	SEE	B	SE	Beta	t	p
1	constant	0.397	0.158	0.154	15.187	116.815	5.069		23.044	0.000
	Step by step					0.873	0.128	0.397	6.810	0.000
2	constant	0.417	0.174	0.167	15.072	111.644	5.559		20.083	0.000
	Step by step					0.696	0.151	0.316	4.610	0.000
	Knowledge enhancement					0.368	0.168	0.150	2.187	0.030

As table 4 shows, 0.158 of changes related to self-direction to learning through step-by-step processing is explained alone, and the variable of accumulation of knowledge is added, this rises to 0.174. The findings show that 2 of the 7 components (deep, step-by-step, and objective), and the beliefs of learning (absorption, accumulation of knowledge, use of knowledge, and stimulating teaching) can be good predictors of self-directed learning with (0.01) significance (hypothesis 11 is accepted). According to the numbers in the table, the other 5 components do not have the feature of self-direction.

Discussion and conclusion:

The findings of this research about the first hypothesis show that there is a relationship between the two variables (deep processing and self-direction to learning) with $p \leq 0.01$. These findings confirm Duperyat and Marine's findings [5], that there is a significant relationship between deep strategies of learning, and educational improvement, while rejecting Elliotts and McGregor's result that proved the lack of relationship between objectives of an action, avoidance, and deep processes of data processing. Moreover, these finding reject Marshal and Miller's findings [21], claiming that there is no relationship between purpose of dominance and educational improvement. Our findings shows that since deep learning is impressive in enabling learners toward self-control, and enables them to relate various subjects through their innovative methods, and self-direction

increases their assurances and creation of new methodology, the relationship between the two variables is justifiable.

The findings about the second hypothesis show that there is a significant relationship between step-by-step processing, and self-direction to learning with $p \leq 0.01$. It is worth to note that learners who use this method focus on details and seek real data in their environments, so they memorize and analyze materials better. Moreover, since self-directed learning facilitates learning, programming, self-inquiry, reviewing, and meta-cognitive learning in general, the relationship between these two is justified.

The findings about the third hypothesis show that there is a significant relationship between the two variables (objective processing, and self-directed learning) with $p \leq 0.01$. It is notable that learners who process in the objective processing manner always try to make a mental picture of what they learn related to reality in the environment, and try to use them. Since this method firmly copes with human's natural psychology, and is, in fact, an element of maturity, the relationship between the two variables is justified.

The finding about the fourth, fifth, and sixth hypotheses show that there is a significant relationship between accumulation of knowledge, absorption of knowledge, and self-direction with $p \leq 0.01$. There is also a significant relationship between these 3 variables, and self-directed learning. These findings support findings of Gordanshekan et al. [10], who prove the meaningful relationship between closed meta-cognitive teaching, and self-directed learning, and also the findings of Hosseini [14], about the significant relationship between parents' perception and self-directed learning, and findings of Ekhteyari Ardakani about the significant relationship between the effect of cognitive education strategies on motivation, and performance, resolving math problems are approved. About accumulation of knowledge, these findings support those of Gutteri and Rice (1996) in a concept-based reading in which they found that autonomous learners turned to be able to find data from different texts, and used different strategies to obtain objectives and give ideas.

Absorption of knowledge, and its use, and accumulation of knowledge affects, one's study method, and their self-awareness.

The findings about the seventh hypothesis show a significant relationship with $p \leq 0.01$ between stimulating, and self-directed learning. These findings confirm the finding of Haw kings et al [13], who proved the significant relationship between teacher's experience, and academic improvement.

Learners who use this method in learning, focus on the teacher, and believe that the teacher can improve their motivation, and it is the teacher who should decide on what to study. Therefore, the relationship between the two variables is justified.

The findings about the eighth hypothesis i.e. the relationship between the elements of processing strategies, and those of self-directed learning show that there is a significant relationship between them with $p \leq 0.01$. These findings have been supported by Nadi and Sajadian[24], Safavi et al[26], Linares [18], and Abdolfatal[1].

The findings about the ninth hypothesis show a significant relationship with $p \leq 0.01$ between the elements of beliefs of learning, and those of self-directed learning. These findings support findings of Hosseini [14], Yari [29], Lavasani, Tuck man, Zabihi and Sexton showing that there is a significant relationship between a student's self-confidence and his academic improvement. Moreover, the findings confirm the significant relationship between self-efficiency as one's belief about their own abilities (Pantrich and De Groot, and Zimmermon and Pons' finding [31], about the significant relationship between self-efficiency and effect on the two groups of learners – intelligent, and normal and Kim's finding [17], about the significant relationship between general self-efficiency, and self-confidence, and self-esteem. Learners who combine various components of beliefs of learning can handle life-long events, and turn into self-efficient learners who can be optimistic about themselves, and respond to everything on the basis of self-awareness. So that relationship between components of beliefs of learning and those of self-directed learning are justified.

The findings about the tenth hypothesis show that there is a significant relationship between the elements of processing strategies, and beliefs of learning, and self-directed learning with $p \leq 0.01$. The results show that the two elements; step-by-step processing, and accumulation of knowledge can among the seven elements clarify self-directed learning.

REFERENCES

- [1] Abd-EL-fatah, Sabry, 2010. Garrison,s Model of self- directed learning: Preliminary validation and relationship to academic achievement. The Spanish Journal of psychology, 13(2): 586- 596.
- [2] Ashman, A.F., R.N.F. conwag, 1993. cognitive strategies for special education. New York: Routledge. Available in: www.newc.
- [3] Brouse, C., 2007. promoting self-directed learning in Three Online Health Promotion and Wellness Courses. Journal of Authentic Learning; 4(1): 25-33.
- [4] Dunn, Rita, 1995. A meta-analytic validation the Dunn and Dunn model of learning- style preferences. Journal of Educational Research, 88(6): 353-362.

- [5] Dupeyrat, Caroline, Marine, Claudette, 2005. Implicit theories of intelligence, Goal orientation cognitive engagement, and achievement: A test of Dweck's model with returning to school adults: *Contemporary Educational Psychology*, 30: 43-59.
- [6] Ekhtiari Ardekani, F., 1998. The effect of cognitive strategies on motivation and performance in mathematical problem solving fifth-grade elementary school students in Shiraz, MS Thesis. Department of Educational Psychology, University of Shiraz.
- [7] Entwistle, N.J., 1998. Approaches to learning and forms of understanding. In *teaching and learning in higher education*, ed. B. Dart and G.
- [8] Fisher, M., I. King, G. Tague, 2001. Development of self-directed learning readiness scale for nursing education. *Nurse Education Today*, 21: 516-525.
- [9] Gholamali Lavassani, M., 1999. Examine the relationship between self-efficacy, task value, achievement goals and approaches to learning mathematics in Tehran. MS Thesis, University Clinical Psychology, University of Welfare and Rehabilitation Sciences, Tehran.
- [10] Gordanshekan, M., A. Joseph, 2010. An overview of the development of self-directed learning, master planning, educational, Islamic Azad University of Khorasgan.
- [11] Gordanshekan, M., M.H. Yarmohammadian, S. Ajami, 2010. Effects of metacognitive instruction on self-directed learning package for medical records University, MS Thesis, Islamic Azad University of Khorasgan.
- [12] Guthrie, J.T., K. Mc Gough, L. Bennett, M.E. Rice, 1996. Concept-oriented reading instruction: An integrated curriculum to develop motivations and strategies for reading. In L. Baker, P. Afflerbach, & D. Reinking (Eds), *Developing Engaged Readers in School and Home Communities*, 165-190.
- [13] Hawkins, P., 1996. Organizational learning: Tanking Stock and facing the challenge. *Management Learning*, 25(1): 71-82.
- [14] Hosseini, F., 2010. Examine the relationship between self-concept, self-regulated learning and academic achievement of female students in 89 schools in the academic year 1388 Gilan Province, Islamic Azad University of Tonkabon.
- [15] Jan, D.H.M., Vermunt, Frank, A.W.M. Van Rijswijk, 1994. Inventory learning styles. Katholieke University Brabant, Open university.
- [16] Kim, Y.H., 2003. Correlation of mental health problem with psychological constructs in adolescents. *International Journal of Nursing Studies*. 40: 115-124.
- [17] Linares, A.Z., 1999. Learning styles of students and faculty in selected health care professions. *Journal of Nursing Education*, 38(9): 407-414.
- [18] Lyke, K.H., P. Grotum, H.I. Stromso, 2006. Student learning strategic, mental models and learning outcomes in problem-based and traditional curricula in medicine. *Med Teach*, 28(8): 717-22.
- [19] McGregor, Holly A. Elliot, J. Andrew, 2002. Achievement Goals as Predictors of Achievement-Relevant Processes Prior to Task Engagement: *Journal of Educational Psychology*, 94(2): 381-395.
- [20] Miller, C.A., T. Fitch, J.L. Marshall, 1996. Locus of control and at-risk youth: A comparison of regular education high school students and students in alternative school, 123(3): 548-552.
- [21] Retrieved, 2006. From Expanded. Academic A SAP database. [Cited 2011. Mar 16]. Available from: <http://www.questia.com/google scholar.qst/?docId=500193222>.
- [22] Morrow, L.M., 1993. Promoting independent reading and writing through self-direction literacy. *Activities in a collaborative setting. Reading Research Report. NO.2.* [Ed. 356-455].
- [23] Nadi, M.A., A. Sajadian, 2006. Standardization of the measurement of self-directed learning on high school female students in Isfahan, *Quarterly Journal of Educational Innovations in measurement and Evaluation*, 18: 130-111.
- [24] Pintrich, P.R., E. De Groot, 1990. Motivational and self – regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82: 33-40.
- [25] Safavi, et al., 2010. Readiness for self-directed learning and learning styles of nursing students of Isfahan University of Medical Sciences, PhD thesis, Islamic Azad University Falavarjan.
- [26] Stroud, Kathryn Chatham, 2006. Development of the school motivation and strategies inventory, URL: [http://www.txspace.tamu.edu/items-by subject? subject=Learning+ Strategies - 10k -\(4/28/2007\)](http://www.txspace.tamu.edu/items-by subject? subject=Learning+ Strategies - 10k -(4/28/2007)).
- [27] Tuckman, B.W., T.L. Sexton, 1990. The relation between self – beliefs and self – regulated performance. *Journal of Social Behavior and Personality*, 5: 465-472.
- [28] Yari, G., 2002. Examine the relationship between academic achievement and learning strategies, self-regulation and perceived self-efficacy and achievement of male students in Tehran, M.Sc. Thesis, Department of Educational Psychology, Payam Noor University of Tabriz.
- [29] Zabihi, N.K., 2004. Assessing intelligence and self-efficacy beliefs in college students Torbat city. Master's thesis, Department of Educational Psychology, Tehran University.
- [30] Zimmerman, B.J. and M. Martinez -Pons, 1990. student difference in self-regulated learning, sex giftedness to self-efficacy and strategy use, *Journal of Educational Psychology*, 83: 51-59.