

The Relationship between Information Literacy and Motivated Strategies for Learning with Self-directed Learning Readiness

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Abstract

Introduction: Although several studies have been conducted about self-directed learning readiness, it seems that in Iran there has been no research on the relationship between information literacy, motivated strategies for learning with self-directed learning readiness. The purpose of this study was to investigate the relationship between information literacy and motivated strategies for learning, and students' self-directed learning readiness.

Method: This research was a descriptive correlational study. For this purpose, 335 students were selected using convenience sampling method. To collect data, the Information Literacy Questionnaire (ILQ), Motivated Strategies for Learning Questionnaire (MSLQ) and Self-Directed Learning Readiness Scale (SDLRS) were used. The SPSS, Pearson correlation coefficient, and multiple regression analysis were applied to analyze the data.

Results: The findings showed that information literacy, motivated studying and learning strategies, and their components, except for metacognitive self-regulation, had a significant relationship with self-directed learning readiness. Also, the results of multiple regression analysis revealed that approximately 39 percent of students' self-directed learning readiness variance is predictable based on motivated strategies for learning. The coefficients of the regression model showed that information exchange was significantly involved in predicting self-directed learning readiness among the components of information literacy.

Conclusion: It can be concluded that information literacy and motivated strategies for learning are the variables associated with self-directed learning readiness. It is necessary to focus on cognitive skills for improving self-directed learning readiness in education system.

Keywords: Information Literacy, Motivated Strategies for Learning, Self-directed Learning Readiness

Introduction

Helping students to be able to manage and direct their learning on their own; and not rely on the teacher has always been of particular importance in the field of education and psychology. The concept which is based on this notion, is "self-directed learning readiness". Fisher et al. have defined self-directed learning readiness as a process through which individuals identify needs, goals, resources, select appropriate learning strategies, and evaluate learning outcomes relying on themselves [1]. The benefits of this learning style include improved learning, better psychological adjustment for increased acceptance of responsibilities and reducing anxiety [2] and frustration, more coordination with modern teaching methods and reinforcement of information searching methods in learners [3,4].

Such people are spontaneous, hard-working, independent, disciplined, and goal-oriented learners [5]. On the other hand, information literacy is an important factor for improving learning strategies and achieving meaningful learning [6]. Information literacy is defined as a set of abilities to identify necessary information, information evaluation, and the optimal use of information in different situations [7]. With the development of higher education and the need for having access to information and research, the level of attention to information literacy and information using skills among students, has gained considerable importance in universities and higher education centers [8]. The results of some studies have shown that information literacy improves writing performance, students' final exams' grades [9], and critical thinking skill [10,11]. In fact, information literacy and students' awareness about it can be an important factor in academic and educational success and affect students' strategies for teaching, studying and learning functions [12-14].

Another important issue related to the learning process is how to guide learners in digital learning, data-orientation, information management, and dynamic learning systems management [15]. This ability includes motivated strategies for learning which are related to information literacy [15]. Motivated strategies for learning are systematic processes that are used to be achieved by learners and they both lead to a deep perception of matters [16,17]. These strategies consist of thoughts, behaviors, and performances that are used to achieve more information, store new information in memory and promote skills [17]. Some research has been done on motivated strategies for learning. Majority of studies have assumed that learners connect their new ideas to old ideas and in this way, learning gets meaningful [18].

As students have many problems in learning methods including using old methods to learn and not being able to distinguish appropriate information resources and because resources are continually changing, in addition to the recognition of learning appropriate strategies, students should learn methods of information acquisition. Therefore, the aim of this study was to answer the following questions:

- Is there any correlation between information literacy, motivated strategies for learning to self-directed learning?
 - Can these variables predict self-directed learning?
- These two variables were chosen for studying their relationship with self-directed learning readiness because they were related to learning in terms of concept, structure and also questionnaire items' content.

Method

The present study was a correlational study. The population included students of Mohaghegh Ardebily University in 2016-2017. The sample size was determined to be 335 students based on Krejcie and Morgan [19]. The method used for sampling was convenience sampling method. The inclusion criteria included: 1) informed

consent to complete the questionnaire 2) no psychiatric disorders 3) no substance abuse 4) no severe vision problems. After calculating the sample size, the first author of the paper entered the university and spoke with students about the research. At the end, after obtaining an informed consent, the students were asked to fill the questionnaires. The reported data analysis in descriptive statistics' section includes frequency, mean, Standard Deviation (SD) and then, in inferential statistics' section, Pearson correlation coefficient and multiple regression are reported. Data were analyzed using SPSS 23.

The tools used in this study were as follows:

Information Literacy Questionnaire (ILQ)

The Information Literacy Assessment Questionnaire has been designed by Yazdani [20]. This questionnaire is based on Association of College & Research Libraries (ACRL) competency standards. The competency standards consist of information need, information locating, information evaluation, information organization, information exchange. This 30-item questionnaire is based on a Likert scale of 1 (very low) to 5 (very high). All items are scored positively [20]. In this study, Cronbach's alpha coefficient for information need, information locating, information evaluation, information organization and information exchange components were reported 0.84, 0.87, 0.76, 0.84, and 0.85, respectively. The validity of the questionnaire has been reported to be 0.77 [20].

Motivated Strategies for Learning Questionnaire (MSLQ)

The Motivated Strategies for Learning Questionnaire (MSLQ) was developed by Pintrich et al. and measures learning strategies by 22 questions. The validity and reliability of the questionnaire has been confirmed [21]. In Iran, Dortaj et al. have reported the internal validity of the questionnaire subscales between 0.78 and 0.91 [22]. In this study, Cronbach's alpha coefficient for the cognitive and metacognitive factor was 0.65.

Self-Directed Learning Readiness Scale (SDLRS)

Self-directed learning scale has been designed by Fisher et al. [1]. It has 39 questions and is rated as Likert [1]. This scale consists of three components: 1- Self-management 2- Willingness for learning 3- Self-control [1]. The reliability coefficient by using Cronbach's alpha for the whole scale was 0.92. This coefficient for the subscales of self-management, desire for learning and self-control has been reported to be 0/85, 0/84, and 0/83, respectively. Also, according to studies, the validity of this scale has been desirable [1]. This scale was normalized in Iran by Nadi and Sajjadian [23]. Cronbach's alpha coefficient for the whole scale was 0.82. What has been respectively reported for self-management, the willingness for learning and self-control subscales is 0.78, 0/71 and 0/60.[23]. In the present study, Cronbach's alpha coefficient for the components was as follows: willing for learning (0.71) self-management (0.82) and self-control (0.81).

Results

The participants were 335 people including 158 females (0.47) and 177 males (0.53). As all the students were

postgraduate students, the age range of 20 to 40 years was chosen.

Section 1: Results of Statistical Analysis of the Relationship between Information Literacy and Self-directed Learning Readiness

Multiple regression analysis was used to analyze the data. Prior to the regression, the assumptions related to it such as normality and linearity were considered. Finally, the analysis was performed on 335 individuals.

Table 2 reports the correlation coefficients of information literacy and its components with self-directed learning readiness. The results showed that there is a significant positive relationship between information literacy and its components with self-directed learning readiness.

According to the results of Table 3, information literacy components account for about 12% of the variance in self-directed learning readiness. Also, the results of the one-way ANOVA test in Table 3 showed that the obtained F value is 44.157 which is significant at the P Value < 0.01. It shows that the components of information literacy can well explain the changes related to self-directed learning readiness and indicate the appropriateness of the proposed regression model.

The results of Table 4 show that in the final model by examining the standard regression coefficient, among the variable components of information literacy, information exchange has a significant role in predicting self-directed learning readiness.

Section 2: Results of Statistical Analysis of the Relationship between Motivated Strategies for Learning with Self-directed Learning Readiness

Table 1. Demographic Features of Participants

Variable	Level	F	Percent
Age	20-25	177	52.83
	25-30	134	40.01
	30-35	19	5.67
	40-45	5	1.49
Gender			
Male		177	0.53
Female		158	0.47
Total		335	%100
College			
Psychology		68	20.29
Engineering		66	19.70
Agriculture		68	20.29
Literature		66	19.70
Science		67	20.00
N=335			

Table 2. Correlation Coefficient of Information Literacy and its Components with Self-directed Learning Readiness

Variable	1	2	3	4	5	6	7
1 Self-directed Learning Readiness	1						
2 Information Literacy	0.278**	1					
3 Information Need	0.230**	0.848**	1				
4 Location Information	0.224**	0.951**	0.770**	1			
5 Valuation of Information	0.157**	0.692**	0.449**	0.636**	1		
6 Organize Information	0.230**	0.906**	0.650**	0.837**	0.648**	1	
7 Information Exchange	0.343**	0.818**	0.710**	0.688**	0.416**	0.641**	1

P<0.01* - p<0.05**

Table 3. Model Summary Coefficients of Information Literacy Components for Predicting Self-directed Learning Readiness

Model	Sum of Squares	Df	Mean Square	F	R	R Square	Adjusted R Square	Sig.
Regression	11953.281	1	11953.281	44.157	0.343a	0.117	0.115	0.0001
Residual	89873.249	332	270.703					
Total	101826.530	333						

Table 4. Multiple Regression Analysis to Predict Self-directed Learning Readiness through the Components of Information Literacy

Variables	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std. Error	B		
Information Need	0.067-	0.380	0.016-	0.178-	0.859
Location Information	0.161-	0.272	0.068-	0.591-	0.555
Evaluating Information	0.199	0.626	0.023	0.318	0.571
Organize Information	0.167	0.328	0.053	0.511	0.610
Information Exchange	1.435	0.317	0.357	4.528	0.0001

The results of Table 5 indicate that there is a significant positive relationship between motivated strategies for learning and its components with self-directed learning readiness (P Value < 0.01). There is no significant relationship between metacognitive self-regulation and self-directed learning readiness.

According to the results of Table 6, the coefficient of determination (R square) is equal to 0.414, indicating that

components of motivated strategies for learning account for about 41% of the variance in learning.

The coefficients of the regression model in Table 7 show that among the variable components of motivated strategies for learning, summarizing, organizing, planning, effort and perseverance and metacognitive self-regulation activity significantly contribute to predicting self-directed learning readiness.

Table 5: Correlation Coefficients of Motivated Strategies for Learning Components with Self-directed Learning Readiness

Variable	1	2	3	4	5	6	7	8	9	10	11
1 Self-directed learning readiness	1										
2 Learning study strategies	0.584**	1									
3 Repeat and Browse	0.411**	0.734**	1								
4 Noting	0.398**	0.589**	0.387**	1							
5 Shorthand	0.470**	0.657**	0.483**	0.598**	1						
6 Organize	0.550**	0.752**	0.455**	0.462**	0.471**	1					
7 Comprehension	0.430**	0.628**	0.429**	0.354**	0.426**	0.592**	1				
8 Planning	0.514**	0.758**	0.532**	0.400**	0.450**	0.577**	0.448**	1			
9 Monitoring and control	0.240**	0.659**	0.352**	0.225**	0.277**	0.260**	0.178**	0.393**	1		
10 effort and Perseverance	0.220**	0.494**	0.255**	0.141**	0.090**	0.155**	0.167**	0.306**	0.430**	1	
11 Metacognitive self-regulation	0.49-	0.274**	0.069	0.015-	0.015	-0.088*	-0.08*	0.092*	0.481**	0.397**	1

P<0.01* - p<0.05**

Table 6. Summary Model Results of Coefficient of Determination of Components of Motivated Strategies for Learning in Predicting Self-directed Learning

Model	Sum of Squares	Df	Mean Square	F	R	R Square	Adjusted R Square	Sig.
Regression	42125.501	9	4680.611	25.402	0.643 ^a	0.414	0.397	0.0001 ^a
Residual	59701.028	324	184.263					
Total	101826.530	333						

Table 7. Multiple Regression Analysis for Predicting Self-directed Learning Readiness through the Components of Motivated Strategies for Learning

Variables	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std. Error	B		
Repeat and Browse	0.271	0.400	0.037	0.678	0.498
Noting	0.604	0.910	0.037	0.664	0.507
Shorthand	2.093	0.660	0.187	3.172	0.002
Organize	1.420	0.343	0.254	4.139	0.0001
Comprehension	0.639	0.659	0.054	0.969	0.333
Planning	1.960	0.610	0.198	3.211	0.001
Monitoring and Control	0.171	0.368	0.026	0.464	0.643
Effort and Perseverance	1.217	0.548	0.112	2.221	0.027
Metacognitive self-Regulation	1.562-	0.806	0.101-	1.939-	0.053

Discussion

The present study was conducted to investigate the relationship between information literacy and motivated strategies for learning with self-directed learning readiness. The results of the Pearson correlation test showed that there is a positive and significant relationship

between information literacy and its components with self-directed learning readiness. These findings are in line with the findings of Conner [23] and Zheng et al.[24, 25]. So far, various definitions have been presented about information literacy but they all believe that information literacy leads to the right identification, access, and purposeful use of information resources [26]. Therefore,

to explain the results, it can be claimed that information literacy is an important factor in the development of learning students, and it also enhances their learning and cognitive skills. People with information literacy try to search and organize information from different sources, contexts, fields, and cultures and this, leads to improved learning. However, the results of the final regression analysis showed that among the components of information literacy, it is only the information exchange subscale that can significantly predict self-directed learning readiness. On the other hand, it is stated in the description of the psychometric features of this scale, that this subscale is more complex than other subscales [20]. Therefore, in order to improve learners' learning ability, it is better to focus on developing this ability. Training the ability to exchange information that is the highest among information literacy capabilities, enables the learner to ask himself/herself more important questions and expand critical mind for broader self-instruction. Acquisition of information literacy, on one hand, leads to self-directed learning readiness, and on the other hand, makes it possible to have access to vast information with spending the minimum time and cost in the world that is called information age.

Results of the Pearson correlation test showed that there is a positive and significant correlation among components of learning and motivated strategies for learning and self-directed learning readiness except for metacognitive self-regulation. These results are in line with Mozaffari and Conner's studies [24, 27]. To explain the results, it can be claimed that among the components of motivated strategies for learning, the components that require using the cognitive skills are more related to self-directed learning readiness than the components that require the use of metacognitive skills. This is because metacognitive self-regulation is a metacognitive skill that measures the ability of individuals to monitor their mental processes and get adapted to them over time [21, 22]. The significant relationship between cognitive components of learning and study strategies (summarizing, organizing, planning, effort and perseverance) and self-directed learning readiness shows that in order to improve self-directed learning readiness in the education system, it is better to focus more on improving these skills. In fact, learning and study strategies are mainly defined as a set of goal-oriented cognitive operations that guide people from understanding a question to answering it [28]. Given the importance of enhancing learning and how to acquire it correctly, the ability to acquire these skills, enables students to gain the ability to independently acquire the knowledge and information that they need. Students should be trained to meet their information needs by obtaining appropriate information and pave the way for searching. Today, in the information age, learning and self-directed skills are crucial elements. Information literacy and study strategies lead to the awareness that for learning, authentic and informed sources must be used and a rational connection should be made between new information and previous knowledge. Therefore, although accessing information can be relied on teachers and

information sources, it is self-directed and independent learning in the information that guides one to life long learning.

Despite the above findings, this study has limitations that may limit the generalizability of what has been stated. The first limitation is related to the type of research. Results showed that although information literacy was related to self-directed learning readiness, only one of its components was able to predict the criterion variable. This component predicted only 12% of changes of self-directed learning and the rest of the changes were unclear. This study was a correlational research and its results, showed the relationship between information literacy and self-directed learning. Secondly, this study did not examine the role of personality and its components that might be related to self-directed learning readiness and only has examined the relation of information literacy and motivated strategies for learning to self-directed learning readiness.

Conclusion

The results of this study show that cognitive skills have the strongest relationship with self-directed learning readiness and to improve self-directed learning, it is better to focus on teaching these cognitive skills. In this study, questionnaires were used for data collection, so in future studies, it is better to use other methods, for instance interview, observation, etc. With regards to the significant effect of information literacy in enhancing self-directed learning and studying and learning strategies, it is better to examine challenges and solutions of information literacy in future studies.

Conflict of Interest

Authors have no conflict of interests.

Ethical Approval

All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information.

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