Investigating the effect of self-development on the academic achievement of statistics unit of Iranian-Russian students through mediating the use of distance learning technologies by faculty members

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ARTICLE INFORMATION	ABSTRACT
	Goals: The aim of this study was to examine the effect of self-development of students on their academic achievement through the use of distance learning technology by instructors. **Methods:** This study was carried out in a statistics course using the quasi- experimental method (pretest-posttest). The statistical population of the study were 664 students in the field of the social sciences (economics and management) of Iranian and Russian virtual universities in the academic years of 2015-2017. 242 students (112 from Russia and 136 from Iran) were chosen among them based on Morgan's table. **Findings:** The findings showed that there was a significant difference between the mean scores of pre-test and post-test of self-development and academic achievement of Iranian and Russian students. **Conclusions:** The use of educational technology by faculty members has a significant effect on improving students' academic achievement and self-development. Usefulness of technologies can be more evident by targeted use of them.

جدول ۱. حیطه‌ها و شاخص‌های سنجش خودتوسعه‌ای [۲۱]

Table 1. Categories and indicators of self-development assessment[21]

| Categories of self-development	Main aspects	Activity monitoring	Questionnaire questions for students	Indicators
Self-knowledge	Self-reflection, self-assessment, the desire for prestige, the potential of self-knowledge, the experience of self-improvement.	The aspiration to learn about results of work, about the made mistakes, to compare the results with others	- Always compare yourself with other people. - I am worried about how I am appreciated by others. - I compare my qualities with those that are prestigious in society. - I know my flaws and try to correct them.	Quantity and time of addressing information on results of the work (examinations, tests). Readiness and to self-knowledge on the basis of questioning
Self-organization	Activity planning level, ability to create conditions to activity, ability to organize the work, experience of prevention of failures and also the active organization of cooperation.	Timely performance, rhythm of educational activity, class attendance	- I plan my activity. - I try to create good conditions for my activities. - I try to organize the work in such a way that I am adequately appreciated. - I try to take organizational measures to prevent failures. - I take an active part in public and political life.	Deadlines for home and individual assignments. Readiness for self-organization on the basis of questioning
Self -study	Educational ability, the effectiveness of educational activities, the study of educational objectives, the level of academic success.	Do not repeat mistakes (your own, others'), do not wait for an explanation, but work on books, read posted materials	- I objectively assess my strength and learning abilities. - I analyze the results of my learning activity. - I try to achieve determined educational goals. - I already have quite good successes and achievements in learning. - Constantly engaged in self-improvement.	The number of attention to the available literature, the learning results achieved. Self-study readiness based on questionnaires
Self-education	Development of strong-willed qualities, attitude to criticism, pursuit of achievements, attitude to well-being, respect of relatives, friends and colleagues, leadership skills, Willingness to correct the mistakes, in general, readiness for self-education.	Improving the quality of work, accuracy, diligence, participation in additional events	- I believe that I can achieve a lot in life. - I try to look no worse than others. - I analyze the results of my educational and social activities - I have strong willed qualities. - I consider my main goal to achieve a high position in society and welfare. -I want my family, friends and colleagues to respect me. - I love to be the center of attention. - I believe that a person has no limits for development. - Painfully worried about my failures - I like when they praise me.	The recorded cases of transition to internal motivation. Readiness for self-education on the basis of questioning

Table 2. Applying distance learning technologies to achieve self-development

Blogs/Journals	-Self-monitoring -Self-reflection - Self-efficacy	- Publishing questions online for others to answer - Providing and receiving feedback from peers - Combining notes with the course content to create a study guide
Podcasts	- Modeling - Self-efficacy	- Audio/video lectures - Recording study group sessions
Social networks	- Self-monitoring - Task strategies	- Networking among students within and across institutions - Connecting with other experts in the field - File sharing and transfer
Virtual worlds	- Self-monitoring - Task strategies	- Virtual modeling - Role playing/simulations - Online meetings/training - Providing instructor/peer feedback
Collect or compile features Administrative tools (e.g., calendar)	- Task strategies - Time management - Goal setting - Self-monitoring	- Collaborative and peer learning - Keeping records of activities - Recording due dates - Recording daily and long-term tasks
Online marking tools	- Self-monitoring - Self-evaluation	- Record keeping - Providing instructor/peer feedback
(LMS tools)	- Self-evaluation - Self-satisfaction	- Record keeping - Providing instructor/peer feedback - Collaborative learning
Wikis	- Self-evaluation - Peer modeling - Seeking help	- Knowledge sharing - Debating - Bulletins
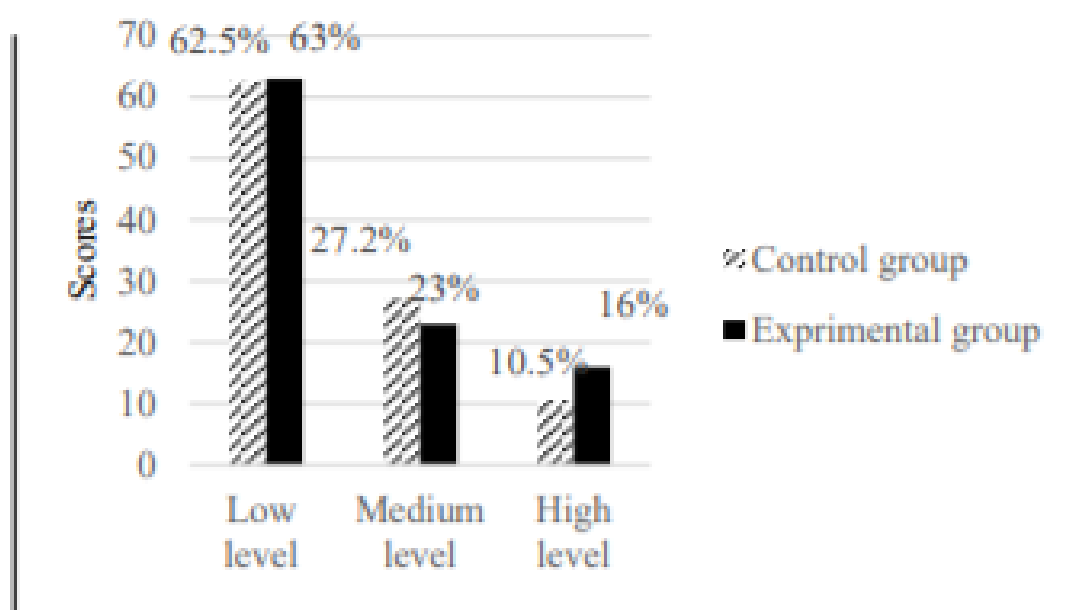
شکل ۱. میانگین نمرات درسی فراگیران قبل از آموزش اساتید در روسیه

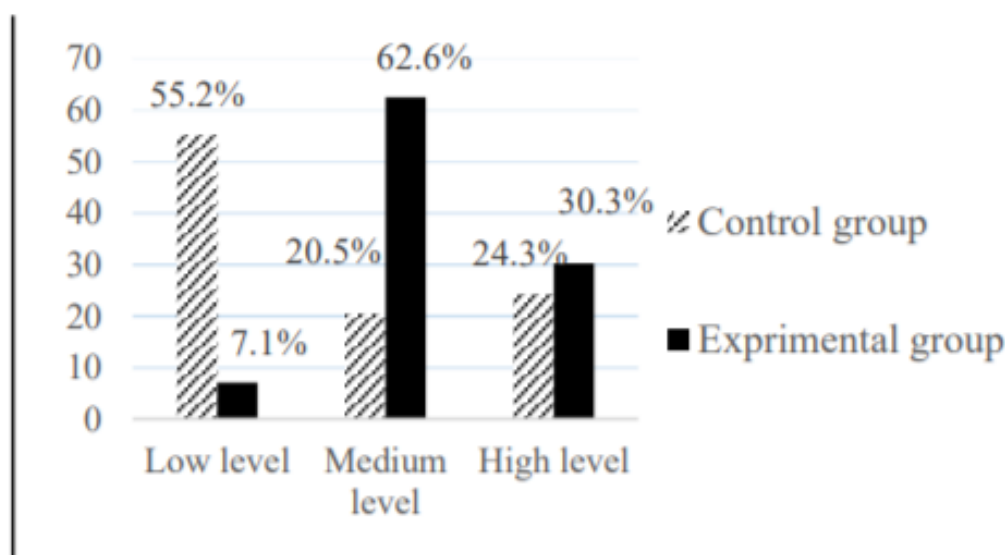**Fig. 1. Average of students' grades before teaching faculty members in Russia**
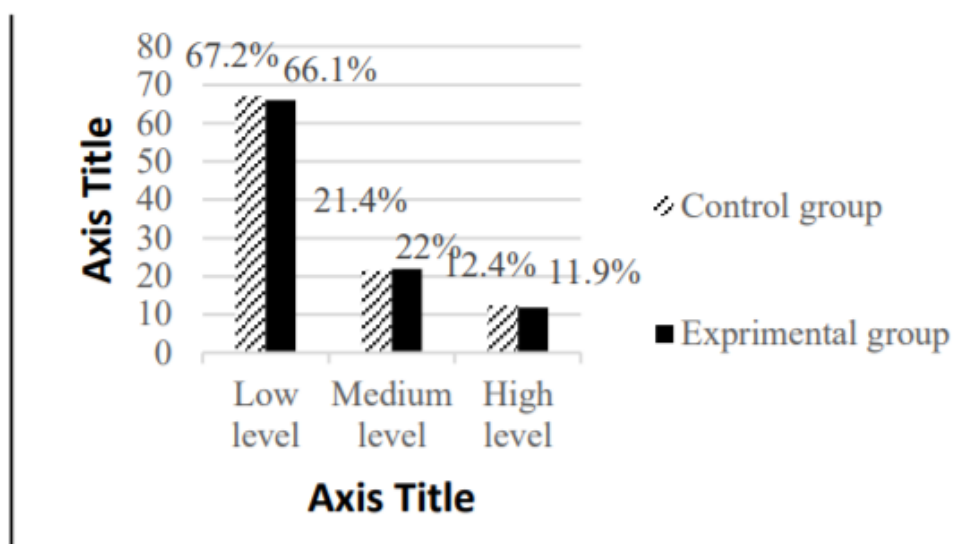
شکل ۲. میانگین نمرات درسی دانشجویان قبل از آموزش اساتید در ایران

Fig. 2. Average of students' grades before teaching faculty members in Iran

شکل۳. میانگین نمرات درسی دانشجویان بعد از بهکارگیری فناوری آموزش از راه دور توسط اساتید در روسیه

Fig. 3. Average of students' grades after teaching faculty members in Russia
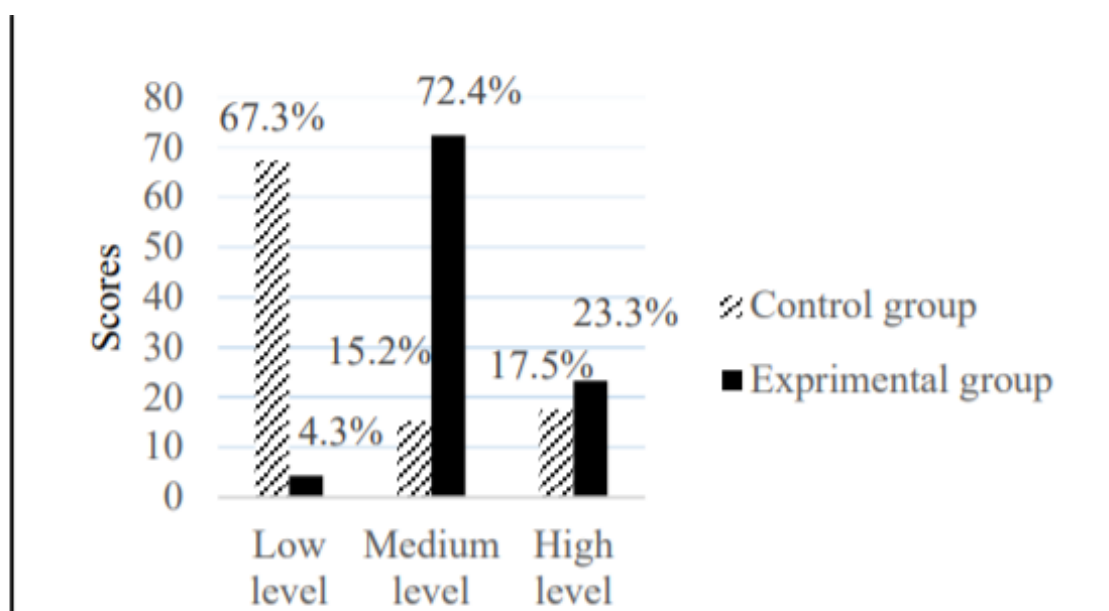
شکل ۴. میانگین نمرات درسی دانشجویان بعد از به‌کارگیری فناوری آموزش از راه دور توسط اساتید در ایران

Fig. 4. Average of students' grades after teaching faculty members in Iran

Table 4. T test to compare the level of self-development of the control and experiment groups in Russia

Variables	Std. deviation	Mean	D.F	T-test	Sig. level
Experiment group	0.966	2.627			
			112	3.386	0.001
Control group	0.779	2.027			

Table 5. T test to compare the level of self-development of the control and experiment groups in Iran

Variables	Std. deviation	mean	D.F	T-test	Sig. level
Experiment group	0.954	2.192	130	0.897	0.005
Control group	1.012	2.727			

Table 8. Mean of Iranian and Russian students' self-development after teaching how to use technology to faculty members

Level of students self-development	Country	Number	mean	Std. deviation
	Iran	130	4.004	.843
	Russia	112	3.966	.776

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