

Motivation and Attitude and their Relationship with Reading Comprehension Ability among Iranian Undergraduate Students

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Abstract:

Studies in reading strategies bring together the assumption that individual characteristics may influence reading performance; different readers may process the same text in different ways, depending on their purposes, motivation, attitudes, interests and background knowledge. The research aims to study the possible relationship between Iranian undergraduate learners' motivation and attitude towards reading comprehension. Therefore, a total number of ۲۸۵ participants from six different fields of study, social sciences, math, primary education, chemistry, biology and Persian literature took part in this study. The researchers gave the instruments over a ۲-day period; the Language Proficiency Test was given on day one, the Motivation for Reading Questionnaire (MRQ), Reading Attitudes Questionnaire (RAQ) and the Reading Comprehension Test on day two with one-week interval. Participants' responses to the reading motivation and attitude statements, reading comprehension questions, and English language proficiency questions were analyzed through a multiple regression, One-way ANOVA, T-test and correlation. The findings indicated reading motivations and attitudes contribute to better reading comprehension among the subjects. It was also demonstrated that the participants' discipline was a significant contributing factor to the relationship between reading motivation, attitude and reading comprehension ability.

Keywords: Discipline, Reading Attitude, Reading Comprehension, Reading Motivation.

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Introduction

Over several years of study, plethora of research has been carried out to investigate the key factors that affect learning English as a second or foreign language. Among those factors which would be effective in the learning process, the two important ones were learners' level of motivation and attitudes. Motivation and attitude are the two key factors that affect EFL learning (Dörnyei, ۲۰۰۵, p. ۶۵). According to Gardner (۱۹۸۵), motivation is "the extent to which an individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity" (p. ۱۰). A motivated learner is the learner who wants to achieve a goal and who is willing to invest time and effort in reaching that goal. On the other hand, attitudes defined as the set of beliefs that learners maintain towards members of the target language group as well as their own culture (Brown, ۲۰۰۷). Attitudes are shaped by the social factors which, in turn, influence learner outcome. Several researchers (Wenden, ۱۹۹۱) consider attitudes as components of motivation in language learning but the question is how they could be measured.

Reading attitudes are learnt characteristics that influence whether students engage in or avoid reading activities and they can be influenced by societal, familial, and school-based factors (Miller, ۲۰۰۳). Baker (۲۰۰۳) believed that attitudes are not subject to inheritance because they are internalized predispositions. According to Nourie, and Lenski (۱۹۹۸) "the attitude of classroom teachers toward content area literacy can be one of the most important factors in reading achievement and reading practice of secondary students" (p. ۳۷۲). Karahan (۲۰۰۷) avers that "positive language attitudes let learner to have positive orientation towards learning English" (p. ۸۴). Those students with more negative attitudes engage less often with texts and generally achieve at levels lower than their age peers (McKenna et al., ۱۹۹۵). As a matter of fact, all the other factors engaged in EFL learning achievement to some extent presuppose motivation and without adequate motivation, even people with the most outstanding abilities cannot achieve long-term goals. High motivation also can make up for significant deficiencies in both individuals language ability and learning conditions (Dörnyei, ۱۹۹۸).

One of the fundamental problems with Iranian university students which actuated the present researchers to begin the current study is that many Iranian university students do not enjoy reading English texts. That is, not knowing reading strategies is a problem among most students, but reading avoiding is an even bigger problem. Therefore, they are reluctant to read. Some researchers such as Jafari & Shokrpour (۲۰۱۲) and Shahnazari & Dabaghi (۲۰۱۴) believed two out of some causes of students' reluctance to reading are: teachers' instruction and lack of motivation to reading. The former is due to the fact that teachers' reading instruction is not challengeable enough and accordingly students do not develop sufficient cognitive and metacognitive reading abilities. As Cramer and Castle (۱۹۹۴) asserted, although reading aliteracy, defined as a lack of the reading habit, is a more serious concern than illiteracy.

To examine whether Iranian students' English reading motivation and attitude on the different dimensions vary with their disciplines and their reading comprehension is the main aim of this study. Such relationships may help in educational settings when trying to improve the students' motivation and attitude towards reading. Therefore, the present study was set out to answer the following questions:

- ۱- What is the contribution of university disciplines, reading attitudes and reading motivations to the learners' reading comprehension ability?
- ۲- Do the reading motivations of Iranian university students of basic sciences differ from those of students of humanities students?
- ۳- Do the university disciplines affect the contribution of Iranian university students' reading attitudes to their reading comprehension ability?

Review of Literature

Research indicates that there is a relationship between learners' motivation level, attitude and their usage of reading strategies, which would affect each other (Khodadady & Khajavy,

۲۰۱۳). Motivation provides the primary impetus to EFL learning and then it would make the long lasting and often boring learning process go on. Attaining long-term goals requires both abilities and an adequate amount of motivation (Dörnyei, ۲۰۰۶). However, “sometimes high motivation and positive attitude can make up for inadequate language aptitude as well as insufficient learning conditions” (Dörnyei, ۲۰۰۶, p. ۶۵). Researchers all agree on the effect of motivation and attitude on language learning (Masgoret & Gardner, ۲۰۰۳). Therefore, it is important for the teachers to be familiar with the aspects of attitude as well as motivation, the way that they can be handled and where and when they could develop those aspects (Colak, ۲۰۰۸). Positive and negative attitude would affect the success and growth of the students as EFL learners. Language teachers often say their students are unsuccessful since they are not motivated and this can be the result of having negative attitude regarding the target language and that would result in discouraging the learners (Colak, ۲۰۰۸).

Dhanapala (۲۰۰۸) and Tercanlioglu (۲۰۰۱) proved that extrinsic motivation was positively correlated with reading amount; however, it was not as strong as the correlation observed with regard to intrinsic motivation. Lin, Wong, & McBride-Chang (۲۰۱۲) found that bilingual students' L۲ reading comprehension in Hong Kong was correlated by an extrinsically oriented dimension (instrumentalism) only. However, provided that students are to develop into effective readers in L۲, they need to possess not only the skill but also the motivation to read. As stated by Guthrie and Wigfield (۲۰۰۰), “motivation is what activates behavior” (p. ۴۰۶). Consequently, even the most able or skillful learners might not engage in reading unless they are motivated.

A closer look at the body of research being done so far shows that intrinsic reading motivation seems to be positively linked to reading achievement (McGeown, Norgate & Warhurst, ۲۰۱۲; Wang & Guthrie, ۲۰۰۴); nevertheless, the link between achievement in reading comprehension and extrinsic reading motivation is not clear. Learners' reading motivation is thought to be constantly connected with engagement in an assortment of reading activities (Baker & Wigfield, ۱۹۹۹; Guthrie and Klauda, ۲۰۱۴; Wang & Guthrie, ۲۰۰۴; Wigfield & Guthrie, ۱۹۹۷). Accordingly, intrinsic motivation in comparison with extrinsic motivation is found to be more closely related to reading engagement; however, there is it is likely that some dimensions of extrinsic reading motivation is correlated with certain types of reading activities, for example, reading books. Should students be motivated extrinsically to achieve high grades, they may spend longer hours reading books. Since motivation to read is considered as the incentive for students' commitment to do reading activities, there is a need to explore if the learners are differently motivated by distinctive dimensions of reading motivation. This could have possible pedagogical implications for teaching reading. Should learners are more extrinsically motivated, teachers can focus on external factors in order to motivate them, while focusing on improving their intrinsic motivation, too (Nuttall, ۲۰۱۶).

Anderson (۲۰۱۵) studied the effect of several disciplines as biology, business, computer science, engineering, and psychology on the volume of reading expected. On average, reading volumes per class were the greatest for business majors at nearly ۸۵ pages per week, followed by Psychology majors at ۶۱ pages per week. Fewer pages were expected from biology majors at ۴۵ pages per week, engineering majors at ۴۲ pages per week, and computer science majors at ۳۸ pages per week. It was concluded that reading amount, reading ability and the learners' disciplines are interwoven.

Method

Participants

In total, ۲۸۵ Iranian under graduate students were randomly invited to this study (۱۴۴ males, ۱۴۰ females, ۱ unknown). Their average age was ۲۴, ranging from ۲۱ to ۲۹. Approximately, ۱۶% of the participants were students of Social Sciences (۴۶ participants), ۱۷% of the participants were students of Persian Literature (۴۹ participants), ۱۹% of the participants were students of Primary Education (۵۴ participants), ۱۵% of the participants

were students of Chemistry (42 participants), 10% of the participants were students of Biology (44 participants), 18% of the participants were students of Math (20 participants). The criteria for selection included commitment to spend a minimum of 2 hours to complete the needed questionnaire and tests of this study, willingness to participate in the study and their academic field of study. The participants were in their freshman and sophomore years in the university attending Payam-Noor University (PNU), Arak University, Farhangian Teacher Education University and Azad University in Arak.

Instruments

Attitude Reading Questionnaire (ARQ)

A slightly modified version of the 26-item questionnaire developed by Yamashita (2007) was used to estimate Iranian EFL learners' attitudes toward reading in English. This instrument was selected because it is firmly grounded in theory. This questionnaire was developed to assess the 6 different aspects of reading attitude as: Discomfort, Anxiety, Comfort, Practical value, Intellectual value and Linguistic value. The items included in the ARQ were coded as a 5-point Likert scale with the response options being: "completely disagree", "disagree", "completely agree", and "completely agree". Students were asked to tick the relevant box for each statement. The reliability index, assessed by Cronbach's alpha formula, was found to be .81.

Motivation for Reading Questionnaire (MRQ)

This 24-item questionnaire was developed by Wigfield and Guthrie (1997) to assess the 11 different aspects of reading motivation. Among various existing motivational scales, the Motivation for Reading Questionnaire (MRQ) is probably the most comprehensive and well-established of the reading motivational scales available. It was originally developed for use in English as the first language and later was established as applicable to English as a foreign language. The MRQ highlights multi-faceted aspects of motivation for reading by outlining three broad categories of motivational beliefs such as the competence and efficacy belief constructs, the purpose of reading and social purposes of reading.

The 24 items included in the MRQ were coded as a 5-point Likert scale with the response options being: "Very different from me", "A little different from me", "A little like me", and "A lot like me". Students were asked to tick the relevant box for each statement. The questionnaire administrators were available to answer the possible questions the participants had about wording of the items. It took the participants approximately 20 to 25 minutes to complete the MRQ. In case of necessity, bonus time was given to the participants to complete the task.

In order to eradicate any possible misunderstanding or confusion, the researchers pilot-tested the MRQ on thirty students who had similar characteristics to the participants of the main sample. They were asked to read the items carefully and identify the items with unclear meaning. The results led to some wording changes and modifications made to make the items appropriate for the target population of the study. Prior to the administration of the pilot test, the MRQ was judged by four TEFL professors. As a result, some ambiguous items underwent changes and they confirmed the content validity of the mentioned-questionnaire for the purpose of this study. Then, in the next phase of the pilot study, the questionnaire was administered for estimating its reliability. The reliability index, assessed by Cronbach's alpha formula, was found to be .84.

Reading Comprehension Test

Participants were requested to answer the questions of three parts excluded from TOEIC (Test of English for International Communication) to measure their reading skill. The entire Reading Comprehension Test lasted 30 minutes. This test included 20 multiple-choice items, assessing the participants' literal comprehension of information stated in the passage as well as higher order comprehension that required making inference and conclusions.

Prior to the administration of this instrument, it was pilot tested for the purposes of clarity, simplicity, time allotment, and estimating its reliability. The reliability index, assessed by

Cronbach's alpha formula, was found to be .81. It is worth mentioning that to predict the efficacy of this instrument and to make sure that it covers the content that was supposed to measure, four TEFL professors were requested to judge this instrument. As a result, they acknowledged this test for this purpose.

The Language Proficiency Test

To ascertain the homogeneity of the participants in terms of language proficiency, the Quick Placement Test (second version) was utilized. It is a standardized 60-item multiple-choice test which consists of grammar, vocabulary, and reading subsections. The entire Quick Placement Test lasted 40 minutes. The reliability (Cronbach's alpha) of the test was .87.

Procedures

A total number of 280 participants from different fields of study, humanities (social sciences, Persian literature and primary education) and basic sciences (chemistry, biology and math) took part in this study. Having approached the university authorities in order to get their consent for conducting the study, the researchers gave the instruments over a 2-day period; the Language Proficiency Test was given on day one, the MRQ, ARQ and the Reading Comprehension Test on day two with a one-week interval.

The whole study was completed in two phases as shown below:

Phase 1: First, through administering the Quick Placement Test (second version) to 280 university students, homogenized participant were identified. That is, those whose scores in English language proficiency test were 1 SD above and below the mean score. Making 200 participants in total as follows:

Social sciences (n= 34), math (n=40), primary education (n=39), chemistry (n=24), biology (n=29), and Persian literature (n=34).

Phase 2: Then the Reading Comprehension Test and the Motivation for Reading Questionnaire (MRQ) and Attitude Reading Questionnaire (ARQ) were administered to the students to be completed in 90 minutes as determined at the pilot study. Participants were reminded that there was no right or wrong answer for RQ and MRQ, their forthright and honest responses were important, and confidentiality was respected.

The conditions for testing were strictly followed as far as possible. The researchers firstly read instructions printed on the top of the questionnaires and tests clearly and then before the start of each one, they cleared the mentioned doubts. The way of answering the questions was made clear to the participants and in case of any difficulty, they were encouraged to ask question and were provided with help. The participants were also informed that their performance will be kept confidential and will not have any effect on their final exam scores.

Data Analyses

Students' responses to the reading motivation and attitude statements, reading comprehension questions and general English proficiency questions were analyzed through main statistical tests as a multiple regression, correlation, T-test, ANOVA, and Chi-Square.

Results

Research Question one: What is the contribution of university disciplines, reading attitudes and reading motivations to the learners' reading comprehension ability?

In order to answer this research question, a multiple regression analysis was conducted after meeting the assumptions of regression analysis. The results are as follow:

Table ۱
Model summary of the multiple regression

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Model	.۰۴۶ ^a	.۲۹۸	.۲۸۴	۳,۴۲۷۷۷

a. Predictors: (Constant), RANOM, Proficiency Level, Field, RMNOM

b. Dependent Variable: reading

As shown in Table ۱, the independent variable included in the model, namely, proficiency level, discipline, reading attitude and reading motivation, provide a rather moderate prediction of the dependent variable (reading comprehension ability) ($R = .۰۴$). In addition, ۲۹ percent of the proportion of variance in the dependent variable (reading comprehension ability) was explained by the independent variables included in the model. This table shows that when all these four variables considered together, they can predict ۲۹ percent of the variations of the reading comprehension test scores in this study.

Table ۲
One-way ANOVA for the model good fit

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	۹۹۸,۰۰۱	۴	۲۴۹,۶۲۵	۲۱,۲۴۵	.۰۰۰ ^a
Residual	۲۳۴۹,۹۱۹	۲۰۰	۱۱,۷۵۰		
Total	۳۳۴۸,۴۲۰	۲۰۴			

a. Predictors: (Constant), RANOM, Proficiency Level, Field, RMNOM

b. Dependent Variable: reading

As shown in Table ۲, the observed results ($F = ۲۱,۲۴$, $p = .۰۰$) show that the developed model is a good fit for the collected data. In other words, the independent variables included in the model statistically significantly predict the dependent variable (reading comprehension ability). However; further analysis was needed to understand what the contribution of each variable was.

Table ۳
Independent variables coefficients

	Unstandardized Coefficients		Standardized Coefficients		Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta	t		Zero-order	Partial	Part	Tolerance	VIF
(Constant)	۶,۶۶۶	۲,۴۷۸		۲,۶۹۰	.۰۰۸					
ProficiencyLevel	۱,۰۱۲	.۳۶۰	.۲۰۱	۲,۸۰۶	.۰۰۶	.۳۸۵	.۱۹۵	.۱۶۶	.۶۸۱	۱,۴۶۸
Field	-.۴۸۸	.۹۵۶	-.۰۶۰	-.۵۱۰	.۶۱۰	-.۴۶۳	-.۰۳۶	-.۰۳۰	.۲۵۳	۳,۹۵۰
RMNOM	۱,۶۶۵	.۸۹۰	.۳۷۸	۱,۸۷۰	.۰۶۳	.۵۰۶	.۱۳۱	.۱۱۱	.۰۸۶	۱۱,۶۴۸
RANOM	.۰۱۵	۱,۰۳۹	.۰۰۳	.۰۱۴	.۹۸۹	.۴۹۸	.۰۰۱	.۰۰۱	.۰۶۴	۱۵,۶۳۷

a. Dependent Variable: reading

Considering the coefficients reported in Table ۳, the only independent variable that could significantly predict the dependent variable of the study (reading comprehension) was the participants' proficiency level ($t = ۲,۸۰$, $p = .۰۰$). However, the other independent variables, discipline ($t = .۰۱$, $p = .۶۱$), reading attitude ($t = .۰۱$, $p = .۹۸$), and reading motivation ($t = ۱,۸۷$, $p = .۰۶$), were sterile in terms of predicting the reading comprehension ability of the participants. This fact implied that only proficiency level had a significant contribution to the prediction of the participants reading comprehension ability. There is a need to emphasize that although there were significant differences between low and high degrees of reading motivation and reading attitude in terms of the reading comprehension performance, and there was a significant difference between the learners from different disciplines in terms of

their reading comprehension ability, these differences were not big enough to make a contribution to reading comprehension ability of the learners in terms of determining or predicting its variation and fluctuation as shown here in the table above.

Following the aforementioned interpretation of the results, the researchers conducted further analysis controlling the proficiency variable as the only significant moderate determiner of the reading comprehension ability of the participants to see how attitude and motivation of the participants contribute to their reading comprehension ability separately. To this end highly proficient participants (n= 63) were selected as the homogeneous sample to be studied. The results of descriptive analyses are shown below.

Table 4
Descriptive for reading scores, attitude and motivation of highly proficient participants

	N	Minimu m	Maximu m	Mean	Std. Deviation
reading	63	14,00	19,00	13,2807	3,62970
motivation	63	84,00	197,00	101,062	33,02139
attitude	63	10,00	96,00	72,7937	20,22068

The mean score of the selected sample showed that although their scores were high on proficiency test, their performance on reading comprehension test was varying and not very high (M= 13,28) and the standard deviation was rather high (SD= 3,62). However, considering the mean scores for motivation (M= 101,06) and attitude (M=72,79), it was concluded that the levels were moderate and the sample was rather heterogeneous in terms of motivation (SD= 33,02) and attitude (SD= 20,22).

Table 5
Normality of the motivation, attitude and reading comprehension

	Shapiro-Wilk		
	Statistic	df	Sig.
reading	.944	63	.006
motivation	.869	63	.000
attitude	.802	63	.000

With regard to the results in Table 5, it was concluded that the normality of motivation (p= .00), attitude (p= .00), and reading comprehension ability (p= .00) of the learners were not normal since the observed p levels were below .05. Accordingly Spearman correlation test was used for further analysis of the data.

Table 6
Spearman correlation between motivation, attitude and reading comprehension (pairwise)

	reading	attitude	motivation
reading	1,000	.70**	.70**
attitude		1,000	.906**
motivation			1,000

According to the results in Table 6, there is a significant direct correlation between reading comprehension and attitude (r= .70, p= .00) and reading comprehension and motivation (r= .70, p= .00). Interestingly, both motivation and attitude are comparably strong enough to predict the changes in reading comprehension ability of the proficient learners. However, they are not very strong enough since they are very little higher than .70.

Table V
Correlation between reading comprehension and extrinsic and intrinsic motivation (pairwise)

	reading	MotivationIntrinsic	MotivationExtrinsic
reading	1,000	.629**	.648**
MotivationIntrinsic	.629**	1,000	.886**
MotivationExtrinsic	.648**	.886**	1,000

According to the results in Table V, there is a significant direct correlation between reading comprehension and intrinsic motivation ($r = .62, p = .00$) and reading comprehension and extrinsic motivation ($r = .64, p = .00$). Interestingly, extrinsic motivation is slightly stronger predictor of reading comprehension but none of them are strong enough to predict the changes in reading comprehension ability of the proficient learners since they are very little higher than .60.

Table A
Correlation between reading comprehension and motivation components (pairwise)

reading	Efficacy	Challenge	Curiosity	Involvement	Importance	Avoidance	Competition	Recognition	Grades	Social	Compliance	
reading	1,000	.607**	.632**	.627**	.552**	.436**	.505**	.632**	.554**	.689**	.627**	
Efficacy		1,000	.710**	.779**	.585**	.601**	.565**	.698**	.610**	.742**	.780**	
Challenge			1,000	.842**	.812**	.692**	.795**	.762**	.850**	.807**	.798**	
Curiosity				1,000	.733**	.738**	.753**	.770**	.780**	.830**	.842**	
Involvement					1,000	.667**	.897**	.826**	.943**	.709**	.782**	
Importance						1,000	.638**	.752**	.672**	.678**	.768**	
Avoidance							1,000	.673**	.888**	.664**	.716**	
Competition								1,000	.810**	.783**	.841**	
Recognition									1,000	.727**	.739**	
Grades										1,000	.843**	
Social											1,000	
Compliance												1,000

According to Table A, there were significant correlations between reading comprehension and each of the components of reading motivation, namely, efficacy ($r = .60, p = .00$), challenge ($r = .63, p = .00$), curiosity ($r = .62, p = .00$), involvement ($r = .55, p = .00$), importance ($r = .43, p = .00$), avoidance ($r = .50, p = .00$), competition ($r = .63, p = .00$), recognition ($r = .55, p = .00$), grades ($r = .68, p = .00$), social ($r = .62, p = .00$) and compliance ($r = .58, p = .00$). Accordingly, it was argued that each component of the reading motivation of the participants as measured in this study are either moderate or weak predictors of reading comprehension per se. In addition, it was concluded that the components can be ranked as follows in terms of their strengths of predicting the participants' reading proficiency.

Table 9
Ranking motivation components contribution to reading comprehension ability

Ranking	Motivation Components	r	Description
1	Grades	.789**	Extrinsic
2	Efficacy	.707**	
3	Challenge	.732**	Intrinsic
3	Competition	.732**	Extrinsic
4	Social	.727**	Extrinsic
4	Curiosity	.727**	Intrinsic
5	Compliance	.584**	Extrinsic
6	Recognition	.504**	Extrinsic
7	Involvement	.502**	Intrinsic
8	Avoidance	.505**	
9	Importance	.436**	

According to Table 9, grades which are both extrinsic in nature and efficacy have the highest contributions to reading ability which is moderate whereas avoidance and importance have the weakest contributions to the participants' reading ability. All in all, considering the positive values of r (correlation coefficients), it was argued that the components of reading motivation have positive and direct contribution to reading ability and with regard to the sizes of the observed r, it was concluded that reading motivation components per se were not strong contributors to reading ability.

Table 10
Correlation between reading comprehension and attitude components (pairwise)

	reading	attitude	Discomfort	Anxiety	Comfort	Practical	Intellectual	Linguistic
reading	1,000	.700**	.771**	.777**	.739**	.477**	.568**	.501**
attitude		1,000	.774**	.892**	.871**	.872**	.833**	.913**
Discomfort			1,000	.792**	.700**	.745**	.515**	.701**
Anxiety				1,000	.793**	.765**	.777**	.800**
Comfort					1,000	.777**	.777**	.782**
Practical						1,000	.774**	.893**
Intellectual							1,000	.800**
Linguistic								1,000

According to Table 10, there were significant correlations between reading ability and each of the components of reading attitude, namely, discomfort ($r = .77$, $p = .00$), anxiety ($r = .77$, $p = .00$), comfort ($r = .73$, $p = .00$), practical ($r = .47$, $p = .00$), intellectual ($r = .56$, $p = .00$), linguistic ($r = .50$, $p = .00$), and attitude ($r = .70$, $p = .00$) as well. Accordingly, it was argued that each component of the reading attitude of the participants as measured in this study are either moderate or weak predictors of reading ability of highly proficient participants per se. In addition, it was concluded that the attitude components can be ranked as follows in terms of their strengths of predicting the participants' reading ability.

Table ۱۱

Ranking of attitude components in terms of contributing to the participants reading ability

Ranking	Motivation Components	r
۱	Anxiety	۶۶۷**
۲	Discomfort	۶۶۱**
۳	Comfort	۶۳۹**
۴	Intellectual	۵۶۸**
۵	Linguistic	۵۰۱**
۶	Practical	۴۶۶**

According to Table ۱۱, anxiety and discomfort have the highest contributions to reading ability which is moderate whereas practical has the weakest contributions to the participants' reading ability. All in all, considering the positive values of r (correlation coefficients), it was argued that the components of reading attitude have positive and direct contribution to reading ability and with regard to the sizes of the observed r, it was concluded that reading motivation per se was not a strong contributor to reading ability since they are little higher than .۶۰.

Research questions two: Do the reading motivations of Iranian university students of basic sciences differ from those of students of humanities students?

To answer this research question, the data collected via the reading motivation questionnaire from the students of chemistry, biology and physical training were grouped together under a label of basic sciences. In the same way, the data collected from the students of social sciences, primary education and literature were grouped together under a label of humanities. The following table shows the descriptive statistics for each group.

Table ۱۲

Descriptive statistics for reading motivation of the students of different disciplines

	discipline	N	Mean	Std. Deviation	Std. Error Mean
Reading Motivation	Social sciences	۳۴	۱۷۹,۷۶	۶,۳۰	۱,۰۸
	Literature	۳۹	۱۶۱,۹۵	۱۶,۰۴	۲,۵۶
	Primary education	۳۹	۱۳۱,۲۶	۲۸,۹۰	۴,۶۲
	Chemistry	۲۴	۹۷,۱۶	۵,۹۹	۱,۲۲
	Biology	۲۹	۸۹,۳۱	۵,۱۹	.۹۶
	Physical training	۴۰	۹۳,۲۷	۷,۲۸	۱,۱۵

As demonstrated in Table ۱۲, the students of social sciences enjoyed the highest mean ($M= 179,76$) while the students of biology were found to have the minimum reading motivation ($M= 89,31$). According to the statistics in Table ۲۰, it is evident that the students of literature ($M= 161,95$) and primary education ($M= 131,26$) also had stronger reading motivation than students of basic sciences, biology ($M= 89,31$), physical training ($93,27$) and chemistry ($97,16$). In terms of dispersion, while the standard deviation indices of social sciences, biology, chemistry and physical training were rather moderate, those of literature and primary education were high.

Table ۱۳

Descriptive statistics for reading motivation of the students of humanities and basic sciences

	Field	N	Mean	Std. Deviation	Std. Error Mean
Reading Motivation	Humanities	۱۱۲	۱۵۶,۶۷	۲۸,۰۳	۲,۶۴
	Basic sciences	۹۳	۹۳,۰۴	۶,۹۶	.۷۲

According to Table ۱۳, the observed mean for the students of humanities ($M= 156,67$, $SD= 28,03$) is considerably higher than the students of basic sciences ($M= 93,04$, $SD= 6,96$); in addition, the same is true regarding the observed dispersions of the data. This implies a higher but more heterogeneous state of reading motivation among the students of

humanities. In order to test the significance of the difference between the observed mean scores, there was a need to check the normality assumption. The results are shown below.

Table ١٤
Normality of reading motivation data for the students of different disciplines

	Discipline	Shapiro-Wilk		
		Statistic	df	Sig.
Reading Motivation	Social sciences	.٩٧٥	٣٤	.٦٠٥
	Literature	.٩٠٢	٣٩	.٠٠٣
	Primary education	.٧٨٠	٣٩	.٠٠٠
	Chemistry	.٩٥٠	٢٤	.٢٦٥
	Biology	.٩٦٠	٢٩	.٣٢٥
	Physical training	.٩٧٠	٤٠	.٣٤٧

According to the statistics in Table ١٤, the distribution of the data for the students of social sciences ($p = .٦٠$), biology ($p = .٣٢$), chemistry ($p = .٢٦$) and physical training ($p = .٣٤$) were normal considering the fact that the observed p levels were both higher than $.٠٥$. However, the one for the students of literature ($p = .٠٠$) and primary education ($p = .٠٠$) were not normal. Thus, the researcher used parametric test, one-way ANOVA, to compare the groups in terms of their reading motivation levels.

Table ١٥
Normality of reading motivation data for the students of humanities and basic sciences

	Field	Shapiro-Wilk		
		Statistic	df	Sig.
Reading Motivation	Humanities	.٨٤٦	١١٢	.٠٠٠
	Basic sciences	.٩٧٦	٩٣	.٠٩١

According to the statistics in Table ١٥, the distribution of the data for the students of humanities ($p = .٠٠$) was not normal considering the fact that the observed p levels were both below $.٠٥$. However, the one for the students of basic sciences ($p = .٠٩$) was normal. Thus, the researcher used independent samples t-test to compare the two groups reading motivation levels.

Table ١٦
One-way ANOVA for comparing the reading motivation of the students of humanities and different disciplines

RM	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	٢٥٠٩١٩,٢٢٩	٥	٥٠١٨٣,٨٤٦	٢١٤,٧٤٢	.٠٠٠
Within Groups	٤٦٥٠٤,٩٦٦	١٩٩	٢٣٣,٦٩٣		
Total	٢٩٧٤٢٤,١٩٥	٢٠٤			

The results in Table ١٦ demonstrated that the difference between the six groups as it was observed in Table ٢٠ was significant ($F = ٢١٤,٠٠$, $p = .٠٠$). In addition, in order to have a detailed comparison of the groups, they were compared pairwise using a scheffe test. The results are shown below.

Table ۱۷
Pairwise comparison of the disciplines in terms of their reading motivation

(I) discipline	(J) discipline	Mean Difference (I-J)	Std. Error	Sig.
social sciences	literature	۱۷,۸۱۰۹۹*	۳,۰۸۶۸۵	.۰۰۰
	primary education	۴۸,۰۰۸۳۰*	۳,۰۸۶۸۵	.۰۰۰
	chemistry	۸۲,۰۹۸۰۴*	۴,۰۷۰۶۰	.۰۰۰
	biology	۹۰,۴۰۴۳۶*	۳,۸۶۴۱۶	.۰۰۰
	physical training	۸۶,۴۸۹۷۱*	۳,۰۶۰۹۰	.۰۰۰
literature	social sciences	-۱۷,۸۱۰۹۹*	۳,۰۸۶۸۵	.۰۰۰
	primary education	۳۰,۶۹۲۳۱*	۳,۴۶۱۸۳	.۰۰۰
	chemistry	۶۴,۷۸۲۰۵*	۳,۹۶۶۰۳	.۰۰۰
	biology	۷۲,۶۳۸۳۷*	۳,۷۴۸۴۰	.۰۰۰
	physical training	۶۸,۶۷۳۷۲*	۳,۴۴۰۱۳	.۰۰۰
primary education	social sciences	-۴۸,۰۰۸۳۰*	۳,۰۸۶۸۵	.۰۰۰
	literature	-۳۰,۶۹۲۳۱*	۳,۴۶۱۸۳	.۰۰۰
	chemistry	۳۴,۰۸۹۷۴*	۳,۹۶۶۰۳	.۰۰۰
	biology	۴۱,۹۴۶۰۷*	۳,۷۴۸۴۰	.۰۰۰
	physical training	۳۷,۹۸۱۴۱*	۳,۴۴۰۱۳	.۰۰۰
chemistry	social sciences	-۸۲,۰۹۸۰۴*	۴,۰۷۰۶۰	.۰۰۰
	litreture	-۶۴,۷۸۲۰۵*	۳,۹۶۶۰۳	.۰۰۰
	primary education	-۳۴,۰۸۹۷۴*	۳,۹۶۶۰۳	.۰۰۰
	biology	۷,۸۰۶۳۲	۴,۲۱۸۴۸	.۶۲۹
	physical training	۳,۸۹۱۶۷	۳,۹۶۷۰۹	.۹۶۴
biology	social sciences	-۹۰,۴۰۴۳۶*	۳,۸۶۴۱۶	.۰۰۰
	litreture	-۷۲,۶۳۸۳۷*	۳,۷۴۸۴۰	.۰۰۰
	primary education	-۴۱,۹۴۶۰۷*	۳,۷۴۸۴۰	.۰۰۰
	chemistry	-۷,۸۰۶۳۲	۴,۲۱۸۴۸	.۶۲۹
	physical training	-۳,۹۶۴۱۶	۳,۷۲۸۳۷	.۹۰۱
physical training	social sciences	-۸۶,۴۸۹۷۱*	۳,۰۶۰۹۰	.۰۰۰
	litreture	-۶۸,۶۷۳۷۲*	۳,۴۴۰۱۳	.۰۰۰
	primary education	-۳۷,۹۸۱۴۱*	۳,۴۴۰۱۳	.۰۰۰
	chemistry	-۳,۸۹۱۶۷	۳,۹۶۷۰۹	.۹۶۴
	biology	۳,۹۶۴۱۶	۳,۷۲۸۳۷	.۹۰۱

*. The mean difference is significant at the .۰۰۰ level.

As shown in Table ۱۷, the observed differences between all pairs of disciplines, except chemistry and biology ($p = .۶۲$), chemistry and physical training ($p = .۹۶$), and biology and physical training ($p = .۹۰$), were significant considering the fact the observed p levels were below .۰۰.

Table ۱۸

Independent samples t-test for comparing the reading motivation of the students of humanities and basic sciences

	t	df	Sig. (۲-tailed)	Mean Difference	Std. Error Difference
Reading Motivation	۲۳,۱۷۰	۱۲۷,۲۸۰	.۰۰۰	۶۳,۶۲۶۶۳	۲,۷۴۶۱۳

As shown in Table ۱۸, the results ($t = ۲۳,۱۷$, $p = .۰۰$) indicated that there was a significant difference between the students of humanities and basic sciences in terms of their reading motivation, Accordingly, the null hypothesis which stated that "the reading motivations of Iranian university students of basic sciences does not differ from those of students of

humanities students" was significantly rejected. Thus, it can be concluded that students humanities ($M=106,17$) had a significantly higher level of reading motivation than those of basic sciences ($M=93,04$).

Research question three: Do the university disciplines affect the contribution of Iranian university students' reading attitudes to their reading comprehension ability?

In order to have a clear description of the students reading comprehension ability, the scores obtained from the reading comprehension test were tabulated according to the students' disciplines (Table 28 and Table 29). In addition, as shown in Table 30 and Table 31, the distributions of the scores were checked for normality and the results confirmed the use of parametric tests for hypothesis testing. As shown in Table 32, there was a significant difference between the disciplines in terms of their reading comprehension abilities. Further pairwise comparisons were made in Table 33 and the results were discussed. The descriptive of the participants' reading comprehension according to their attitudes are shown below.

Table 29
Descriptive of reading comprehension test according to the participants' attitude

	Attitude	N	Mean	Std. Deviation	Std. Error Mean
reading	Low	103	9,0388	3,08899	.30363
	Mid	30	11,2333	3,10882	.57672
	High	72	13,4083	3,08768	.42281

According to Table 29, considering the mean scores for low-attitude ($M=9,03$), mid-attitude ($M=11,23$) and high- attitude ($M=13,40$) groups, it was concluded that the higher the attitude level of the learners, the higher their reading comprehension ability. In addition with regard to the observed standard deviation it was concluded that the heterogeneity of the three groups were similar considering the fact that the indices ranged from 3,10 to 3,08.

Table 30
Normality of the reading comprehension scores according to the participants' attitudes

	Attitude	Shapiro-Wilk		
		Statistic	df	Sig.
Reading	Low	.970	103	.118
	Mid	.903	30	.110
	High	.964	72	.339

As shown in Table 30, the distribution of the reading scores for all three groups of attitude levels was not normal due to the fact the observed p levels were below .05. Accordingly, a non-parametric test, Kruskal Wallis test, was used to compare the groups.

Table 31
Kruskal Wallis Test for comparing reading comprehension scores of the participants with different levels of attitudes

	X^2	df	Sig.
Chi-Square	49,103	2	.000

The results shown in Table 31 implies that there was a significant difference between the reading comprehension scores of three groups ($X^2=49,10$, $p=.00$). In order to further analyze the groups, pairwise comparison was made using Scheffe test.

Table ۲۲

Scheffe test for pairwise comparison of the reading comprehension of scores according to their level of attitudes

(I) RANOM	(J) RANOM	Mean Difference (I-J)	Std. Error	Sig.
Low	Mid	-۲,۱۹۴۵۰*	.۷۳۲۳۵	.۰۱۲
	High	-۴,۴۱۹۵۰*	.۵۴۲۲۶	.۰۰۰
Mid	Low	۲,۱۹۴۵۰*	.۷۳۲۳۵	.۰۱۲
	High	-۲,۲۲۵۰۰*	.۷۶۷۰۹	.۰۱۶
High	Low	۴,۴۱۹۵۰*	.۵۴۲۲۶	.۰۰۰
	Mid	۲,۲۲۵۰۰*	.۷۶۷۰۹	.۰۱۶

With regard to the results demonstrated in Table ۲۲, it was concluded that there was a significant difference between participants with low-attitude and those with mid-attitude ($p = .۰۱$), the participants with low-attitude and those with high attitude ($p = .۰۰$) and the participants with mid-attitude and those with high-attitude ($p = .۰۱$). Considering the statistics reported in Table ۵۳ and those in Table ۵۴, it was concluded that reading attitude was a determinant factor in reading comprehension performance and the higher the learners' attitudes, the higher their reading comprehension scores. To consider the mixed effects of discipline and attitude, two-way ANOVA was conducted.

Table ۲۳

Two-way ANOVA for estimating the mixed effect of discipline and reading attitude on reading comprehension

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	۱۴۸۳,۰۳۳ ^a	۱۰	۱۴۸,۳۰۳	۱۵,۴۲۴	.۰۰۰
Intercept	۴۷۸۰,۴۲۱	۱	۴۷۸۰,۴۲۱	۴۹۷,۱۶۳	.۰۰۰
discipline	۶۰۲,۸۱۸	۵	۱۲۰,۵۶۴	۱۲,۵۳۹	.۰۰۰
RANOM	۴۰,۲۵۱	۲	۲۰,۱۲۵	۲,۰۹۳	.۱۲۶
discipline * RANOM	۴۳,۶۹۳	۳	۱۴,۵۶۴	۱,۵۱۵	.۲۱۲
Error	۱۸۶۵,۳۸۶	۱۹۴	۹,۶۱۵		
Total	۲۷۷۵۹,۰۰۰	۲۰۵			
Corrected Total	۳۳۴۸,۴۲۰	۲۰۴			

With regard to the results in Table ۲۳, it was concluded that the discipline had a significant effect on reading comprehension scores ($F = ۱۲,۵۳$, $p = .۰۰$) but reading attitude was not a significant factor ($F = ۲,۰۹$, $p = .۱۲$). In addition, the mixed effect of discipline and reading attitude was also negligible ($F = ۱,۵۱$, $p = .۲۱$). Accordingly, it was argued that while reading attitude was not a significant determinant of reading comprehension scores, the discipline of the students was a significant determinant variable affecting their reading comprehension ability.

Table ٢٤
Descriptive of reading comprehension according to reading attitude and discipline

discipline	Attitude	Mean	Std. Deviation	N
social sciences	High	١٥,٨٥٢٩	٢,٠٧٦٣١	٣٤
litreture	Mid	١٣,٠٨٣٣	١,٨٨٠٩٢	١٢
	High	١٢,١١١١	٣,٢٨٥٥٦	٢٧
primary education	Low	٩,٧٥٠٠	٣,٧٤٤٦٩	١٢
	Mid	١٠,٦٢٥٠	٢,٨٧٢٢٨	١٦
	High	٩,٣٦٣٦	٢,٥٠٠٩١	١١
chemistry	Low	٧,٨٣٣٣	٣,٧٣٧٧٨	٢٤
biology	Low	١٠,٣٥٧١	٣,٣٢٤٥٩	٢٨
	Mid	٦,٠٠٠٠	.	١
physical training	Low	٨,٦١٥٤	٣,٤١٥٢٦	٣٩
	Mid	٤,٠٠٠٠	.	١

The reason behind the lack of consistency between the results is that the distribution of reading scores among the disciplines with regard to the participants' attitude levels were very heterogeneous so that, for example, the students in social sciences all had high-attitude whereas the students of chemistry all had low-attitude only. In the same way the students of literature had either mid or high attitude while the students of biology and physical training had either low or mid-attitude. This heterogeneity statistically affects the effectiveness of reading attitude as a determinant variable.

In order to trace the contribution of the reading attitude components, the same procedure was repeated for each component, as follows:

Table ٢٥
Descriptives of reading comprehension test according to the participants' attitude component

		N	Mean (Reading)	Std. Deviation	Std. Error
Discomfort	Low	٥٧	٨,٦٨٤٢	٣,٥٤١٣٨	.٤٦٩٠٧
	Mid	٨٤	١٠,١٣١٠	٣,٦٣٣١١	.٣٩٦٤١
	High	٦٤	١٣,٩٢١٩	٣,١٧٨٨٢	.٣٩٧٣٥
Anxiety	Low	٩٩	٩,١٨١٨	٣,٥٧٢٤٧	.٣٥٩٠٥
	Mid	٦٦	١١,٠٤٥٥	٣,٥٦٦٦٥	.٤٣٩٠٢
	High	٤٠	١٤,٩٧٥٠	٢,٨٣٢٨٤	.٤٤٧٩١
Comfort	Low	١٠١	٩,٠١٩٨	٣,٤٠٢٨٨	.٣٣٨٦٠
	Mid	٤٥	١١,٢٦٦٧	٣,٧٨٦٣٤	.٥٦٤٤٣
	High	٥٩	١٣,٨٨١٤	٣,٤٠٤٢٨	.٤٤٣٢٠
Practical	Low	٨٩	٩,٠٤٤٩	٣,٦٣٦٦٥	.٣٨٥٤٨
	Mid	٥٩	١١,٦٦١٠	٣,٩٥٩٣٢	.٥١٥٤٦
	High	٥٧	١٣,٠٥٢٦	٣,٤٦١١٢	.٤٥٨٤٤
Intellectual	Low	٩٨	٩,٥١٠٢	٣,٥٣٢٦٠	.٣٥٦٨٥
	Mid	٦٢	١١,٥٠٠٠	٤,٣٠٦٨٨	.٥٤٦٩٧
	High	٤٥	١٣,١٥٥٦	٣,٥٨٦٣١	.٥٣٤٦٢
Linguistic	Low	١١١	٩,١٦٢٢	٣,٥٦٦٣٦	.٣٣٨٥٠
	Mid	٤٠	١٢,٨٠٠٠	٣,٦٣١٧٧	.٥٧٤٢٣
	High	٥٤	١٣,١١١١	٣,٦١١٦٥	.٤٩١٤٨

According to Table ٢٥, considering the mean scores for low-discomfort (M= ٨,٦٨), mid-discomfort (M= ١٠,١٣) and high- discomfort (M= ١٣,٩٢), low-anxiety (M= ٩,١٨), mid-discomfort (M= ١١,٠٤) and high- discomfort (M= ١٤,٩٧), low-comfort (M= ٩,٠١), mid-comfort (M= ١١,٢٦) and high-comfort (M= ١٣,٨٨), low-practical (M= ٩,٠٤), mid-practical

($M= 11,66$) and high- practical ($M= 13,05$), low-intellectual ($M= 9,51$), mid-intellectual ($M= 11,50$) and high- intellectual ($M= 13,15$), low-linguistic ($M= 9,16$), mid-linguistic ($M= 12,80$) and high-linguistic ($M= 13,11$) it was concluded that the higher the attitude level of the learners, the higher their reading comprehension ability. In addition with regard to the observed standard deviation it was concluded that the heterogeneity of the three groups were similar considering the fact that the indices ranged from $3,17$ to $4,30$.

Table 26

Normality of the reading comprehension scores according to the participants' attitude componenets

		Shapiro-Wilk		
		Statistic	df	Sig.
Discomfort	Low	.956	57	.035
	Mid	.985	84	.448
	High	.965	64	.070
Anxiety	Low	.967	99	.014
	Mid	.974	66	.175
	High	.945	40	.051
Comfort	Low	.970	101	.020
	Mid	.941	45	.023
	High	.965	59	.090
Practical	Low	.963	89	.013
	Mid	.974	59	.228
	High	.968	57	.142
Intellectual	Low	.976	98	.068
	Mid	.943	62	.006
	High	.965	45	.184
Linguistic	Low	.970	111	.014
	Mid	.951	40	.085
	High	.975	54	.319

As shown in Table 26, the distribution of the reading scores for all three groups of attitude component levels, except for low-discomfort ($p= .03$), low-anxiety ($p= .01$), low- ($p= .02$) and mid-comfort ($p= .02$), low-practical ($p= .01$), mid-intellectual ($p= .01$) and mid linguistic ($p= .01$), were not normal due to the fact the observed p levels were below $.05$. Accordingly, a parametric test, one-way ANOVA, was used to compare the groups.

Table 27

One-way ANOVA for comparing reading comprehension scores of the participants with different levels of attitude components

	F	df	Sig.
Discomfort	37,91	2	.000
Anxiety	40,46	2	.000
Comfort	36,42	2	.000
Practical	22,20	2	.000
Intellectual	10,30	2	.000
Linguistic	28,82	2	.000

The results shown in Table 27 implies that there was a significant difference between the reading comprehension scores of three groups in terms of discomfort ($F= 37,91$, $p= .00$), anxiety ($F= 40,46$, $p= .00$), comfort ($F= 36,42$, $p= .00$), practical ($F= 22,20$, $p= .00$), intellectual ($F= 10,30$, $p= .00$), linguistic ($F= 28,82$, $p= .00$). In order to further analyze the groups, pairwise comparison was made using Scheffe test.

Table ٢٨
Scheffe test for pairwise comparison of the reading comprehension of scores according to their level of attitude components

			Mean Difference (I-J)	Std. Error	Sig.
Discomfort	Low	Mid	-.١,٤٤٦٧٤	.٠٩٠٧٤	.٠٠٠
		High	-.٠,٢٣٧٦٦*	.٦٣٢٢٦	.٠٠٠
	Mid	Low	١,٤٤٦٧٤	.٠٩٠٧٤	.٠٠٠
		High	-.٣,٧٩٠٩٢*	.٠٧٦٠١	.٠٠٠
	High	Low	٠,٢٣٧٦٦*	.٦٣٢٢٦	.٠٠٠
		Mid	٣,٧٩٠٩٢*	.٠٧٦٠١	.٠٠٠
Anxiety	Low	Mid	-.١,٨٦٣٦٤*	.٠٤٦٦٧	.٠٠٤
		High	-.٠,٧٩٣١٨*	.٦٤٤٠٢	.٠٠٠
	Mid	Low	١,٨٦٣٦٤*	.٠٤٦٦٧	.٠٠٤
		High	-.٣,٩٢٩٠٠*	.٦٨٩٣٣	.٠٠٠
	High	Low	٠,٧٩٣١٨*	.٦٤٤٠٢	.٠٠٠
		Mid	٣,٩٢٩٠٠*	.٦٨٩٣٣	.٠٠٠
Comfort	Low	Mid	-.٢,٢٤٦٨٦*	.٦٢٠٠٨	.٠٠٢
		High	-.٤,٨٦١٠٠*	.٠٥٧١٩٤	.٠٠٠
	Mid	Low	٢,٢٤٦٨٦*	.٦٢٠٠٨	.٠٠٢
		High	-.٢,٦١٤٦٩*	.٦٩٠٨١	.٠٠١
	High	Low	٤,٨٦١٠٠*	.٠٥٧١٩٤	.٠٠٠
		Mid	٢,٦١٤٦٩*	.٦٩٠٨١	.٠٠١
Practical	Low	Mid	-.٢,٦١٦٠٧*	.٦١٨٧٠	.٠٠٠
		High	-.٤,٠٠٧٦٩*	.٦٢٠٢٠	.٠٠٠
	Mid	Low	٢,٦١٦٠٧*	.٦١٨٧٠	.٠٠٠
		High	-.١,٣٩١٦١	.٦٨٤٥٠	.١٢٩
	High	Low	٤,٠٠٧٦٩*	.٦٢٠٢٠	.٠٠٠
		Mid	١,٣٩١٦١	.٦٨٤٥٠	.١٢٩
Intellectual	Low	Mid	-.١,٩٨٩٨٠*	.٦١٠٦٩	.٠٠٦
		High	-.٣,٦٤٥٣٠*	.٦٨٣٢٢	.٠٠٠
	Mid	Low	١,٩٨٩٨٠*	.٦١٠٦٩	.٠٠٦
		High	-.١,٦٥٠٠٦	.٧٤٣٠٣	.٠٨٦
	High	Low	٣,٦٤٥٣٠*	.٦٨٣٢٢	.٠٠٠
		Mid	١,٦٥٠٠٦	.٧٤٣٠٣	.٠٨٦
Linguistic	Low	Mid	-.٣,٦٣٧٨٤*	.٦٦٢٢٣	.٠٠٠
		High	-.٣,٩٤٨٩٠*	.٠٩٠٧٩	.٠٠٠
	Mid	Low	٣,٦٣٧٨٤*	.٦٦٢٢٣	.٠٠٠
		High	-.٣١١١١	.٧٤٩١٢	.٩١٧
	High	Low	٣,٩٤٨٩٠*	.٠٩٠٧٩	.٠٠٠
		Mid	.٣١١١١	.٧٤٩١٢	.٩١٧

With regard to the results demonstrated in Table ٢٨, it was concluded that there was a significant difference between the participants in all pairs ($p = .٠٠$) except low-discomfort and those with mid-discomfort ($p = .٠٠$), mid-practical and high-practical ($p = .١٢$), mid-intellectual and high-intellectual ($p = .٠٨$) and mid-linguistic and high-linguistic ($p = .٩١$). Considering the statistics reported in Table ٥٩ and those in Table ٥٧, it was concluded that reading attitude components were determinant factors in reading comprehension performance and the higher the learners' attitude component, the higher their reading

comprehension scores. To consider the mixed effects of discipline and attitude, two-way ANOVA was conducted.

Table ۲۹

Two-way ANOVA for estimating the mixed effect of discipline and reading attitude components on reading comprehension

	F	df	Sig.
Discomfort	۲,۰۲	۶	.۰۶
Anxiety	.۶۹	۶	.۶۵
Comfort	۱,۲۴	۶	.۲۹
Practical	۱,۲۲	۶	.۳۰
Intellectual	۱,۶۴	۶	.۳۲
Linguistic	.۰۸	۶	.۹۸

As it was concluded, the mixed effect of discipline and reading attitude components were negligible ($p > .۰۵$). Accordingly, it was argued that while reading attitude components were not significant determinants of reading comprehension scores, the discipline of the students was a significant determinant variable affecting their reading comprehension ability. Considering the results reported before, it may sound confusing at the first glance. However, statistically speaking, they are both rational with regard to the fact that the statistics reflected the differences observed between different groups of a single trait, say discomfort, in terms of their reading comprehension performance. The differences among the three groups which varied in terms of their levels of attitude (discomfort) were significant. And this showed that any single aspect of attitude can affect reading comprehension score significantly. However, as it was considered, a mixed effects of discomfort with regard to its three levels combined with those of discipline together which provided a more complex contribution of attitude components and disciplines which may develop into a reaction and counter-reaction of the variables so that they balance each other in a way that the overall contribution turns into a sterile and neutral impact on reading comprehension.

Further correlational analyses were done to further explore the relationships between reading attitude and reading comprehension of the participants.

Table ۳۰

Cross-tabulation of the participants' attitude levels and their reading ability

			Reading			Total
			Low	Mid	High	
Reading attitude	Low	Count	۴۶	۴۹	۸	۱۰۳
		% within Reading attitude	۴۴,۷٪	۴۷,۶٪	۷,۸٪	۱۰۰,۰٪
		% within Reading	۷۹,۳٪	۴۶,۷٪	۱۹,۰٪	۵۰,۲٪
		% of Total	۲۲,۴٪	۲۳,۹٪	۳,۹٪	۵۰,۲٪
	Mid	Count	۴	۲۲	۴	۳۰
		% within Reading attitude	۱۳,۳٪	۷۳,۳٪	۱۳,۳٪	۱۰۰,۰٪
		% within Reading	۶,۹٪	۲۱,۰٪	۹,۵٪	۱۴,۶٪
		% of Total	۲,۰٪	۱۰,۷٪	۲,۰٪	۱۴,۶٪
	High	Count	۸	۳۴	۳۰	۷۲
		% within Reading attitude	۱۱,۱٪	۴۷,۲٪	۴۱,۷٪	۱۰۰,۰٪
		% within Reading	۱۳,۸٪	۳۲,۴٪	۷۱,۴٪	۳۵,۱٪
		% of Total	۳,۹٪	۱۶,۶٪	۱۴,۶٪	۳۵,۱٪
Total	Count	۵۸	۱۰۵	۴۲	۲۰۵	
	% within Reading attitude	۲۸,۳٪	۵۱,۲٪	۲۰,۵٪	۱۰۰,۰٪	
	% within Reading	۱۰۰,۰٪	۱۰۰,۰٪	۱۰۰,۰٪	۱۰۰,۰٪	
	% of Total	۲۸,۳٪	۵۱,۲٪	۲۰,۵٪	۱۰۰,۰٪	

According to this Table, ۲۰, ۵۱ and ۲۸ percent of the participants had high, mid and low reading ability, respectively. In addition, ۳۵, ۱۴ and ۵۰ percent of the participants had high, mid and low reading motivation, respectively. A closer look at the table shows that ۲۲

percent of the total participants with low motivation have low reading ability, 30 percent of the participants with high motivation have high reading ability and 10 percent of the participants with mid motivation have mid reading ability. Accordingly, there seems to be a positive relation between the two variables, that is, higher motivation contributes to higher reading ability.

Table 31
Chi-square test for the relationship between reading ability and attitude

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	47,642 ^a	4	.000
Likelihood Ratio	47,687	4	.000
Linear-by-Linear Association	40,210	1	.000
N of Valid Cases	200		

In order to test the possible relationship between the participants' different levels of language reading ability and their levels of attitude, chi-square test was run. The results in Table 31 ($X^2 = 47,64$, $p = .00$) indicated that there was a significant relationship between reading ability and attitude levels and the higher the leavers' attitude, the higher their reading ability.

In order to further investigate the relationship between reading and attitude as well as its components, further correlational analyses were done. The results are shown below.

Table 32
Correlations among reading ability and attitude components

	reading	attitude	Discomfort	Anxiety	Comfort	Practical	Intellectual	Linguistic
reading	1	.488**	-.046**	-.012**	.488**	.408**	.366**	.443**
attitude		1	.760**	.841**	.806**	.840**	.772**	.860**
Discomfort			1	.797**	.701**	.710**	.521**	.737**
Anxiety				1	.846**	.770**	.794**	.840**
Comfort					1	.860**	.707**	.894**
Practical						1	.703**	.922**
Intellectual							1	.800**
Linguistic								1

According to the results in Table 32, there was a significant correlation between reading ability and attitude ($r = .48$, $p = .00$). The positive correlation coefficient showed that the relationship was positive, that is, the higher level of reading attitude contributed to higher levels of reading ability.

According to Table XI, there were significant correlations between reading ability and each of the components of reading attitude, namely, discomfort ($r = -.04$, $p = .00$), anxiety ($r = -.01$, $p = .00$), comfort ($r = .48$, $p = .00$), practical ($r = .40$, $p = .00$), intellectual ($r = .36$, $p = .00$), and linguistic ($r = .44$, $p = .00$). Accordingly, it was argued that each component of the reading attitude of the participants as measured in this study are rather weak predictors of reading ability per se. In addition, it was concluded that the components can be ranked as follows in terms of their strengths of predicting the participants' reading ability.

Table ۳۳
Ranking attitude components in terms of their contribution to reading comprehension

Ranking	Motivation Components	r
۱	Discomfort	-۰۴۶**
۲	Anxiety	-۰۱۲**
۳	Comfort	۴۸۸**
۴	Practical	۴۵۸**
۵	Linguistic	۴۴۵**
۶	Intellectual	۳۶۶**

According to Table ۳۳, discomfort and anxiety had the highest contributions to reading ability which was moderate whereas intellectual had the weakest contributions to the participants' reading ability. All in all, considering the negative values of r (correlation coefficients) for discomfort and anxiety, it was argued that the components of reading attitude have positive and indirect contribution to reading; that is, the higher the discomfort and anxiety the lower the reading comprehension of the participants. With regard to the sizes of the observed r, it was concluded that reading attitude per se was not a strong contributor to reading ability considering the fact that all observed coefficients were below .۶۰.

Discussion

The purpose of this study was to determine if there are significant relationships between the level of attitude and motivation of the Iranian EFL learners and their overall reading comprehension ability regarding their disciplines. To discuss the results of data analysis presented, the interpretation of the analysis of the collected data in this study will be elaborated on with respect to the theories and frameworks which focused on the relation between the reading performance and EFL learners' motivation and attitude.

The results showed that there is a relatively high positive correlation between level of motivation and attitude, and students' reading comprehension ability. High motivated learners showed significantly higher reading performance. This suggests that EFL learners' level of motivation and attitude does affect their reading comprehension skill. The findings of the present study are in line with the previous ones showing that readers with a positive attitude and higher motivation toward reading will have higher success in reading comprehension (Fields, ۲۰۱۱; Kayiran & Karabay, ۲۰۱۲; Taboada, Tonks, Wigfield, & Guthrie, ۲۰۰۹).

The interpretation of findings of the present study denotes important information about the Iranian university students' reading motivation and attitude along with their dimensions considering their general English proficiency level and how they relate to their reading comprehension ability regarding their disciplines. The results support the claims as often reported in the literature (Dornyei, ۲۰۰۶; Grabe, ۲۰۰۹; Hairul, Ahmadi & Pourhossein, ۲۰۱۲; Schutte and Malouff, ۲۰۰۷; Morgan & Fuchs, ۲۰۰۷; Cox & Guthrie, ۲۰۰۱) and Ahmadi, HairulNizam & KamarulKabilan, ۲۰۱۳) that generally believed, there is an impact of reading motivation and attitude on the learners' reading comprehension ability. That is, students' motivation and attitude positively affect their readings; it means that students with stronger reading motivation and attitude can be expected to read more in a wider range. The comparison of scores in this study reinforced the idea that motivated students can comprehend the English texts better than non-motivated students. The same scenario was revealed about the students who had higher attitude towards reading. It is evident that these students are more likely encouraged to make educated guesses (Nuttal, ۲۰۱۶), better achievement, solve problems or difficulties while reading the text and also reduce comprehending anxiety. Thus, as Ahmadi, HairulNizam and KamarulKabilan (۲۰۱۳) believed, it can be concluded that considering such reading motivation in teaching curriculum as to be instructed on the regular and disciplined basis could be profitable for the students. In this case, teachers are also encouraged to consider reading motivation in their

regular English classes so that their students might become motivated in a reading comprehension situation.

Although it was revealed that reading attitude components were not significant determinants of reading comprehension scores, all dimensions of reading motivation were statistically significantly correlated with the participants' reported reading comprehension ability, intrinsic goal-related dimensions as Challenge, Curiosity and Involvement, could be considered stronger contributors to the participants' reading comprehension ability in compare with extrinsic goal-related dimensions as Competitive, Grade, Recognition, Social and Compliance. Thus, this finding is in line with what Stanovich, West, Cunningham, Cipelewski, & Siddiqui, ۱۹۹۶; Wang & Guthrie, ۲۰۰۴; Baker & Wigfield, ۱۹۹۹; Coddington & Guthrie, ۲۰۰۹ and Wigfield et al., ۲۰۱۶ found out. They indicated that students who were intrinsically motivated to read have proved that they outperformed their extrinsically motivated peers in reading comprehension.

As expected, work avoidance as another dimension of reading motivation had the weakest contributions to the students' reading comprehension ability. The student who avoids reading-related work is not likely to seek outside reading opportunities. As Paris, Wasik & Turner (۱۹۹۱) suggested, work avoidance may have related consistently to performance because it is the clearest indication of student disengagement; students who score high on this item care little for reading, and so it is not surprising that they perform less well than other students.

This study also found that reading motivation, reading attitude and reading comprehension of the students vary by academic fields. Students of humanities (primary education, social sciences and Persian literature) outperformed those of basic sciences (chemistry, math and biology) in terms of their reading motivation, attitude and also reading comprehension ability. This finding echoes Wang's (۲۰۱۹) argument that students' reading comprehension ability is associated with the nature of the academic fields, such as humanities, emphasizing critical thinking skills. It makes sense that students of humanities had higher level of reading motivation. This finding is also in line with Saraceno's (۲۰۱۹); Anderson, (۲۰۱۰) and Wambach's (۱۹۹۹) results which generally claim that the students' disciplines or disciplinary literacy can significantly affect their reading attitude. Therefore, it was concluded that students of humanities because of their nature of fields of study are usually highly motivated and have more positive attitude to read the texts. Anderson (۲۰۱۰) also found out that the faculty members of humanities usually would more like to promote the reading motivation of students and make students clearly understand the reading expectations which can be very helpful to reading comprehension ability.

Conclusion

The results of the present study suggest that the level of motivation and attitude could strongly contribute to the Iranian EFL learners' overall reading comprehension. Findings of this study support the claim that positive motivation and attitude facilitate students' reading comprehension. Reading comprehension, seen as the interaction among reader, text, and environment, is such an essential skill that has to be improved and nurtured among learners both in school and in university as well as at home due to its contributing role in academic life and being a prerequisite of a successful learning. Dagget & Hasselbring (۲۰۰۷) considered reading to be an alive and active skill in the new millennium for students or professionals and as the key factor for achieving academic proficiency. Therefore, developing influential reading leads to learning success across the curriculum, higher motivation to read and more constructive attitudes toward learning.

The main goal of this study was to examine whether Iranian students' English reading comprehension motivation and attitude on the different dimensions vary with their disciplines and their reading comprehension. To this aim, a total number of ۲۸۰ participants from different fields of study, social sciences, Persian literature, primary education, chemistry, biology, and math took part in this study. The Language Proficiency Test, the

MRQ, ARQ and the Reading Comprehension Test as the main instruments were administered over a ۲-day period.

Data analysis indicated that reading motivation and attitude could have a positive impact on students' reading comprehension. It was also indicated that the students' disciplines play an important role in motivating the students to read and improving their reading comprehension ability consequently. This implied that the students of humanities outperformed those of basic sciences in terms of their reading comprehension ability. Connections between types of motivation (intrinsic vs. extrinsic) and actual reading comprehension had been examined in this research. It was proved that there is a positive correlation between intrinsic motivation and reading comprehension ability. Extrinsic motivation also positively correlated with reading comprehension ability, but generally to a lower average.

Improved reading comprehension is an aspect of learning that cannot be ignored and may lead to even more relationships between learning and motivation. Since reading is a basic and vital part of the learning process at almost every level of education, improved comprehension of what students read must be a major goal of all educators. As Ercetin (۲۰۱۵) mentioned, the high correlation between reading comprehension and reading motivation is an indication of students' motivation towards learning which has an important impact on academic success in general. Educators who are able to tap the wealth of reading motivation in their students, will therefore help those students to reap the rewards of improved comprehension and all that it entails.

In line with previous studies, it can be concluded that motivation directly impacts the development of reading comprehension. As mentioned, there are several components for reading motivation as efficacy, challenge, grade, competition and some more expressed earlier in this research. Therefore, the teachers are expected to know that the learners are motivated in different ways. They need to provide enjoyable classrooms to motivate their learners and raise their confidence, autonomy, and self-stimulation as well. Ahmadi and Mohseni (۲۰۱۷) believed teachers had better notice learners' interests and requirements; for example, provided that learners are extremely interested in material including humor, fun, enjoyment, and pleasure, they prefer reading for entertainment purposes. This implies that fun has to be integrated to reading instruction. In addition, motivation, as an essential contributor to reading comprehension development, needs to be taken care of through providing appropriate environment which helps them increase their motivation to reading and gain higher language proficiency which is seen as the manifestation of learners knowledge about some areas of language related to teaching and learning such as vocabulary, pronunciation, listening, reading, speaking, writing, and grammar. As mentioned previously, it can be argued that learners' awareness in terms of the important role of motivation in learning and academic performance in general and reading comprehension in particular needs to be raised.

It seems worth mentioning that students' self-efficacy appeared to be particularly important across English language proficiency levels in this study. The reason behind it may refer to this reality that high self-efficacy can increase students' confidence in language learning. As Hamamura, Heine & Paulhus (۲۰۰۸) found, people with lower self-efficacy tend to use a strategy of avoiding failure in achievement situations. In contrast, those with higher self-efficacy are more likely to make efforts to approach success. Self-efficacy is a key factor for reading comprehension across languages.

The findings of this study are fruitful for both teachers and students. Becoming aware of the students' reading motivation will help teachers utilize reading intervention to involve as many students as possible in assigned tasks and alter the course syllabus (if needed) in order to accommodate students' learning. Students can also understand their reading motivation mirrored in this study; therefore, they may better understand how they can become motivated readers.

From the results of this study, it can also be implicated that rather than thinking of students as either high or low motivated learners, it is important to realize that many of them have a mixture of motivational characteristics, some of which may facilitate their

engagement in reading and others that could lead them to disengage. Best of all, the findings of this study indicated that motivation is a multifaceted characteristic. That is, students should not be characterized as either motivated or not motivated learners. Instead, they are motivated for different reasons or purposes.

The present study suffers from a number of limitations as, lack of cause-effect relation between variables. That is, the collected data in this study were seen correlationally. Therefore, it is recommended to provide the participants with enough treatment on reading motivation and then find out its impact on their reading comprehension ability. Another limitation with this study is ignoring the role of gender in reading motivation, reading comprehension and English language proficiency. It is also recommended to take the role of gender into account in this regard. Probably female learners and male ones perform differently in reading motivation, reading comprehension and also English language proficiency.

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