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## **Personal and Social Resources Interplay Synergistically to Enhance Academic Motivation**

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# **Personal and Social Resources Interplay Synergistically to Enhance Academic Motivation**

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## **Abstract**

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Guided by self-determination theory, the present study examines independent and interactive roles of self-efficacy and perceived social support in predicting types of academic motivation. Data were collected from 325 university undergraduates in 18-23 years of age ( $M=21.09$ ,  $SD=1.34$ ) from the fifth biggest city of South Asia. Results showed the independent and interactive effects of self-efficacy and social support from friends and from a significant other on intrinsic academic motivation after controlling the potential confounding due to demographics. Social support from friends, but not from family and a significant other, independently predicted extrinsic academic motivation. Neither self-efficacy nor social support significantly predicted amotivation.

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**Keywords:** Self-efficacy; social support; intrinsic motivation; extrinsic motivation; amotivation



# **Recursos Personales y Sociales Interactuando de Forma Sinérgica para Fomentar la Motivación Académica**

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## **Resumen**

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Guiado por la teoría de la autodeterminación, el presente estudio examina los roles independientes e interactivos de la autoeficacia y el apoyo social percibido para predecir los tipos de motivación académica. Se recogieron datos de 325 estudiantes universitarios de 18-23 años ( $M = 21.09$ ,  $SD = 1.34$ ) de la quinta ciudad más grande del sur de Asia. Los resultados mostraron los efectos independientes e interactivos de la autoeficacia y el apoyo social de amigos y de otro significativo sobre la motivación académica intrínseca después de controlar la posible confusión debido a la demografía. El apoyo social de amigos, pero no de la familia y los otros significativo, predijo independientemente la motivación académica extrínseca. Ni la autoeficacia ni el apoyo social predijeron significativamente la desmotivación.

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**Palabras clave:** Auto-eficacia, motivación intrínseca, motivación extrínseca, desmotivación

**M**otivation has a fundamental role in driving virtually all behaviors but is particularly relevant in learning and education. In spite of the rising evidence for involvement of personal and social factors (Maric & Sakac, 2014; Vallerand, 2000) in academic motivation, little attention has been paid by previous educational researchers to empirically assess how these two factors interact with each other in determining academic motivation, although suggested theoretically (e.g., Deci & Ryan, 2000). To address this gap in research, the study sought to investigate the independent and interactive roles of perceived social support and self-efficacy in three types of academic motivation: intrinsic motivation (IM), extrinsic motivation (EM), and amotivation. The study used a sample of university students from the fifth biggest and a cosmopolitan city of South Asian region, with a population of more than 10 million people. It is worth considering that literacy rate in South Asian region is medium to low (United Nations Development Program, 2013). Despite this, surprisingly little research exists in this region on academic motivation, a critical element that can contribute to students' academic success, and to nation's development in the long run. It is clearly important that more research from this region be conducted in domains of educational psychology in general and in academic motivation in particular.

### **Intrinsic Motivation, Extrinsic Motivation, and Amotivation: a Theoretical Framework**

The current study conceptualizes motivation along a continuum from self-determined IM to controlled behavioral regulation (EM) to amotivation as described by social determination theory (SDT; Deci, Vallerand, Pelletier, & Ryan, 1991). With IM, self-determined behaviors are engaged in volitionally and are regulated by self-satisfaction, whereas with EM, behaviors are engaged in for instrumental reasons and are regulated by interpersonal or intrapsychic forces (Deci et al., 1991). While amotivation stands on the opposite end of this continuum with no self-determination where there is no perceived reward (either internal or external) for engaging in a behavior.

The theoretical framework describes that a stronger sense of self-determination is achieved by gratifying three instinctive needs: to feel competent, to feel autonomous, and to feel connected (Deci et al., 1991; Deci

& Ryan, 2000). Therefore, self-efficacy beliefs (feeling competent by successfully meeting challenges) and perceived social support from significant people (feeling connected to others in caring relationships) are likely to be two important factors to enhance self-determined motivation. Guided by SDT, the present study predicts IM, EM, and amotivation from self-efficacy and perceived social support from three sources: family, friends, and a significant other.

### **Self-efficacy and Academic Motivation**

The role of self-efficacy in explaining human motivation has a long history (e.g., Bandura, 1977). Self-efficacy beliefs regulate motivational processes in a variety of ways. Belief in one's competence determines the level of *effort* that a person puts in any activity, enhances *perseverance* in problem solving, and gives individual strength to be *resilient* when facing adverse situations and confronting obstacles. The increasing popularity of the application of self-efficacy beliefs to almost every field of life including motivation has led researchers to focus their attention on the role of self-efficacy in educational research (e.g., Meral, Colak, & Zereyak, 2012).

General findings over the past two decades have provided support for the role of self-efficacy beliefs in performance attainment in educational setting (e.g., Meral et al., 2012). It has been proposed that these beliefs influence attainment by affecting level of effort, persistence, and perseverance in the form of motivation. Accordingly, empirical evidence suggests that students' self-efficacy beliefs are correlated with motivational and academic outcomes in general (e.g., Gore Jr., 2006; Ommundsen, Haugen, & Lund, 2005). It has been demonstrated that self-efficacy beliefs affect the academic persistence essential to maintain and enhance academic achievement in college students (e.g., Gore Jr., 2006). Other studies suggest that students who have stronger self-efficacy beliefs show a tendency to experience greater self-determined motivation in contrast to amotivation with no self-determination (Vallerand, 2000). Although evidence suggests a relationship between self-efficacy beliefs and motivational and academic outcomes in general, a more detailed and systematic understanding of self-efficacy beliefs in relation to types of

academic motivation is still needed as to how these beliefs are differentially related to intrinsic and extrinsic motivation as well as with amotivation.

### **Social Support and Academic Motivation**

In addition to self-efficacy, social support seems to be an important determinant of academic motivation of learners. Machado, Almeida, and Soares (2002) argue that academic life is a significant challenge for the affective and the interpersonal development of learners. It is proposed that support from teachers, parents, and peers are likely to be a positive factor in dealing with challenges of adolescence and of student life. Earlier literature describes that interpersonal relationships are very important in understanding academic output (Martin, 2014).

The current study specifically examines academic motivation as predicted from perceived social support. Previous studies indicate that youth are likely to face academic problems if they do not have positive, healthy, supportive, and caring relationships with their elders and peers (DeGarmo & Martinez, 2006; DeRosier & Lloyd, 2011). The research literature shows that a supportive environment influences academic and motivational outcomes in early adolescence during school years (Wentzel, Battle, Russell, & Looney, 2010) and also, during university years (Mattanah, Brooks, Brand, Quimby, & Ayers, 2012). With particular reference to intrinsic and extrinsic motivation of university students, which is focus of the current study, it has been reported that social support from others (i.e., parents, siblings, and EFL teachers) is positively correlated with second language learning (Vatankhah & Tanbakooei, 2014).

It has been described that social support from different sources is likely to be positively related to students' motivation. While the literature describes roles of multiple sources of social support in academic output, researchers have proposed unique effects of different sources of support on academic motivation and achievement (e.g., Wentzel, et al., 2010). Accordingly, perceived social and emotional support from parents and teachers has been described to be the correlate of academic efforts, interest, and achievement (e.g., Wentzel, Russel, & Baker, 2016). Other studies have reported peers'

social support to be correlated with other motivational outcomes such as the pursuit of academic goals and the intrinsic interest (Harter, 1996).

With particular focus on university students, it has been assumed that support provided by friends would be more effective and especially important than other sources of social support because students tend to spend more time with friends (Eccles & Roeser, 2003), and most academic activities are performed in peer context. This suggests that a circle of friends can have a significant role in students' academic life. For example, studies have reported that students' positive and supportive relations with their friends contribute to their motivation, achievement, and engagement in school (Liem & Martin, 2011; Jiang, Bong, & Kim, 2015).

### **Interaction between Social Support and Self-Efficacy: Theoretical Explanations**

It is known from SDT that self-determined motivation is achieved by fulfilling needs of competency, autonomy, and relatedness (Deci et al., 1991; Deci & Ryan, 2000). The SDT also explains how and why individuals differ in their academic motivation (Ryan & Deci, 2000). The theory thus, considers that self-efficacy beliefs and social support are not independent of each other in predicting self-determined motivation. Likewise, social learning theory (Bandura, 1997) also describes that social support and self-efficacy are interrelated factors in explaining motivational outcomes. The literature describes that self-efficacy is likely to moderate the effects of social support on various life outcomes in different ways (Bandura, 1997; Ryan & Deci, 2000). In the context of academic motivation, self-efficacy may likely to moderate the effects of perceived social support on academic motivation in a synergistic manner, in a way that students with higher self-efficacy levels may profit more from social support. They are likely to convert support into increased academic motivation in supportive groups when they have more self-confidence on their coping abilities. Additionally, self-efficacy may compensate for low social support, in that students who perceive low support may profit from optimistic self-beliefs to enhance motivation to study. Finally, the effect of self-efficacy may likely overcome by social support in

that students who are supported from teachers, peers, or parents in their academic tasks may rely less on their self-abilities to be motivated to learn.

In the context of academic setting, interaction between self-efficacy and social support may also depends on the source of support. It is particularly important for university students as students spend most of their time in university with peers and teachers (Eccles & Roeser, 2003). During combine studies, peers as models become vicarious sources for learning self-regulatory abilities and for enhancement of academic motivation. Observing multiple models are likely and there are chances that student can identify with at least one of the models. Conversely, perceiving oneself more competent than the vicarious models may also enhance motivation. Also, observing that all the peers are doing the same academic task further motivates to accomplish the learning goal. Therefore, self-efficacy is more likely to interact with perceived social support from friends or a significant other (e.g., teachers in academic setting) in predicting academic motivation.

As such, empirical support for the interaction effect of self-efficacy and social support on academic motivation is not available. However, some studies found this interaction effect on health-related motivations and behaviors (e.g., Dishman, Saunders, Motl, Dowda, & Pate, 2009; Warner, Ziegelmann, Schütz, Wurm, & Schwarzer, 2011). Although, the role of interplay between self-efficacy and social support in predicting various motivational outcomes is well supported theoretically as well as empirically, however, no such empirical evidence is present in educational psychology. Theories of motivation (e.g., SDT) and learning (e.g., social learning theory), however, allow us for making hypothesis about the interaction of personal and social factors. Therefore, there is a need to empirically assess the theoretically suggested interaction effect of self-efficacy and social support in predicting academic motivation.

### **Demographic and Academic Controls**

Further to this discussion are demographic (e.g., gender, siblings, birth order) and academic factors (current semester, discipline, previous GPA) that are likely to affect academic motivation. Previous research suggests gender differences in academic motivation (e.g., Meece, Glienke, & Burg, 2006;



Shekhar & Devi, 2012). Given the importance of social and family environment in motivation (Ryan & Deci, 2000; Unal-Karagüven, 2015), the role of family factors (number of siblings and birth order) was also focused in the current study as demographic controls. Furthermore, Adler's theory also describes that interaction with siblings, achievement and motivation of siblings, and birth order are likely factors determining motivation.

A different approach of research describing changes in academic motivation over time and context (Corpus, McClintic-Gilbert, Hayenga, 2009; Otis, Grouzet, & Pelletier, 2005) also points out the potential role of earlier and later semesters in motivation. Ryan and Deci (2000) provide evidence of declining tendency in motivation with students' progression from earlier to senior years. Therefore, the demographic and academic factors were assessed as demographic controls in the current study.

## **Objectives**

Although, there is mounting evidence of contribution of self-efficacy and supportive social relationships in enhancing positive motivational and academic outcomes, nevertheless, several aspects are overlooked. First, the relevant literature overwhelmingly has come from studies carried out in Western countries, with little research conducted in South Asian developing countries. Given the medium to low literacy rate in this region (United Nations Development Program, 2013), it is clearly important that more research from this region be conducted in domains of educational psychology in general and in academic motivation in particular. Second, relatively little attention has been paid by previous researchers in examining the independent versus interactive roles of both self-efficacy and perceived support from different sources to predict both intrinsic and extrinsic motivation and amotivation. Finally, given the evidence of demographic effects on academic motivation (e.g., Meece, Glienke, & Burg, 2006; Shekhar & Devi, 2012; Corpus, McClintic-Gilbert, Hayenga, 2009; Ryan & Deci, 2000), there is a need to control for demographic factors in order to assess the unique variance due to independent and interactive effects of self-efficacy and social support on academic motivation, which was previously ignored. The main objective of the study was, thus, to assess the main as well as the interactive effects of self-

efficacy and social support on intrinsic and extrinsic academic motivation and on amotivation among South Asian university students by assessing incremental variance after controlling the potential confounding effects of demographics. It was hypothesized that self-efficacy and perceived social support would positively predict IM and EM in university students and negatively predict amotivation. Also, self-efficacy would more strongly predict self-determined IM than controlled EM in university students. Furthermore, self-efficacy would interact with social support from three sources to predict different motivation outcomes.

## **Method**

### **Participants**

Data were collected from randomly selected departments from an internationally recognized and the 2<sup>nd</sup> highest ranked Pakistani public sector university situated in Lahore. Lahore is the fifth biggest city of South Asia, and a cosmopolitan city with a population of more than 10 million people. All respondents had a South Asian ethnic background. A cluster sampling design was used, where a random sample of the primary unit (departments) was selected at first stage, the secondary unit (semester) was selected at second stage from each selected department, and finally, the tertiary unit (students) were cluster sampled randomly from the selected secondary units (semesters) out of different sections (3-4 sections) of the selected departments and semesters.

The final sample included 325 undergraduate university students ( $M_{age}=21.09$ ,  $SD=1.34$ ) both genders (males= 81% & females= 19 %). Majority of the participants were registered with information technology discipline ( $n=120$ , 37%). Remaining participants were registered with engineering ( $n=65$ , 20%), sciences ( $n=58$ , 18%), management ( $n=38$ , 12%), and social sciences ( $n=44$ , 13%) disciplines. Descriptive statistics of the sample are shown in Table 1.

Variables included in the study and instruments for assessment of these variables are listed below.

Participants responded on a *demographic sheet* to provide information about their personal characteristics such as gender, age, number of siblings, and birth order. Questions related to academics were also included to gather information about the name of degree, semester in which participants were currently studying, and their previous GPA. Questions were also included about parental characteristics such as parent's education and family income.

The *General Self-Efficacy Scale*, developed by Schwarzer and Jerusalem (1995) was used to evaluate a general sense of perceived self-efficacy for dealing with challenging and demanding life tasks. This self-administered scale was included as part of a booklet that incorporated the other self-report measures of the study. The scale consisted of 10 items. The scale used a 4-point response format. A composite score was calculated by adding the responses on all 10 items with a maximum score of 40 indicative of greater perceived self-efficacy and a minimum score of 10 indicative of lower self-efficacy. Reliability and validity of the scale across cultures has been established in different studies (e.g., Schwarzer et al., 1997). Internal reliability of the scale in the current study was good (.77).

The *Multidimensional Scale of Social Support* (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) consisting of 12 items assessed social support from family, friends, and a significant other. Respondent responded to items on a 7-point Likert type scale, ranging from very strongly disagree (1) to very strongly agree (7). This self-report measure assessed social support from three sources with each subscale comprised of four items. Three subscales were: (a) social support from family subscale, (b) social support from friends subscale, and (c) social support from a significant other subscale. Psychometric properties of the scale have been established and reported by Zimet et al. (1988). The internal consistency coefficients of three subscales as observed in the current study were .80, .77, and .83 for social support from family, friends, and a significant other respectively. A composite score on each of these scales ranges from 4 to 28, where a higher score expresses higher perceived social support.

The *Academic Motivation Scale* (AMS; Vallerand et al., 1992) is 28 items, self-administered scale, based on the self-determination theory of motivation. The scale assesses motivation levels of students on seven subscales including: one amotivation subscale, three subscales to measure intrinsic motivation

(Intrinsic motivation –to know, –toward accomplishment, & –to experience stimulation) and three subscales to measure extrinsic motivation (extrinsic motivation –of identification, –of introjection, & –of external regulation). Validity of the AMS has been established (Cokley, Bernard, Cunningham, & Motoike, 2001; Vallerand et al., 1992; 1993). Fairchild, Horst, Finney, and Barron (2005) provided evidence of convergent and discriminant validity by finding correlations of AMS items with the Work and Family Orientation Questionnaire and the Motive to Avoid Failure scale.

The present study used three indices of academic motivation including: intrinsic motivation, extrinsic motivation, and amotivation. The sum of scores on all items assessing the three intrinsic motivation subscales was considered as the “IM score”; the sum of scores on all items measuring the three extrinsic motivation subscales was taken as the “EM score”; and the sum of scores across all the items assessing amotivation was taken as the “amotivation score”. The alpha reliability coefficients as assessed in the current study were .87 for IM, .86 for EM, and .70 for amotivation.

The scales in the booklet were placed in random order across subjects to balance any effect due to order of presentation.

### **Data Analysis Plan**

Descriptive statistics of means and standard deviations were calculated for demographics and study variables. Alpha reliability coefficients were calculated to assess internal consistencies of the scales in the given study. Pearson correlations were calculated for demographics and predictor variables with three motivation outcomes.

Next, the data was analyzed with a series of stepwise linear regression models, to predict three constructs of academic motivation from general self-efficacy, followed by three dimensions of social support, and finally from three interaction terms (e.g., self-efficacy X social support from family) after controlling for demographics. At the first step of regression analysis, demographic variables including gender, siblings, birth order, parent’s education, and family income, as well as academic variables including semester and previous GPA were entered as a block in the regression equation as predictors. At the second step of regression analysis, self-efficacy was

added to assess whether self-efficacy contributed significantly in predicting the type of academic motivation after controlling for demographics. At the third step, social support from family, friends, and a significant other were added to evaluate whether social support increased the predictive power after controlling for demographics and self-efficacy. At the fourth step, interaction of self-efficacy and social support from three sources were added to assess whether interaction between these two variables increased the variance explained significantly over demographics, self-efficacy, and social support. This hierarchical approach to regression analysis was undertaken for each of the three outcomes: IM, EM, and amotivation.

### **Results**

Descriptive statistics for demographics are shown in Table 1. Correlations of demographics were calculated with three motivation outcomes to rule out the possibility of confounding due to demographics. It was found that gender was a significant correlate of amotivation ( $r = -.12, p < .05$ ); number of siblings was a correlate of IM ( $r = .21, p < .005$ ); family income was a significant correlate of IM ( $r = -.17, p < .05$ ), EM ( $r = -.14, p < .05$ ) and amotivation ( $r = .13, p < .05$ ); and semester was a significant correlate of IM ( $r = .12, p < .05$ ) and amotivation ( $r = -.15, p < .05$ ).

Table 1  
*Descriptive Statistics of Demographics*

	<b>n, %age</b>	<b>Median</b>	<b>Max</b>	<b>Min</b>
Gender	M =262, 81% F=63, 19%	-	-	-
Siblings	1-3=154, 47% 4-5=104, 32% 6-9= 40, 13% Missing=27, 8%	3	7	1
Birth order	First(1)=77, 24% Middle(2)=138, 42% Last(3)=83, 26% Single (4)=7, 2% Missing =20,6%	2	4	1
Mother's Education	0 to 8	7	8	0
Father's Education	0 to 8	7	8	0
Family Income per month	50000 or below =169, 52% Above 50000-100000 =62, 19% Above 100000-200000 =36, 11% 200000 -400000 =23, 7% Above 400000=20, 6% Missing=15, 5%	1.29	4	.12
Semester	1&2 (Year 1)= 189,59% 3 & 4 (Year 2)=65,20% 5 & 6 (Year 3)=60, 18% 7 & 8 (Year 4)=11,3%	2	8	1
Previous GPA	1.3-2=44, 14% 2.3-3=195, 60% 3.3-4=85, 26%	3	4	1.3

Note. Educational levels were scored on a scale ranging from 0 (0 years of education) to 8 (16 or more years of education); Income was measured in Pak rupees.

Descriptive statistics and alpha reliabilities of the study variables are presented in Table 2. All the study scales had good internal reliabilities, with  $\alpha$  coefficient at or above .77, except for amotivation ( $\alpha = .70$ ). As expected, all three social support subscales were moderately correlated with each other ( $r$  ranged between .36 -.40) showing versatility of the measures in differential assessment of perceived social support from different sources. Similarly, the two motivation subscales (IM and EM) were highly correlated with each other (.68). The amotivation subscale, however, was neither correlated with IM nor with EM. Table 2 reveals that self-efficacy and all three dimensions of social support were significantly correlated with IM and EM; while only self-efficacy was weakly and negatively correlated with amotivation. Also, self-efficacy was more strongly correlated with IM than with EM.

210 *Fatima et al.* – *Self-efficacy, Social Support, Academic Motivation*

Table 2  
*Descriptive Statistics, Alpha Reliabilities, and Correlation Matrix for Study Variables*

	<b>M</b>	<b>SD</b>	<b><math>\alpha</math></b>	<b>Self- efficacy</b>	<b>SSFa</b>	<b>SSFr</b>	<b>SSSO</b>	<b>IM</b>	<b>EM</b>	<b>Amotivation</b>
Self-efficacy	32.38	6.33	.77	-	.14*	.23***	.23***	.26***	.18**	-.13*
SSFa	23.74	4.45	.80		-	.36***	.39***	.27***	.30***	-.04
SSFr	20.95	5.10	.79			-	.40***	.29***	.27***	-.02
SSSO	21.70	5.90	.83				-	.26***	.31***	-.04
IM	61.78	12.87	.87					-	.68***	-.01
EM	65.80	13.90	.86						-	-.01
Amotivation	19.67	6.08	.70							-

Note. \* =  $p < .05$ , \*\* =  $p < .005$ , \*\*\* =  $P < .001$ ; SSFa = Social Support from Family; SSFr = Social Support from Friends; SSSO = Social Support from Significant Others; IM = Intrinsic Motivation; EM = Extrinsic Motivation



The relative contributions of self-efficacy and three sources of social support in predicting three motivation outcomes were calculated from regression analyses. Results in Table 3 indicated that self-efficacy contributed a significant increase in variance explained over demographics alone (from 21% to 26%, incremental variance = 5%) to predict IM. Social support contributed further to the variance explained in predicting IM from 26% to 31% (incremental variance = 5%). The interaction between self-efficacy and social support also increased the predictive power from 31% to 39% (incremental variance = 8%) in the final model. The final model yielded six significant predictors of IM out of a total of fifteen predictors, including: number of siblings ( $\beta = .21, p < .05$ ), family income ( $\beta = -.25, p < .005$ ), social support from friends ( $\beta = 1.54, p < .005$ ), social support from significant others ( $\beta = 1.22, p < .05$ ), and the interaction of self-efficacy with social support from friends ( $\beta = 2.01, p < .005$ ) and from a significant other ( $\beta = 1.82, p < .05$ ). Findings show that university students having more siblings, living in low income families, and perceiving more social support from friends and from a significant other are highly internally motivated to study and to succeed in university. Also, self-efficacy and perceived social support did not work independently, rather, self-efficacy interacted with social support from friends and from a significant other to predict IM.

212 *Fatima et al. – Self-efficacy, Social Support, Academic Motivation*

Table 3

*Coefficients from Hierarchical Regression Analyses for Predicting Intrinsic motivation, Extrinsic Motivation, and Amotivation*

	Intrinsic Motivation				Extrinsic Motivation				Amotivation			
	Model1	Model2	Model3	Model4	Model1	Model2	Model3	Model4	Model1	Model2	Model3	Model4
Gender	.06	.08	.05	.02	-.04	-.03	-.06	-.07	-.15	-.17	-.13	-.13
Mother Education	.04	.02	.02	.06	.11	.09	.08	-.07	-.04	-.04	-.04	-.03
Father Education	.06	.06	.04	.09	.18	.18	.15	.08	-.003	.003	.00	.00
Family Income	-.20*	-.18*	-.19*	-.25**	-.21*	-.20*	-.26*	-.22*	.17	.17	.17	.17
Siblings	.25*	.24*	.26**	.21*	.11	.11	.14	.16	.13	.12	.12	.13
Birth Order	.01	.02	.03	.10	.14	.14	.16	.12	-.12	-.12	-.12	-.12
Semester	-.21*	-.19	-.16	-.16	-.12	-.11	-.04	-.05	.16	.18	.18	.20
GPA	.11	.11	.08	.02	.02	.02	.08	.02	-.10	-.09	-.09	-.09
Self-efficacy		.22**	.19	.16		.06	-.07	-.05		.09	.09	.45
SS Family			.05	.79			.08	1.39			-.02	.16
SS Friends			.23*	1.54**			.32**	-.58			-.02	.01
SS Others			.11	1.22*			.18	-.52			.04	.18

(continued)

	Intrinsic Motivation				Extrinsic Motivation				Amotivation			
	Model1	Model2	Model3	Model4	Model1	Model2	Model3	Model4	Model1	Model2	Model3	Model4
SE × SSFa				1.31				-1.70				-0.28
SE × SSFr				2.01**				1.42				-0.06
SE × SSSO				1.82*				.93				-0.20
R <sup>2</sup> ,	.21	.26	.31	.39	.10	.10	.27	.31	.10	.10	.11	.11
Incremental R <sup>2</sup>		.05	.05	.08		.00	.17	.04		.00	.01	.00
Model fit	131,8	131,9	131,12	131,15	131,8	131,9	131,12	131,15	131,8	131,9	131,12	131,15
	=	=	=	=	1.17	= 1.70	=	=	= 1.49	= 1.44	= 1.07	= .87
	2.79**	3.14**	3.16**	4.52***			3.51***	3.36***				

Note. \* $p < .05$ , \*\* $p < .005$ ; \*\*\* $p < .001$ ; SE = Self-efficacy; SSFa = Social Support from Family; SSFr = Social Support from Friends; SSSO = Social Support from Significant Others

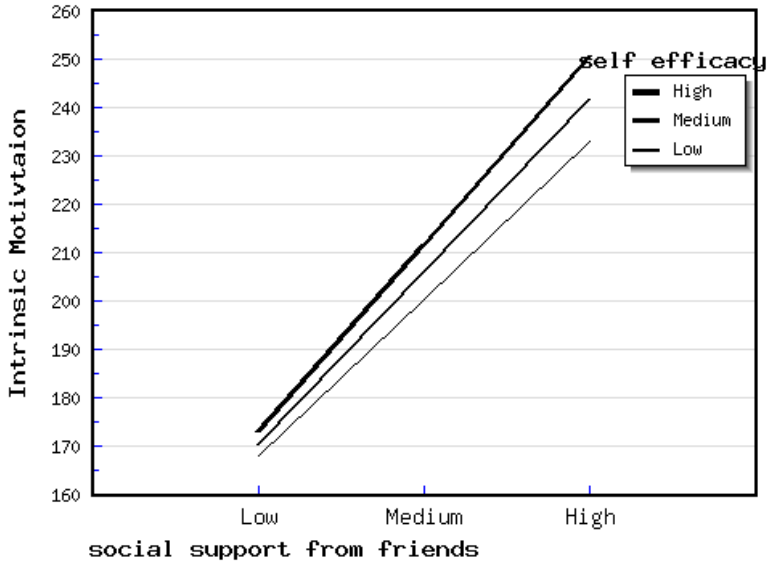


Figure 1: Showing the effect of social support from friends on intrinsic motivation as moderated by self-efficacy.

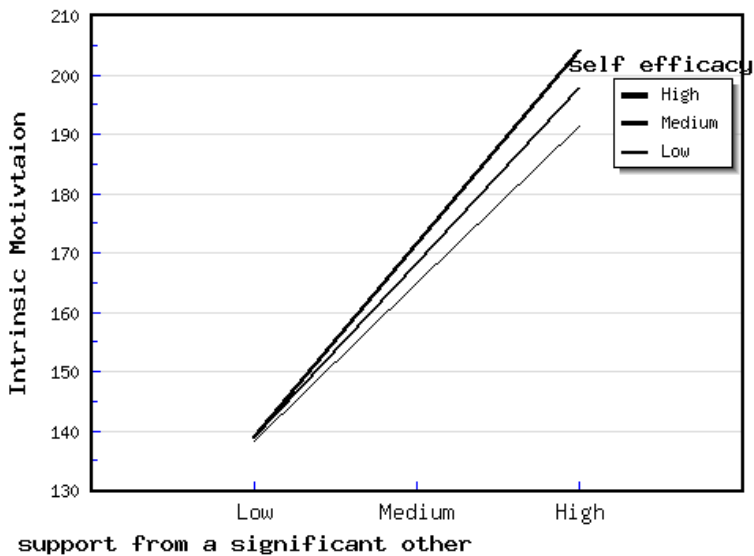


Figure 2: Showing the effect of social support from a significant other on intrinsic motivation as moderated by self-efficacy.

In predicting EM of university students, it was found that after demographics, only the third model yielded a significant increase in variance explained (from 10% to 27%, incremental variance = 17%) when the three sources of social support were entered into the analyses. This model resulted in a significant beta weight of social support from friends ( $\beta = .32, p < .005$ ), in addition to one demographic variable (family income;  $\beta = -.22, p < .05$ ). However, the interactions of three sources of social support with self-efficacy were not significant.

Finally, when amotivation was predicted from self-efficacy, social support from three sources and from interaction between self-efficacy and social support, regression analysis yielded no significant predictor of amotivation.

## Discussion

This is a primary study investigating the independent and interactive effects of self-efficacy and perceived social support on IM, EM, and amotivation of university students after taking into account potential demographic effects. The study is guided by SDT which explains that self-determined motivation is achieved by feeling competent (high self-efficacy) and feeling connected to others (perceiving social support), while competency feelings are negatively correlated with amotivation which is on the opposite end of the continuum. As hypothesized in the study, it was found from correlational analyses that self-efficacy and social support were significantly correlated with different motivation outcomes. The direction and strength of these associations differed, however, according to the source of social support and type of motivation (see Table 2). Both the self-efficacy and perceived social support from three sources (family, friends, and a significant other) were significantly and positively related to IM (completely self-determined motivation) and EM. Self-efficacy, however, was strongly correlated with IM than with EM. Only self-efficacy was negatively but weakly correlated with amotivation, thus, lending a general support to SDT. Empirical evidence also supports the current findings (e.g., Vallerand, 2000).

### Incremental Variance Analysis for Independent Effect of Self-Efficacy

Findings from regression analyses indicated that self-efficacy was the significant and positive predictor of self-determined IM contributing a significant increase in variance (5%) over demographics. Consistent with the premise based on SDT that self-determined IM is achieved by satisfying need of competence (Deci & Ryan, 2000), the current research found that students who reported high self-efficacy (by feeling competent) were highly internally motivated to study.

But self-efficacy beliefs did not increase explained variance in predicting EM (controlled regulation) after controlling the confounding effects. Table 2 also indicates significant but weak correlation of self-efficacy with EM than with IM. Theoretical and empirical evidence (e.g., Vallerand, 2000; Vallerand et al., 1992) also supports the same, suggesting that a strong sense of self-

efficacy drives IM. Extrinsic motivation, understandably, appears to be unrelated to self-efficacy—a personal factor, but instead is enhanced by social relationships—external factors. Self-determination theory extends that as the level of self-efficacy decreases students would be more likely to move toward amotivation on the continuum. Notably, self-efficacy was negatively correlated with amotivation consistent with SDT, however, the effect disappeared in regression analysis when demographics were controlled. It is quite likely that certain demographics (e.g., semester, degree, family income etc.) might have co-varied with self-efficacy to predict amotivation, and eventually, the effect of self-efficacy disappeared when demographics were controlled.

### **Incremental Variance Analysis for Independent Effects of Perceived Social Support**

Regression analysis indicated that perceived social support contributed a significant increase in variance explained (5% in model 3) in predicting IM, yielding social support from friends as the only significant predictor. However, in model 4 when interaction terms were added in regression analysis, social support from a significant other also became the significant predictor. Notably, perceived social support accounted for more variance explained (17%) in predicting EM, than it accounted for in predicting IM (5%). Perceived support from friends was the only significant predictor of EM. The theoretical framework under consideration explains that self-determined internal motivation is determined by personal interests rather than by external factors, while, externally motivated students are more likely to be motivated by external factors such as social rewards and pressures than by personal values such as self-efficacy (Alivernini & Lucidi, 2011). Furthermore, involvement of perceived support from friends in academic motivation is consistent with empirical and theoretical evidence provided by previous literature (e.g., Liem & Martin, 2011).

Some additional details of the results should be considered further. Although it was found from correlational analyses that perceived social support from family was significantly correlated with both IM and EM, this effect, however, was dominated by perceived support from friends and a

significant other in predicting IM and by social support from friends in predicting EM in regression analyses. These findings indicate that contributions of perceived social support from different sources were compensatory rather than additive in predicting students' motivation.

Critically, it is also worth pointing that perceived social support from friends is possibly important in university student's motivation but that the perceived support from family is previously reported to be particularly important during elementary and middle school years (e.g., [Furman & Buhrmester, 1992](#)). Therefore, perceived support from friends seems to play a more significant role during late adolescence, despite the importance of parental social support during school-aged years. It is considerable to note that although the function of social support from different sources such as family, teachers, and friends is likely to vary as a function of child's progression from early academic years towards late academic years ([Furman & Buhrmester, 1992](#)), perceived social support as a whole plays a crucial role in extrinsic academic motivation.

Interestingly, regression analysis yielded a lack of agreement between SDT and current findings for negative prediction of amotivation from self-efficacy and social support. Correlational analyses, however, showed few demographic correlates (gender, semester, family income, & previous GPA) of amotivation. Results indicate that level of amotivation is lower in females and in students from earlier semesters, belonging to lower income families, and with higher GPAs. Accordingly, amotivation increases in males, in university students as they progress towards higher semesters, in those who belong to higher income families, and those whose previous GPAs tend to be lower. The results are consistent with previous findings reporting declining tendency of academic motivation in males (e.g., [Meece et al., 2006](#)), in students from higher semesters (e.g., [Ryan & Deci, 2000](#)) and in students belonging to high income families (e.g., [Yousefi, Redzuan, Bte, Juhari, & Talib, 2010](#)). Critically, contrary to the reported effects of parent's education on student's motivation (e.g., [Acharya, & Joshi, 2009](#)), the current findings do not find support for the association of parent's education either with IM, EM, or amotivation.



## **Interactive Effects of Self-Efficacy and Social Support**

In addition to the main effects of self-efficacy and social support from friends and from a significant other on IM, it was also found that interactions among self-efficacy and social support from these two sources significantly predicted this motivation outcome. Consistent with the theoretical framework (i.e., SDT), it was found that personal and social effects were not independent of each other in predicting IM. Additionally, findings from third model of regression analysis reflect that the effects of perceived social support after self-efficacy on IM were additive rather than compensatory. Same is evident from Figure 1 and Figure 2, that students who had high self-efficacy beliefs were more likely to profit from social support and students with low self-efficacy skills were less likely to profit from social resources, thus favoring the synergistic interaction.

Although, evidence from health-related literature supports the synergistic interaction between self-efficacy and social support, to the best of our knowledge this is a priori study describing the synergistic effects of self-efficacy and social support on IM, thus substantially contributing to the current knowledge in educational psychology. In addition, the findings extend our knowledge of the role of important sources of social support, and how these sources interact with self-efficacy in enhancing academic motivation of university students. Taken together, these findings lend general support to SDT for the independent and interactive effects of self-efficacy and social support on motivational outcomes.

## **Strengths and Limitations**

This study advances and builds upon previous research in several ways. First, key demographic variables were controlled in the study, allowing us to identify the extent to which self-efficacy and social support independently and interactively predicted academic motivation. By controlling these effects, there can be greater confidence on findings indicating self-efficacy and perceived social support from friends and a significant other as predictors of motivation. In addition, the findings from this study are particularly important in that these are based on an understudied, culturally diverse sample, which is

in contrast to previous studies based on Western samples. The current study, therefore, expands previous findings by providing evidence that personal and social resources are implicated in academic motivations of South Asian university students as well.

Limitations of this study include the fact that it was cross-sectional in design, making it impossible to determine for certain the direction of causality. In addition, findings cannot be generalized beyond South Asian university students.

### **Implications, Future Directions, and Conclusion**

These findings may have implications for teachers, educators, and policymakers related to implementation of strategies regarding how to enhance students' IM. Specifically, our results, particularly if confirmed by longitudinal research, suggest that interventions designed to improve self-efficacy skills and promote peer relationships and support may lead to increases in academic motivation. These recommendations are supported by literature showing the importance of peer relationships in academic competence and student motivation (Wentzel, 2005) and also, indicating the positive influence of academic peer support groups on academic engagement and motivation (Thompson, 1996; Wassef, Masson, Collins, Vanhaalen, & Ingham, 1998). Increased motivation, in turn, would have considerable social, psychological, and economic implications, including better employment opportunities and higher quality of life.

Teachers as significant people in student's life and other academic counselors can also implement some of the strategies utilized by social cognitive theorists to promote self-efficacy beliefs for promoting student motivation. Bandura (1997) has argued that self-efficacy beliefs can be promoted through mastery experiences and modeling. In addition, self-regulation training programs have reported hopeful results for improving students' academic performances (Zimmerman & Schunk, 2011).

Although, amotivation was not significantly predicted by self-efficacy or social support in the current study, it would be appealing if future studies examine amotivation as a separate construct, not as a subsystem of motivation types. Thus, future research could focus more directly on the role of self-

efficacy and perceived social support from different sources in predicting amotivation, rather than focusing on the prediction of amotivation in conjunction with self-controlled and externally controlled motivations.

In conclusion, the results highlight the importance of self-efficacy and perceived social support in predicting IM and EM. Specifically, self-efficacy and perceived social support from friends and a significant other are implicated for better understanding of IM and perceived social support from friends is important for understanding of EM.

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