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Academic Procrastination of Undergraduates: Self-determination Theory and Academic Motivation

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ABSTRACT Procrastination is a common issue amongst university students. There are researches claiming that procrastination causes stress, high anxiety and illness, and in addition to that some researchers state that procrastination is negatively related to self-esteem. The purpose of this study was to investigate the relation between academic motivation, basic psychological needs and academic procrastination with respect to self-determination theory on undergraduate students from different departments. In order to collect data, three different scales (Tuckman's Academic Procrastination Scale, Vallerand's Academic Motivation Scale and Deci and Ryan's Basic Psychological Scale) have been used. The participants consist of 583 undergraduate students from different fields of study. Structural Equation Modeling (SEM) is used in order to analyze the data collected to test the hypothesis model. As a result, this study revealed that procrastination behavior is predictable through academic motivation and basic psychological needs. Also, academic motivation is predictable through basic psychological needs.

INTRODUCTION

Procrastination is a prominent and very common phenomenon in society. Throughout the education process, people have to cope with assigned projects, term papers and reading materials most of the time.This phenomenon points that a great majority of students frequently engage in procrastination during their school life (Uzun et al. 2011), thus it is often pointed that academic procrastination may lead to school burnout or academic burnout (Akin 2012; Cakir et al. 2014; Cerino 2014; Katz et al. 2014). This makes procrastination attitude observable generally during this period. Although a great deal of research has been done into this behavior (Steel 2007), it still stands as an unsolved problem in-society as well as among university students. O'Brien (2002) and Steel (2007) have indicated that nearly ninety-five percent of American university students procrastinate before starting or completing a task. Since procrastination can cause stress, high anxiety and illness (Haycock et al. 1998; Onwuegbuzie 2004), undergraduates who suffer from this attitude seek a solution. With this motivation, researchers have conducted a lot of research and determined a negative relationship between procrastination and self-esteem (Ferrari 2000), self-efficacy (Cerino 2014; Katz et al. 2014) as well as academic performance (Rothblum et al.1986) and motivation (Senecal et al. 1995). Despite the fact that there has been a lot of research on procrastination and motivation, little work has been carried out to explore the relationship between procrastination and motivation with respect to self-determination theory, which divides motivation into three different forms—intrinsic motivation, extrinsic motivation, and amotivation. This research investigates academic procrastination and motivation among undergraduate students in Turkey using self-determination theory as a theoretical framework.

Academic Procrastination

Procrastination is defined in many different ways. It is the tendency to avoid tasks or duties that are mandatory to complete (Andreou 2007; Steel 2007), an unnecessary self-depression resulting from the postponement of responsibilities (Solomon and Rothblum 1984), a strategy for a person to protect self-respect (Burka and Yuen 1983; Lee 2005), a function of behavioral output-putting off the action, or the cognitive output-putting off making a decision (Rosario et al. 2009), the reflection of the delayed tasks in school life (Haycock et al. 1998).Wesley (1994)

indicates that academic procrastination is a negative parameter for academic performance of students. Many researchers also consider that academic procrastination causes academic failure, withdrawal of tough courses, absenteeism and school dropouts (Burka and Yuen 1983; Knaus 1998; Rothblum et al. 1984).

The abovementioned negative results have encouraged researchers to search for relationships between procrastination and other psychological components. They have found a negative correlation between procrastination and academic performance (Steel 2007), self-efficacy (Cerino 2014; Katz et al. 2014), as well as self-confidence (Van Erde 2000) and self-esteem (Ferrari 2000). According to Klassen et al. (2010), the lack of the ability of using different strategies, regulating the thoughts and learning process, which are the indicators of self-regulating behavior may cause reluctance of finishing the tasks. On the other hand, Chu and Choi (2005) have declared that some students procrastinate intentionally in order to perform better because those students study much better under stress and time pressure.

Academic Procrastination, Self-determination Theory and Academic Motivation

Motivation is also one notion that is negatively correlated with academic procrastination. Furthermore, some researchers define procrastination as a form of amotivation (Klassen and Kuzucu 2009). Motivation is a process through which a person can show great amount of perseverance and energy in order to finish a task (Rakes and Dunn 2010). Motivation is an effective factor in stimulating a person to display a behavior voluntarily (Akbaba 2006). Academic motivation is defined as a student's attitude towards school tasks and subjects (Artino Jr and Stephens 2009) and its positive effects on academic success (Alexander 2006).

Deci and Ryan (1985, 1991) have explained motivation as a three-dimensional concept, namely, intrinsic motivation, extrinsic motivation and amotivation within the scope of self-determination theory. Intrinsic motivation appears while doing a task without expecting any award or in an obligatory situation. Intrinsically motivated people perform just because they enjoy it. However, some people are externally motivated when their work is stimulated by a reward or a mandatory situation.Extrinsic motivation is divided into four sub-groups—external extrinsic motivation, introjected extrinsic motivation, identified extrinsic motivation, and integrated extrinsic motivation (Ryan and Deci 2000). A relatively controlled form of extrinsic motivation is introjected motivation. Avoidance of guilt, shame or anxiety is the main cause of the behavior shown with this type of motivation. Identified motivation is valuing a task because of its targets, which are important personally. The final extrinsic motivation type is integration, which occurs by synthesizing the meaning of an act and relating it with other objectives (Kuhl and Fuhrmann 1998). Amotivation is the reluctance of being in motion to complete a duty (Karatas 2011). According to self-determination theory, Deci and Ryan (2000b) consider intrinsic motivation and integrated extrinsic motivation as self-determined motivation. They claim that not every action can be intrinsically motivated behavior. However, extrinsically motivated actions can be transformed into self-determined motivation by internalization and integration. Deci and Ryan (2000b) assert that innate psychological needs should be satisfied in order to accomplish that transformation.

Self-motivation is highly affected by people's inner needs. In self-determination theory, these needs are specified as competence, relatedness and autonomy (Cihangir-Cankaya 2009). Competence is the feeling of being qualified in reaching desired ends and coping with the surrounding (Ingledew et al. 2004). Relatedness is the feeling of belongingness toward the near society (Kowal and Fortier 1999). Autonomy is the acceptance and approval of one's own actions along with their outcomes (Deci and Ryan 2000a). With the support of these three basic needs including autonomy, competence and relatedness, students can have higher self-determined motivation.

The purpose of this study is to investigate the relationship between academic motivation, basic psychological needs and academic procrastination with respect to self-determination theory among undergraduate students from different departments. The results of this study may provide instructors with an insight into academic procrastination. With the help of this research, instructors may give support to students in the right way in order to increase academic motivation and decrease academic procrastination.

MATERIAL AND METHODS

Participants

The study has been conducted at Yildiz Technical University, which is one of the state universities in Turkey. A convenient sampling technique has been used as a sampling technique during the study. Convenience sampling is a sampling technique in which the researcher includes everyone who is available at that time (Gay et al. 2009).The participants consist of 583 (N=583) undergraduate students 305 of whom (52.3%) are female whereas 278 (47.7%) are male. The students are from different faculties—63 (10.8%) from the Faculty of Fine Arts, 189 (32.4%) from the Faculty of Education, 191 (32.8%) from the Faculty of Engineering and finally,140 (24%) are from the Faculty of Science and Letters. The participants also show variety in terms of their school grades. The participants,130 of whom (22.3%) are first graders, 152 of the whom (26.1%) are second graders, 142 of whom (24.4%) are third graders and 159 (27.3%) of whom are fourth graders. All the participants who took part in the research responded to the questions voluntarily.

Data Collecting Instruments

The participants completed a 63-item survey which includes demographic questions and questions of academic procrastination scale, academic motivation scale and basic psychological needs scale.

In this research,Tuckman's 16-item academic procrastination scale has been used. This scale, "provides a valid and reliable estimate of the tendency to waste time, delay, and intentionally put off something that should be done" (Tuckman 1991: 479) for college students. The reliability of the original scale was computed as .86. The four-point scale has response choices ranging from—*that's me for sure (1)* to *that's not me for sure (4)*.Tuckman Procrastination Scale has been translated and adapted to Turkish by Uzun, et al. (2009b). The Turkish version consists of a 5-point scale, to which researchers added the response of "unsure" as an extra choice. In addition to this, 2 items from the original scale have been removed in the Turkish adaptation and the Cronbach alpha for the Turkish version has been computed as .90. This indicates that the Turkish adaptationof the Tuckman's academic procrastination test has a high level of reliability.

To determine the academic motivation of undergraduate students,the Academic Motivation Scale (AMS) developed by Vallerand et al. (1992) has been used. AMS has three dimensions—amotivation, extrinsic motivation and intrinsic motivation. It consists of 28 items, 4 of which are about amotivation, 12 of which are about extrinsic motivation while the remaining 12 are about intrinsic motivation. The seven-point scale has response choices ranging from—*that is me for sure (1)* to *that's not me for sure (7)*.The Cronbach alpha values vary from .78 to .90 for the original scale. The scale has been adapted to Turkish by Karatas and Erden (2011). The overall reliability of this version of the scale has been computed as .89, which means both English and Turkish versions of the scale have a high level of reliability.

The Basic Psychological Needs scale has been used in this research to determine autonomy, competence and relatedness levels of the participants. The scale has been developed by Deci and Ryan (1991) and adapted to Turkish by Bacanli and Cihangir (2003). The 7-point Likert scale consists of 21 items and has three dimensions—autonomy, relatedness and competence. The Cronbach Alpha value of the scale in general is .83, which suggests that the scale has a high level of reliability.

Data Analysis

In this study, the Structural Equation Modeling (SEM) has been used to analyze and test the hypothesized model, which has been deduced from the literature."SEM is a statistical methodology that takes a confirmatory approach to the analysis of a structural theory bearing on some phenomena" (Byrne 2001). SEM has several advantages in the studies where the purpose is to identify a relationship between dependent and independent variables. First of all, a researcher can construct complex multiple relationships (direct and indirect) between variables with a single model, which means SEM can evaluate many equations once and for all by means of a single model. In this model, the variables in the equations are interrelated, which means a variable can be an independent variable in one equation whereas it can be a dependent variable in another equation (Hair et al. 1998). Secondly, the data can be analyzed according to the hypothesized model, and during this process, SEM can identi-

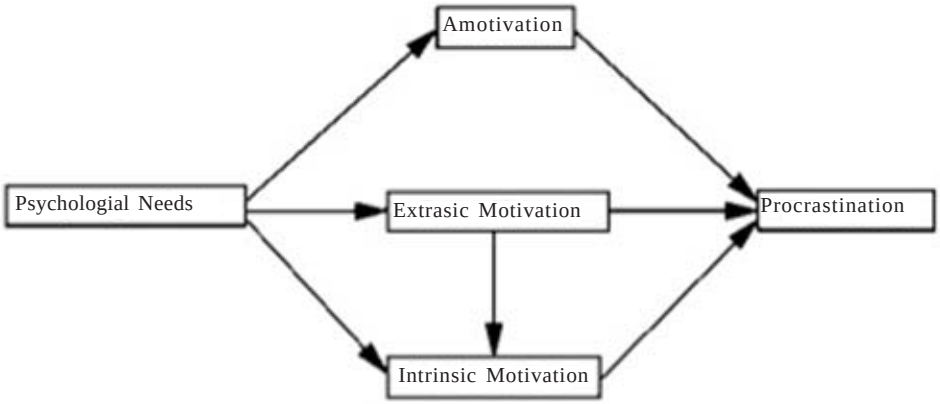

Fig. 1. The Hypothesis Model

fy and remove the weaknesses of this model. Consequently, the researcher can reach the model constructed with the data (Weston and Gore 2006). Hence, the model uses shapes and arrows to represent the relationships and this visual representation provides a clearer conceptualization of the theory within the context of the study (Byrne 2001). The quantitative analysis programs SPSS 21.0 and AMOS 22.0 have been used in the analysis.

RESULTS

After analyzing the data, a hypothesis model of the study has been implemented through the path analysis. The hypothesis model is as follows.

In the hypothesis model, extrinsic motivation, intrinsic motivation and amotivation are thought to affect the academic procrastinating behavior directly. According to the model, psychological needs affect extrinsic motivation, intrinsic motivation and amotivation directly. Therefore, psychological needs are also thought to affect procrastinating behavior indirectly via extrinsic motivation, intrinsic motivation and amotivation. In addition to this, extrinsic motivation is also thought to affect procrastination indirectly via intrinsic motivation. Before analyzing the hypothesis model, the correlations among the variables have been examined (Fig.1).

After examining the correlations among academic procrastination, psychological needs and also academic motivation types, significant relationships have been revealed especially between procrastination and psychological needs as well as between amotivation and intrinsic motivation. It has also been noticed that a negative correlation between procrastination and psychological needs ($r=-.30$, $p<.01$) exists (Table 1). Moreover, it has been observed that procrastination and amotivation are positively correlated ($r=.25$, $p<.01$), and procrastination and intrinsic motivation are negatively correlated ($r=-.29$, $p<.01$). Apart from procrastination, there is a strong relationship between extrinsic and intrinsic motivation ($r=.20$, $p<.01$).

Table 1: Correlation values among variables

Variables	*1*	*2*	*3*	*4*	*5*
Procrastination (1)	1				
Psychological needs (2)	-.30**	1			
Amotivation (3)	.25**	-.30**	1		
Extrinsic motivation (4)	.07	.025	-.08*	1	
Intrinsic motivation (5)	-.29**	.31**	-.12**	.20**	1
Total	583	583	583	583	583

*p<.05, **p<.01

All of these correlations obtained from the research data have supported the hypothesis model. Therefore, this model test applied to explain academic procrastination has been conducted.

The calculated hypothesis model and its result are illustrated below in Figure 2.

The model coefficients show that the model has not metthe criteria for the good fit model coefficients. According to Hu and Bentler (1999), the chi-square value must be 6 and the RMSEA value must be as high as .08 (Byrne 2001). Therefore, the model needs some revisions in order to meet the goodfit model criteria (Table 2).

Table 2: The findings of fit indices for initial model

	CMIN/DF	*CFI*	*NFI*	*RMSEA*	*RFI*
MODEL	7.32	.92	.92	.10	.72

In the initial model, the level of Psychological Needs for the prediction of extrinsic motivationis .03, which is not statistically significant. Therefore, the arrow, which represents the link between psychological needs and extrinsic motivationhas been removed and this new model has been recalculated. The final model is presented in Figure 3.

In this new model,the chi-square (CMIN/DF) has been found to be 5.5, the CFIhas been found to be .93, the NFI has been found to be .91, the RFIhas been found to be .79 and the RMSEA has been found to be .08. These values almost satisfy the goodfit model criteria, that is, the CFI and the NFI are over .90, the chi-square (CMIN/DF) is below 5 and the RMSEA value is as high as .08 (Simsek 2007; Byrne 2001) (Table 3).

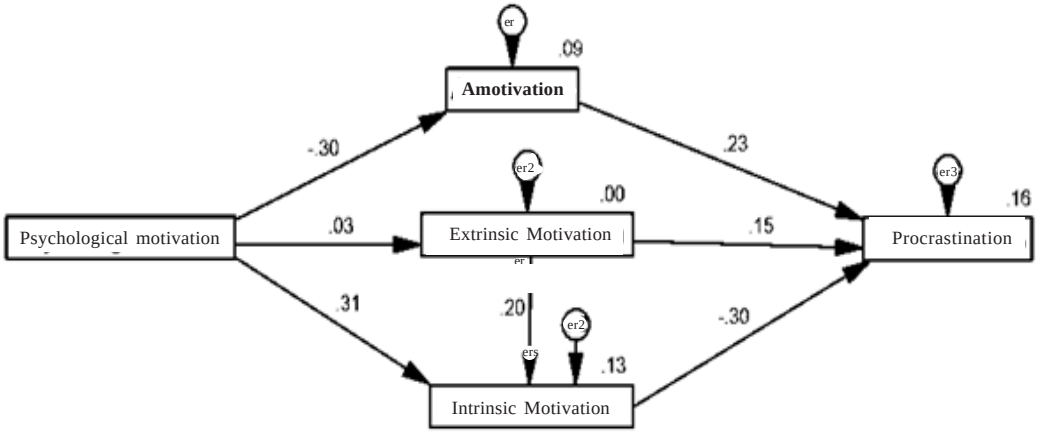

Fig. 2. The Calculated Hypothesis Model

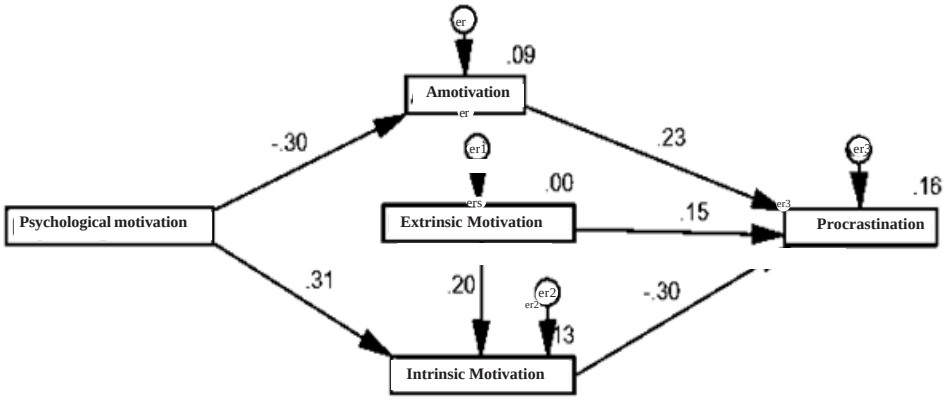

Fig. 3. Final model

Table 3: The findings of fit indices for the final model

	CMIN/DF	*CFI*	*NFI*	*RMSEA*	*RFI*
MODEL	5.5	.93	.91	.08	.79

DISCUSSION

In this research, the purpose is to examine the relationship between academic procrastination, academic motivation and basic psychological needs. The result of this study implies that academic motivation, which is divided into three sub-categories—extrinsic motivation, intrinsic motivation and amotivation, and basic psychological needs explain academic procrastination in the same model via direct and indirect relationships.

One of the findings of this research indicates that academic motivation is one of the predictors of academic procrastination, which is consistent with the literature (Orpen 1998; Brow lowand and Reasinger 2000; Balkis et al. 2006; Kuzucu and Klassen 2009; Dunn and Rakes 2010; Klassen et al. 2010; Lee 2010; Kilbert et al. 2011; Cao 2012; Cerino 2014; Katz et al. 2014). Kilbert et al. (2011) have found a moderate negative correlation between motivation and the academic procrastination of college students. In addition to this, Orpen (1998) and Balkis et al.(2006)have found a negative correlation among academic procrastination and motivation and academic achievement. Similarly, Kuzucu and Klassen (2009) have found that procrastination is strongly associated with motivation variables such as self-efficiency, self-efficiency for self-regulation and self-esteem. Klassen et al. (2010) have examined procrastination and motivation in both Singapore and Canada among university students. They have obtained the same findings. In the research, carried out by Hassan and Sultan (2011), it has been observed that one of the main reasons why students procrastinate and are unable to complete their work in time is the lack of motivation. In 2010, Dunn and Rakes conducted a study among online graduate students in order to investigate the impact of effort regulation, self-regulation and intrinsic motivation on academic procrastination. As a result, they have found a significant negative correlation between intrinsic motivation and procrastination. Research has showed that academic procrastination has stronger negative relationships with intrinsic motivation than extrinsic motivation (Senecal et al. 1995, Browlow and Reasinger 2000; Motie et al. 2012; Cerino 2014). Both intrinsic motivation and extrinsic motivation are negatively correlated with academic motivation, however although grades are important features for extrinsic motivation, they do not act as a good motivator unless students are intrinsically motivated (Browlow and Reasinger 2000). Therefore intrinsically motivated students tend to procrastinate less than extrinsically motivated students (Senecal et al. 1995). Among the types of extrinsic motivation introjected extrinsic motivation has a significant negative relationship with procrastination because this motivation type is quite similar to the intrinsic motivation (Cerino 2014). Lee (2010) has examined the relationship between motivation and flow experience in terms of academic procrastination among undergraduate students in Korea. Lee highlights the importance of the type of motivation. The researcher has found out a significant negative correlation between intrinsic motivation and self-determined extrinsic motivation. On the other hand, a positive correlation has been found out between amotivation and academic procrastination in this study. Surprisingly, there has been no significant correlation between non-self-determined extrinsic motivation and procrastination. Contrary to these research results, Chu and Choi (2005) have been unable to find a significant difference between the intrinsic motivation of procrastinators and non-procrastinators. Therefore, they have claimed that there are active procrastinators who benefit from procrastinating. In order to refute this argument, Cao (2012) has conducted another research in which the participants have been divided into three groups—active procrastinators, passive procrastinators and non-procrastinators. The results of the research have revealed that the lowest level of intrinsic motivation belongs to active procrastinators.

Another result of this study is that basic psychological needs are direct predictors of the two motivation types namely, amotivation and intrinsic motivation. This finding is consistent with the self-determination theory of Deci and Ryan (1991). This theory argues that motivation will be maximized if a person lives in a social environment that provides the opportunity to satisfy basic psychological needs such as competence, relatedness and autonomy. Psychological Needs

are key elements to convert non-self-determined extrinsic motivation into self-determined extrinsic motivation. Standage et al. (2005) found a relationship between psychological needs and motivation. After conducting a Structural Equation Modeling, they found that the satisfaction of psychological needs leads either positively to intrinsic motivation or negatively to amotivation. In the study, the researcher has divided external motivation into two parts—introjected regulation that can be regarded as self-determined extrinsic motivation and external regulation that can be regarded as non-self-determined extrinsic motivation.

Another result of this study is that academic procrastination is indirectly related with psychological needs. Basic psychological needs are indirect predictors of academic procrastination via amotivation and intrinsic motivation. There are also some other studies that have parallel results as the findings of this study. Vallerand (1983) and Ryan (1982) have found that intrinsic motivation increases when a person receives support for competence and relatedness, and this increase gets higher if support for autonomy accompanies them. In addition to this, Senecal et al. (2003) have suggested that an autonomy supportive environment reinforces self-determined motivation. In another research, the findings have demonstrated that there is a positive and significant relationship between psychological resilience and the procrastination levels of students (Oksuz and Guven 2014). Therefore, psychological needs are important factors for motivation and motivation is also an important predictor for academic procrastination which accounts for the indirect relationship between psychological needs and procrastination.

CONCLUSION

In this study, the researchers aimed to investigate the relationship between motivation, basic psychological needs and academic procrastination. With this purpose, a model has been hypothesized and tested. As a result of the model test, it has been found out that motivation types are direct predictors of academic procrastination. Among the motivation types,both intrinsic and extrinsic motivations are important types that affect procrastination negatively. When compared, intrinsic motivation has a greater effect on procrastination. In addition, amotivation is another important motivation type that predicts procrastination positively.

Another finding of this study is that basic psychological needs are important predictors of intrinsic motivation and amotivation. Psychological needs have positive impacts on intrinsic motivation and negative impacts on amotivation. In this study, the researchers have been unable to findany relationship between psychological needs and extrinsic motivation. This result might be due to different types of extrinsic motivation. Some types of extrinsic motivation are closer to amotivation and they are non-self-determined and other types of extrinsic motivation are similar to intrinsic motivation. In this study, the researchers have analyzed the types that are similar to amotivation.

This study has also discovered the indirect relationship between psychological needs and academic procrastination in terms of motivation. The positive contribution of psychological needs to intrinsic motivation forms more self-determined behavior. In terms of academic studies, an increase in self-determined behavior and decisions causes a decrease in academic procrastination. Therefore, students who do not have any support for competency, relatedness and autonomy are the first candidates for active procrastination.

The model employed in this study aims to explain academic procrastination through motivation types and basic psychological needs. The results of the research revealed that academic procrastination behavior of college students can be elucidated with these variables. However, the results of this study are limited with the research population. In this study, the participants are undergraduate students; therefore, in order to make a generalization, many studies should be applied to other sample groups with different ages and different cultural backgrounds. The studies should be confirmed with different measurement techniques. The purpose of this study is to explain academic procrastination but the researchers have been able to measure only a few factors. In order to have a wider understanding of procrastination, other factors related with procrastination should be investigated, as well.

RECOMMENDATIONS

This study provides qualified data for teachers, parents and other stakeholders in the edu-

cation field about academic procrastination. If students are provided with sufficient support by their environment, they will tend to get motivated intrinsically and procrastinate less. In this respect, teachers should try to provide support for their students. They should try to explain the real motive behind an academic task rather than focusing on grades that a student should reach. It is important for students to do a task just because they choose to do it. Teachers are also responsible for creating the suitable atmosphere for this. Parents should also help children satisfy their basic psychological needs. They should ensure a secure social environment to increase their children's competency needs and should encourage them to perform the given academic tasks.

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