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Research Article

Student Perceptions of Attribution: Relationship between Academic Performance, Attribution Strategy, and Perceived Causal Attribution

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Abstract: Extant literature confirms that students adopt several learning strategies to improve their academic performance. Attribution, one of the two most influential learning strategies, is regarded as an important factor to understand students' psychological characteristics related to their achievement. However, as previous studies mainly utilized self-report measurement, without emphasis on specific situations, it is unclear whether there is a significant relationship between a student's own attribution strategy, their perceived causal attribution in a specific context, and actual academic performance. To address this issue, the present study adapted the vignette experimental methodology, providing specific educational scenarios to students to measure their perceived attribution within that context. Results a significant relationship between individual attribution type, perceived causal attribution, and grade point average (GPA; as an indicator of academic performance). This finding demonstrates that, even in specific educational situations, students employ their own attribution strategy to infer causal attribution in given cases, and that this tendency is closely modulated by their GPA.
Keywords: Perception, Academic Performance, Attribution, Education, Student Characteristics.

Introduction

History has taught us that we like to assign causes to various outcomes, albeit good or bad. This is also apparent in the educational world, where students who desire to maximize their academic fulfillments also exhibit a strong tendency to establish rationales about their performance. University students are evaluated and valued according to their academic performance, which is essentially represented by a metric referred to as the Grade Point Average (GPA). With the daily pressure that they face to increase or maintain their GPA, students are naturally prone to credit or blame certain factors or determinants that contribute to their performance. This process of assigning causes to our own or others' behaviors is referred to as "attribution."

Attribution is classified into two types; internal and external attribution (Weiner, 2010; Graham & Weiner, 2012). The former refers to the tendency of assigning responsibilities and causes to one's inherent characteristics, while the latter refers to doing so to factors in the external environment. Ability and effort are components often associated with internal attribution as they reflect one's innate characteristics. In contrast, task difficulty and luck are components often associated with external attribution as they are external factors that are out of one's innate control. According to the attribution theory, humans are most likely to attribute their successes to their own innate abilities and failures than to bad luck—a behavior also seen among university students.

Most university students seek to achieve and maintain a high GPA as an indicator of their academic excellence. However, this desire for academic excellence is also highly dependent on one key factor: motivation. Motivation refers to the reasons or causes that make one behave in a particular way.

Motivation theorists often classify it into extrinsic and intrinsic motivation. While the former refers to external factors that drive one's motivation, the latter pertains to actions performed solely for one's inherent satisfaction. Examples of extrinsic motivation include financial gains, good academic transcripts, and family expectations; whereas, those of intrinsic motivation include self-interest, self-satisfaction, and self-contentment. According to studies, in an academic context, students with higher intrinsic motivation and lower extrinsic motivation exhibited higher levels of academic achievement while those with lower intrinsic motivation and higher extrinsic motivation exhibited lower levels of academic achievement. It was also found that, because intrinsically motivated students exhibited better psychological well-being, they ultimately had higher levels of academic achievement.

Several previous studies have explored the effects of attribution and motivation on student performance (Graham, 1991; Mkumbo & Amani, 2012; Lin *et al.*, 2017; Radmehr *et al.*, 2018). However, these studies depended on self-reported measurements to assess participants' own attribution types and motivation. These studies also lacked in that they presented abstract, general situations without specific context and measured multiple variables simultaneously, which decreased the credibility of their findings.

Nevertheless, a few studies found that students can estimate other students' motivation and learning behaviors based on their perception of a specific context. For instance, Rettinger *et al.*, (2004) examined the effects of motivation and competence on expected cheating behavior of other students by using the vignette experimenting method. This method uses short descriptions to present case scenarios to respondents, in order to evoke their judgements about these scenarios. Rettinger *et al.*, (2004) conducted an experiment utilizing a 2×2 between-subjects design with four vignette stories of a student, examining high and low competence, and intrinsic and extrinsic motivation. One each of the four vignette stories was presented to one respective student. Results from their study revealed that, when Robert, the fictional character in the vignette, was intrinsically motivated and displayed competence—thinking of himself as having high ability, students perceived him to be less likely to cheat. Furthermore, the "you" scale, which measured the likelihood of the students taking the survey to cheat, and Robert's scale, which measured the likelihood of the fictional character to cheat, showed analogous patterns of likelihoods of cheating.

As such, previous studies do not examine the relationship between academic performance and learning strategies in specific situational contexts. In other words, it is unclear how students would evaluate and reflect the causal attribution of results specific to academic performance. To examine this phenomenon, in the present study, the vignette experimenting approach was adapted to allows for more content specificity and emphasis on what needed to be measured. Additionally, students' own attribution behavior was estimated using the question, "what would you (the respondent) do in this situation?" rather than "what would the fictional character do?". In general, vignette studies show merit in tackling controversial and sensitive topics such as bullying (Demol *et al.*, 2021). Using a vignette method to study bullying not only facilitates addressing the primary issues of bullying but it also eliminates sensitive aspects as the situations are fictional and are devised to bring out the most detailed and prominent information from respondents. This ultimately allows for more accurate results. Therefore, this method was considered appropriate for assessing the core variables in the present study as well.

In sum, the present study aimed to investigate the relationship between learning strategies, causal attributions, and academic performance. Specifically, the following hypotheses were tested:

Hypotheses

(1) **Null hypothesis (H_0):** There is no significant relationship between students' learning strategies (motivation and attribution) and academic performance (GPA).
Research hypothesis (H_1): There is a significant relationship between students' learning strategies (motivation and attribution) and academic performance (GPA).

(2) **Null hypothesis (H_0):** There is no significant relationship between a student's causal attributions of learning strategies in their own and other students' cases.
Research hypothesis (H_1): There is a significant relationship between a student's causal attributions of learning strategies in their own and other students' cases.

(3) **Null hypothesis (H_0):** There is no significant relationship between a student's causal attributions of academic performance (GPA) in their own and other students' cases.
Research hypothesis (H_1): There is a significant relationship between a student's causal attributions of academic performance (GPA) in their own and other students' cases.

Method

Participants

The study sample (N=101) consisted of undergraduate and graduate university students in the US Metropolitan Areas. All students were invited to participate in this study via SurveyMonkey, in November 2022. Of them, 13 participants (12.87%) were first-year undergraduate students, 14 (13.86%) were second-year undergraduate students, 17 (16.83%) were third-year undergraduate students, 38 (37.62%) were fourth-year undergraduate students, 10 (9.90%) were first-year graduate students, and 9 (8.91%) were second-year graduate students. In terms of gender-based distribution, the sample comprised 48 males (47.52%), 52 females (51.49%), and 1 student (0.99%) who identified as neither. The average Grade Point Average (GPA) of the students was 3.24 on a 4.0 scale and their respective field of study varied. With reference to ethnicity-based distribution, 49 students were White, 23 were Asian and Asian American, 13 were Hispanic or Latino, 12 were Black or African American, 1 was American Indian or Alaska Native, 1 was Native Hawaiian or other Pacific Islander, and 2 were from other ethnicities.

Measures

The present survey comprised forty-nine questions across three sections; six questions on demographic information, twelve questions pertaining to the vignette survey, and thirty-one questions assessing students' learning strategies.

The vignette survey explored the relationship between one's own attribution and motivation tendency, and one's perceived attribution of others' performance. Each student was presented all four excerpts one at a time, and each excerpt was followed by its respective questions. All four vignettes described Asian male college students enrolled in a difficult course. These vignettes manipulated the fictional Asian male college students' source of motivation (intrinsic and extrinsic) and attribution (internal and external). The vignettes and the questions have been presented in Table 1.

Table 1. Vignette Cases and their Respective Questions

Vignette Cases	
Case Scenario 1	*Wonjae Cho is a sophomore in an undergraduate program. He has voluntarily enrolled in an extremely difficult general studies course. Wonjae Cho likes learning the material in this course as he is intrigued by the contents that are provided and finds joy in learning those contents. Despite the course being highly challenging, Wonjae Cho feels like he can ace this course, considering that he is a very competent programmer and that programming is the fundamental principle of this course. In addition, fortunately for Wonjae, there is a content overlap with a humanities course that he took in his freshman year. At the end of the semester, he receives an A+.*
Case Scenario 2	*Tianyu Wang is a second-year student enrolled in an extremely intense calculus course. Tianyu has always been interested in calculus as he likes to read about mathematical principles and theories. Due to other commitments, he was not able to allocate time to this course. Furthermore, the professor of the course is known to be incompetent and arrogant. With all the resources that he has, he takes the final exam but receives a final grade of D+.*

Case Scenario 3	*Incheol Kim is an international student pursuing a bachelor's degree in the field of Educational Psychology. Incheol's family has invested thousands for him to study abroad and they have high expectations of him. In order for him to achieve that, he must first receive an excellent grade in his challenging Educational Psychology course. Due to the pressure that he feels from his family, he is not able to work efficiently. Unluckily, on the day of the exam, none of the content that he studied came out. He ends up receiving a D.*	
Case Scenario 4	*Ryotaro Sakai is a first-year international student with a full-ride scholarship at a highly competitive university. He takes multiple courses, one of which is an extremely challenging general studies course. For Ryotaro to maintain his full-ride scholarship, he must maintain a 4.0 GPA; thus, he studies extremely hard for the general studies course. Luckily for him, some of the content in this course overlaps with a general studies course that he took in high school. As a result, he receives an A+ and maintains his full-ride scholarship.*	
	Evaluation	**Perception**
Question	*1. Where do you think [Character] will credit his [A+/D/D+] to?*	*2. If you were [Character], where would you credit your [A+/D/D+] to?*

The learning strategies questionnaire explored individual motivational strategies. This survey was adapted from a self-administered questionnaire designed by Gargallo *et al.*, (2009) and of the original 88 items, only 31 items relevant to learning strategies were used in the present study. These selected questions aimed to measure four categories of learning strategies: extrinsic motivation, intrinsic motivation, external attribution, internal attribution.

Each item asked the respondent to select one of the following five options expressing the extent to which they agreed with the statement: Totally Disagree, Disagree, Undecided, Agree, and Totally Agree.

Design and procedure

This vignette study utilized a 2 × 2 within-subjects design, with source of motivation (intrinsic and extrinsic) and attribution (internal and external) as independent variables (Table 2).

Table 2. Motivation Types and Result Types Included in the Vignette Cases

		Motivation type	
		Intrinsically motivated	Extrinsically Motivated
Result type	Success	**Wonjae Cho** Internal Attribution: *Programming skill* External Attribution: *Content overlap from a previous humanities course*	**Ryotaro Sakai** Internal Attribution: *His effort* External Attribution: *Content overlap from a previous general studies course*
	Failure	**Tianyu Wang** Internal Attribution: *Lack of effort* External Attribution: *Professor's incompetence*	**Incheol Kim** Internal Attribution: *Lack of effort* External Attribution: *None of the content that he studied coming out on the exam*

The primary purpose of utilizing a within-subjects design was to assess each participants' response to each of the 4 scenarios. This allowed the examination of differences in behavior in diverse situations and reactions from one participant, simultaneously controlling for the effect of other variables. The resulting findings would be more accurate and detailed as compared to those obtained in previous studies that presented only one vignette to each participant. As such, all of the 101 respondents read all four case-scenarios involving *Wonjae Cho, Tianuy Wang, Incheol Kim,* and *Ryotaro Sakai* and answered the respective questions that followed each vignette. The survey was released in November 2022, via SurveyMonkey, an online survey platform that allows for a target audience of respondents (the present target audience being university students in the US). Participants took approximately 20

minutes to complete the 49-item survey, after which they were rewarded according to the policies set by SurveyMonkey.

Result

First, chi square analysis was used to identify statistically significant relationships between learning strategy, academic performance, and causal attributions. For this analysis, GPA data were classified into four categories; 0 to 1, 1 to 2, 2 to 3, and 3 to 4. To estimate the level of participants' evaluations and perceptions of causal attribution in the vignettes, the total number of times they exhibited internal attribution across the four cases were computed, which produced a score ranging from 0 to 4. Thus, higher scores were indicative of a higher tendency to utilize internal attribution, while lower scores were indicative of a higher tendency to utilize external attribution. Similar chi square analyses were applied to participants' individual attribution type, which was determined based on their mean scores for internal and external attribution.

Descriptive analysis

The learning strategies questionnaire measured each participant's individual motivation (intrinsic and extrinsic) and attribution (internal and external). The mean intrinsic motivation score in the present sample was 3.71 (SD = 0.69, range: 1.7-5) and that of extrinsic motivation was 3.43 (SD = 0.90, range: 1–5). As for individual attribution, the mean internal attribution score was 3.88 (SD = 0.66, range: 2-5), and that of external attribution was 3.10 (SD = 0.94, range 1-5).

The questionnaire also assessed participants' causal attribution pertaining to the four fictional characters' (*Wonjae Cho, Tianuy Wang, Incheol Kim,* and *Ryotaro Sakai*) and individual attribution (internal and external) in each specified case scenario. Regarding perceived attribution of the four fictional characters, the mean perceived internal attribution score was 2.21 (SD = 1.05, range: 0-4), while that for perceived external attribution was 1.79 (SD = 1.05, range: 0-4). For their own attribution in the specified case scenarios, the mean individual internal attribution score was 2.25) SD = 1.14, range 0-4), while that for individual external attribution was 1.75 (SD = 1.14, range: 0-4).

Chi square analyses

According to the chi square analysis, there was no significant relationship between motivation type and other factors. However, a significant relationship was found between attribution factors and academic performance. These results have been further explained with reference to each hypothesis.

Table 3. Relationship between GPA and Attribution Type

Attribution type		GPA			
		Low	Moderate	High	Total
Internal Attribution	Count	1	11	55	67
	Expected	0.66	15.92	50.42	67
	% within row	1.49 %	16.42 %	82.09 %	100 %
External Attribution	Count	0	13	21	34
	Expected	0.34	8.08	25.58	34
	% within row	0 %	38.24 %	61.77 %	100 %
Total	Count	1	24	76	101
	Expected	1	24	76	101
	% within row	0.99 %	23.76 %	75.25 %	100 %

Hypothesis 1: The chi square analysis showed a significant relationship between a student's own learning strategies (motivation and attribution) and their academic performance (GPA), $\chi^2(2) = 6.264$, $p = .044$. As evident from Table 3, students in the high GPA group were more likely to belong to the internal attribution type than the external attribution type (55 vs. 50 expected), while those in the moderate GPA group were less likely to exhibit actual internal attribution (11 vs. 16 expected).

Table 4. Relationship between Number of Perceived Internal Attributions across the Four Vignettes and Attribution Type

Attribution type		Number of perceived internal attributions across the four vignettes					Total
		None	One	Two	Three	Four	
Internal Attribution	Count	5	9	17	23	13	67
	Expected	4.64	13.27	19.24	20.56	9.29	67
	% within row	7.46 %	13.43 %	25.37 %	34.33%	19.40 %	100 %
External Attribution	Count	2	11	12	8	1	34
	Expected	2.36	6.73	9.76	10.44	4.71	34
	% within row	5.88 %	32.35 %	35.29 %	23.53 %	2.94 %	100 %
Total	Count	7	20	29	31	14	101
	Expected	7	20	29	31	14	101
	% within row	6.93 %	19.80 %	28.71%	30.69 %	13.86 %	100 %

Hypothesis 2: The chi square analysis showed a significant association between a student's causal attributions in other students' cases and their own learning strategies, $\chi^2(4) = 10.198$, $p = .037$. As evident from Table 4, students in the external attribution group were more likely to exhibit higher scores (of 3 or more) on the number of external attributions observed across the four vignettes (9 vs. 15 expected). In contrast, those in the internal attribution group were more likely to exhibit higher scores (of 3 or more) on the number of internal attributions observed across the four vignettes (36 vs. 30 expected). These results support Hypothesis 2, that there is a significant relationship between a student's causal attributions of learning strategies in their own and other students' cases.

Table 5. Relationship between Number of Perceived Internal Attributions across the Four Vignettes and GPA

GPA		Number of perceived internal attributions across the four vignettes					Total
		None	One	Two	Three	Four	
Low	Count	1	0	0	0	0	1
	Expected	0.07	0.20	0.29	0.31	0.14	1
	% within row	100 %	0 %	0 %	0%	0%	100%
Moderate	Count	2	9	7	5	1	24
	Expected	1.66	4.75	6.89	7.37	3.33	24
	% within row	8.33 %	37.50 %	29.17 %	20.83 %	4.17 %	100%
High	Count	4	11	22	26	13	76
	Expected	5.27	15.05	21.82	23.33	10.54	76
	% within row	5.26 %	14.47 %	28.95 %	34.21 %	17.11 %	100 %
Total	Count	7	20	29	31	14.	101
	Expected	7	20	29	31	14	101
	% within row	6.93 %	19.80 %	28.71 %	30.69 %	13.86 %	100 %

Hypothesis 3: The chi square analysis showed a significant association between academic performance (GPA) and internal causal attribution, $\chi^2(8) = 21.961$, $p = .005$ (Figure 1 & 2). As evident from Table 5, students in the high GPA group were more likely to exhibit higher scores (of 3 or more) on the number of internal attributions observed across the four vignettes (39 vs. 33 expected). In contrast, those in the moderate GPA group were more likely to exhibit lower scores (of 1 or less) on the number of internal attributions observed across the four vignettes (11 vs. 6 expected). These results support Hypothesis 3, that there is a significant relationship between a student's causal attributions of academic performance (GPA) in their own and other students' cases.

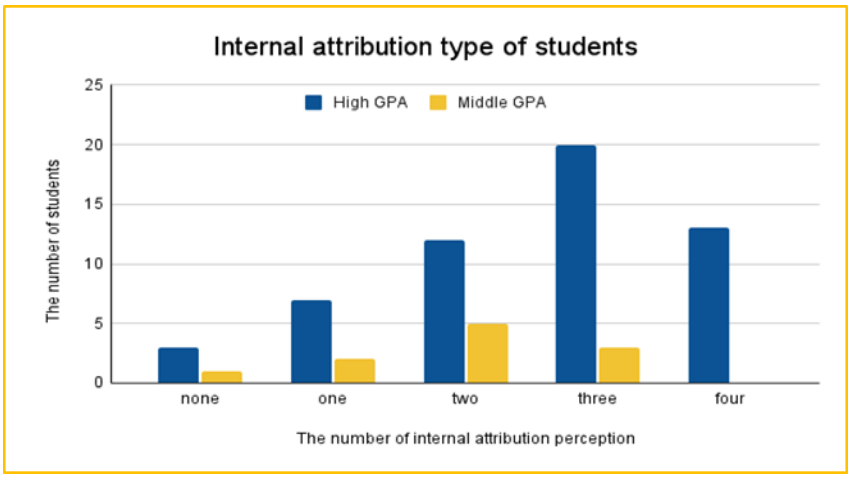

Figure 1. GPA and number of internal attribution perceptions in given cases among students with internal attribution tendencies (N=66)

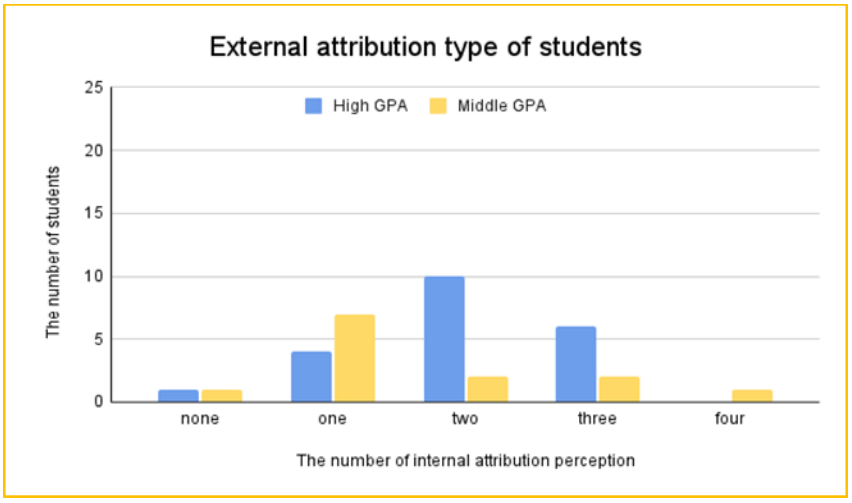

Figure 2. GPA and number of internal attribution perceptions in given cases among students with external attribution tendencies (N=34)

Discussion

This present study examined the relationship between learning strategies, causal attribution perceptions, and academic performance. In the aforementioned results, the key findings support the three following hypotheses. There was a significant relationship between students' own learning strategies (motivation and attribution) and their academic performance (GPA). Specifically, students with a higher GPA tended to attribute their successes and failures to internal rather than external factors. Additionally, there was significant relationship between students' causal attributions in other students' cases and their own learning strategies. That is, students who were more likely to employ the internal attribution strategy tended to reflect similar internal causal attributions in other students' cases. Lastly, the present results confirmed a significant association between students' causal attributions in other students' cases and their own academic performance (GPA). Specifically, students with a higher GPA tended to attribute other students' successes and failures to internal factors.

These findings are consistent with those of previous studies. Regarding the relationship between learning strategies (motivation and attribution) and academic performance (GPA), according to a previous study (Chen & Graham, 2018), Asian students who are high achievers and who exhibit high academic performance had low self-esteem, which is essentially low confidence in their abilities—an aspect of internal attribution. Instead, these students attributed their successes to their efforts—also an aspect of internal attribution. This suggests that Asian students with high GPAs attributed their

successes to their efforts, not their abilities. Moreover, the present findings are consistent with previous studies conducted in New Zealand. Specifically, McClure *et al.,* (2011) reported that Asian students who are high achievers attributed their successes to internal attribution strategies and their failures to external attribution strategies. In other words, students tended to credit their successes to their own efforts and abilities, and their failures to task difficulties and their professors. McClure et al.'s study addressed the role of ethnicity in the relationship between learning strategies and academic performance, which could significantly shift the present study's results.

Despite its contributions to, and implications for, the area of educational psychology, the present study has several limitations. These limitations are discussed in conjunction with suggestions for future research. First, the sample population consisted of 101 individuals in disproportionate ratios of race, gender, sexuality and social class. These four variables—race, gender, sexuality, social class—were not strictly controlled and could have potentially skewed the results as they may, to a certain extent, be crucial to learning strategies, causal attributions, and academic performance. Though the sample size is functional and fulfills its role, it is still relatively a small population size to base its results on the total population. In addition, this study only recruited US college students from the Metropolitan Areas, which limits its application to other students in other parts of the world. Thus, future studies could be conducted with a larger sample size, more diversity, and more controlled variables depending on what needs to be measured—race, gender, sexuality, and social class.

Secondly, there were apparent inherent limitations with the survey itself. The online survey website, SurveyMonkey, is a reasonably credible website and has users and participants from all around the world. That being said, there are inherent limitations with social sciences that cannot be ignored. These limitations include but are not limited to uncontrollable variables such as the motivation and incentives of the respondents, as not every respondent may have answered the survey with full concentration and responsibility. Because there are no repercussions and responsibilities that they are held accountable for, they may just have skimmed through the questions and answered arbitrarily. Thus, the results might have relatively low reliability. Some adjustments to constrain this limitation could be to increase the incentives for the respondents and to hold them accountable for their responses.

Thirdly, regarding the vignettes themselves, there were consistent elements that may have hindered larger applications of the results. The fictional characters in the vignettes were all male students and had Asian names. Despite these variables being controlled for, they may have skewed the results due to Asian stereotypes and differences in cultural perception. For instance, regarding Tianyu's case, the stereotype that Asians excel in Mathematics may have given Tianyu an innate advantage in thinking that he excels in Mathematics. It is therefore unknown whether the respondents selected their respective answers based on the stereotypes or not. For future studies, these could be eliminated so that all variables are controlled for and are relatively objective.

Conflicts of interest: There is no conflict of interest of any kind.

References

1. Chen, X. and Graham, S. 2018. Doing better but feeling worse: an attributional account of achievement-self-esteem disparities in Asian American students. Social Psychology of Education, 21(4): 937-949.
2. Demol, K., Verschueren, K., Jame, M., Lazard, C. and Colpin, H. 2021. Student attitudes and perceptions of teacher responses to bullying: An experimental vignette study. European Journal of Developmental Psychology, 18(6): 814-830.
3. Gargallo, B., Suárez-Rodríguez, J.M. and Pérez-Pérez, C. 2009. The CEVEAPEU questionnaire. An instrument to assess the learning strategies of university students. RELIEVE-Revista Electrónica de Investigación y Evaluación Educativa, 15(2): 1-26.

4. Graham, S. 1991. A review of attribution theory in achievement contexts. Educational Psychology Review, 3(1): 5-39.
5. Graham, S. and Weiner, B. 2012. Motivation: Past, present, and future. In: Harris, K.R., Graham, S., Urdan, T., McCormick, C.B., Sinatra, G.M. & Sweller, J. (Eds.), APA educational Psychology Handbook: Vol. 1.
6. Lin, C.H., Zhang, Y. and Zheng, B. 2017. The roles of learning strategies and motivation in online language learning: A structural equation modeling analysis. Computers and Education, 113: 75-85.
7. McClure, J., Meyer, L.H., Garisch, J., Fischer, R., Weir, K.F. and Walkey, F.H. 2011. Students' attributions for their best and worst marks: Do they relate to achievement?. Contemporary Educational Psychology, 36(2): 71-81.
8. Mkumbo, K.A. and Amani, J. 2012. Perceived university students' attributions of their academic success and failure. Asian Social Science, 8(7): 247-255.
9. Radmehr, F., Laban, H.L.W., Overton, J. and Bakker, L. 2018. Motivational strategies of university students in New Zealand: The role of ethnicity. The Asia-Pacific Education Researcher, 27(3): 245-255.
10. Rettinger, D.A., Jordan, A.E. and Peschiera, F. 2004. Evaluating the motivation of other students to cheat: A vignette experiment. Research in Higher Education, 45(8): 873-890.
11. Weiner, B. 2010. The development of an attribution-based theory of motivation: A history of ideas. Educational Psychologist, 45: 28-36.

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