An Analysis of the Impact of Adolescents' Impulsivity, Academic Procrastination and School Adaptability Using R

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Abstract

This study examines the causal relationship between adolescent impulsivity, academic procrastination and school adaptability. The main purpose of this study is to confirm the degree of influence among these variables and analyze the causes of school adaptability. In this model, impulsivity and academic procrastination were set as independent variables and school adaptability was set as a dependent variable. Impulsivity of adolescents affects academic procrastination and school adaptability, and academic procrastination will affect school adaptability. As a result of the research, first, it can be seen that adolescents 'cognition impulsivity, motion impulsivity, and unplanned impulsivity have a significant influence on behavioral in adolescents'. Second, adolescents' cognition impulsivity, motion impulsivity, and unplanned impulsivity a significant influence on the cognitive in the adolescents'. Third, adolescents' behavioral, cognitive, and emotional have a significant influence on school adaptability in adolescents' school adaptability. In conclusion, we proposed a policy proposal on school adaptability by deriving meaning to improve adolescents' school adaptability.

Keywords: Impulsivity, Academic Procrastination, School Adaptability, Cognition, Motion, Behavioral, Unplanned, Emotional

1. Introduction

The rapid socio-economic change of our society and the development of science and technology will allow students to feel the opportunity and crisis at the same time. In adolescents, learning education is also very important, but personal education such as emotion or cognition is also an important learning objective. Especially in learning education, there is a very close relationship with school life, which has been demonstrated in many existing studies. It is a place for young people to experience a small society that not only learns knowledge but also learns social relations and learns how to live according to various norms and rules[1]. By adapting to the school young people will be able to achieve the human objectives that our society is seeking, prepare the future, and have the ability to live as an independent personality. In other words, adolescents' adaptation to school life not only results in the task of adolescence but

also has a positive effect on personality development, interpersonal relations, and social relations[2].

The main variables of school adaptability are emotion regulation ability, self-organization and academic drift, impulse, self-esteem and depression level[2-4].

Among the factors influencing the school adaptability of adolescents, the variables such as impulsivity and academic procrastination are important. In the previous studies, the research on impulsivity and academics has been done in a fragmentary way, and the research on school adaptability is insufficient. Therefore, it is necessary to review the relationship between impulsiveness and academic procrastination in relation to school adaptability of adolescents.

In this study, adolescents' impulsivity was classified into cognition impulsivity, motion impulsivity, and unplanned impulsivity[5,6]. This study used the terms of academic delays and classified them into variables such as behavioral, cognitive, and emotional[7,8].

This study was conducted as a part of an attempt to identify the factors affecting adolescents' school adaptability. A hypothetical study model was established for the comprehensive causal structure between impulsivity, academic procrastination and school adaptability. And

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conducted empirical verification of this study model. The main purpose of this study was to examine the overall model of the causal relationship between impulsivity, academic procrastination, and school adaptability and clarify the relative influence of variables on school adaptability. In conclusion, we proposed a policy proposal on school adaptability by deriving meaning to improve adolescents' school adaptability.

The analysis methods used in this study are literature survey and empirical analysis. We conducted a questionnaire survey for adolescents. The SPSS 23.0 statistical program package was used for frequency analysis, validity analysis, and reliability analysis, and the R 3.3.2 program package was used for correlation analysis and causality analysis. The purpose of this study is to elucidate the variables that affect the adolescent's school adaptability through the theoretical review and suggest the research method based on the derived variables. Finally, a discussion on the results of the study is presented.

2. Theoretical Background

2.1. Impulsivity of Adolescents'

Impulsivity means a state lacking adequate self-control[9]. Impulsive adolescents have been attracting attention as a cause of maladjustment and delinquency in adolescence because they are rebellious, well - anxious, have less responsibility and affinity for others, and lack self-control[10]. In other words, the impulsiveness of adolescents is the function of the mind that is trying to do something instinctively or reflexively without a clear aim or doctrine. Adolescents with a high impulsivity tend to be impatient and careless and prefer adventure situations. It also tries to solve the problem systematically and unplannedly. Which in turn results in maladjustment to the environment[11]. The impulsivity of adolescence can be said to be more related to behavior and personal tendency than to home environment or school environment. It can be predicted that there is a relation between the adaptation of school life and impulsivity of middle school students, which is the stage of adolescence through childhood. It is necessary to confirm the influence of impulsivity as a variable of school adaptability[2].

In this study, the impulsivity of adolescents means phenomena caused by cognition, motion, and unplanned. The scale of impulsivity was modified to be appropriate for this study based on the content of Huh Sim yang *et al*[6]. The main content is cognitive impulse, which means that it does not concentrate, changes hobbies frequently, and thinks that it is not related to the subject. Motion impulse is an impulsive or impromptu behavior, and always means lack of allowance. Unplanned impulsivity means getting tired of complicated problems, disliking to solve difficult problems, and not thinking carefully.

2.2. Academic Procrastination of Adolescents'

Research on the problem of academic procrastination has been continuing. It is possible that adolescents and students may have a negative impact on academic performance in terms of delays[12]. In Korea, the term for academic procrastination is not clearly defined and used.

Kim Kwang Suk is defined as a lull[13], while Seo Eun Hee[14] academic procrastination is defined differently according to the researcher. Academic procrastination are the voluntary postponement of starting or completing a task within a given time period, although negative results may be anticipated when the task to be undertaken or deferred is delayed[8]. Behavioral factors imply a tendency to delay the beginning, execution, or completion of tasks by deadline. Cognitive factors refer to the inconsistency between the intent to perform and the priorities or goals associated with the task and the performance of the task. Emotional factors are defined as subjective pain that individuals feel due to the tendency of individuals not completing tasks without starting or performing tasks until deadline.

In this study, the delay of adolescent 's academic activity is related to the cognitive, attitude, and learning behaviors related to academic achievement. The scale of academic procrastination was adjusted to the present study with contents of Jang Jin Yi, Lee Ji Yeon[7], Choi Yoon Jung and Kim Sung Hee[8]. The main content is that academic procrastination should solve the workbook, play games, abandon all assignments, do not do homework with excuses for other things, and have little time to concentrate on play and study do. I do not think that it is a waste of time to do practice and review, and I think that it is not necessary to do homework, and it is a waste of time to study for the exam early. I regret, I get depressed when I can not do the task, I regret not doing the learning as planned.
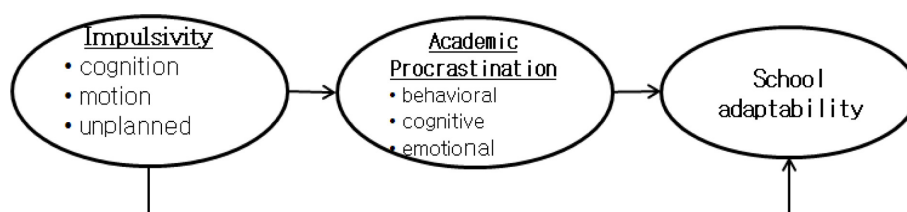
Fig.1. Research Model.

Table 1. Research Hypothesis

Hypothesis 1.	The impulsiveness of adolescents will affect behavior in academic procrastination. 1) Cognitive impulse will affect behavior. 2) Motion impulse will affect behavior. 3) Unplanned impulsiveness will affect behavior.
Hypothesis 2.	The impulsiveness of adolescents will affect the cognitive of academic procrastination. 1) Cognitive impulse will affect cognitive. 2) Motion impulse will affect cognitive. 3) Unplanned impulsiveness will affect cognitive.
Hypothesis 3.	The impulsiveness of adolescents will affect the emotional of academic procrastination. 1) Cognitive impulse will affect emotional. 2) Motion impulse will affect emotional. 3) Unplanned impulsiveness will affect emotional.
Hypothesis 4.	The impulsiveness of adolescents will affect school adaptability. 1) Cognitive impulse will affect school adaptability. 2) Motion impulse will affect school adaptability. 3) Unplanned impulsiveness will affect school adaptability.
Hypothesis 5.	Academic procrastination of adolescents will affect school adaptability. 1) Behavioral will affect school adaptability. 2) Cognitive will affect school adaptability. 3) Emotional will affect school adaptability.

2.3. School Adaptability

School adaptation refers to changing the environment to meet individual needs in a school environment. It is an active process of balancing the school environment and the individual by changing oneself according to the demands of the school environment. School adaptation is to ensure that youth belonging to the school social group can achieve the purpose of the group efficiently and efficiently. In addition, he said that he himself was satisfied with the interaction in this environment[16]. Explain the extent to which a child is interested in school life, is comfortable, and is successful in school adaptability. In other words, the child's perception and feelings about the school environment were emphasized[17]. As the interest in school adaptation continues to increase, it suggests independent relationships between variables and school adaptation, but it does not present the relationship between variables as a whole. It is necessary to analyze the relationship in an integrated manner[2].

In this study, the scale of adolescents' school adaptability was appropriately revised based on the content of Jin Hee Min et al[18]. The main contents are pleasure of school life, respect of teacher, preference of subject, help of learning in class time.

3. Research Design

3.1. Research Model

This study examines the causal relationship between adolescent impulsivity, academic procrastination and school adaptability. The main purpose of this study is to confirm the degree of influence among these variables and analyze the causes of school adaptability. In addition, this study is based on multiple regression analysis theory to verify the causal relationship between var-

iables. The theoretical background and the previous study examined the impulsive and academic procrastination as independent variables and set school adaptability as a dependent variable. Based on the theoretical review of the variables and the preceding studies, we set up the study model of <Fig. 1>.

3.2. Research Hypothesis

In this model, impulsivity and academic procrastination were set as independent variables and school adaptability was set as a dependent variable. Impulsivity of adolescents affects academic procrastination and school adaptability, and academic procrastination will affect school adaptability. The research hypothesis based on the research model is shown in <Table 1>.

4. Research Results

4.1. Sample Characteristics

A questionnaire survey was conducted for the empirical analysis of adolescent's school adaptability. The subjects of the survey were 4, 5 and 6 years for elementary school students in A metropolitan city, and middle school students for 1, 2, and 3 years. Survey method was face-to-face and field survey method. The results of this study are as follows; The characteristics of the survey respondents are shown in <Table 2>.

In sex, male students were 549(62.1%) and female students were 335(37.9%). The school type was 276(31.2%) for elementary school students and 608(68.8%) for middle school students. Results were as follows: 219(24.8%) were below 60, and 153(17.3%) were above 90. The monthly petty cash was 432(48.9%) less than 20,000 won and 23(2.6%) over 100,000 won.

4.2. Measuring Tools Verification
4.2.1. Factor Analysis

There were 35 questions about impulsiveness, academic procrastination and school adaptability. Impulsivity was 11 items in total, and consisted of 5 items of cognitive impulsivity, 3 items of motion impulsivity, and 3 items of unplanned impulsivity. Academic procrastination consisted of 19 questions, 8 behavior, 6 cognitive, and 5 emotional items. School adaptability was composed of 5 question items. As a result of the factor analysis, KMO (Kaiser-Meyer-Olkin): 0.930, χ^2: 16251.422, df : 4595 and the probability of significance

Table 2. Characteristics of Respondents

Factor		Frequency (Persons)	Ratio (%)
Gender	Boy	549	62.1
	Gile	335	37.9
School type	Elementary school student	276	31.2
	Middle school student	608	68.8
Grade	Elementary school student 4	97	11.0
	Elementary school student 4	104	11.8
	Elementary school student 4	75	8.5
	Middle school student 1	186	21.0
	Middle school student 1	228	25.8
	Middle school student 1	194	21.9
Record	below 60	219	24.8
	61 or more - below 70	138	15.6
	71 or more - below 80	166	18.8
	81 or more - below 90	208	23.5
	91 or more	153	17.3
Petty cash	Less than 2,000 won	432	48.9
	More than 2 million won - Less than 4 million won	268	30.3
	More than 4 million won - Less than 6 million	107	12.1
	More than 6 million won - Less than 8 million	32	3.6
	More than 8 million won - Less than 10 million	22	2.5
	Over 100,000 won	23	2.6

was 0.000. The eigen value of each variable was more than 0.6.

4.2.2. Reliability Analysis

The results of the reliability analysis of impulsiveness, academic procrastination and school adaptability are as follows. The three subparameters of impulsivity were cognitive impulsivity(0.839), motion impulsivity(0.765), and unplanned impulsivity(0.837). Academic procrastination was found to be behavioral 0.911, cognitive 0.869, and emotional 0.853 in three subparameters. The school adaptability was 0.850. Cronbach alpha was found to be 0.6 or higher in all variables.

4.3. Analysis of Correlation between Variables

Impulsivity consisted of three sub-variables: cognition impulsivity, motion impulsivity, and unplanned

Table 3. Factors analysis

Variable name	Numbers	Eigen value	Dispersion ratio	Dispersion Cumulative rate
Cognition	v1	.666	3.088	8.823
	v2	.717		
	v3	.793		
	v4	.673		
	v5	.713		
Motion	v1	.771	2.136	6.104
	v2	.777		
	v3	.781		
Unplanned	v1	.828	2.251	6.430
	v2	.842		
	v3	.569		
Behavioral	v1	.687	4.959	14.170
	v2	.716		
	v3	.757		
	v4	.690		
	v5	.723		
	v6	.700		
	v7	.751		
	v8	.645		
Cognitive	v1	.656	3.971	11.344
	v2	.759		
	v3	.760		
	v4	.764		
	v5	.662		
	v6	.692		
Emotional	v1	.792	3.231	9.233
	v2	.805		
	v3	.824		
	v4	.801		
	v5	.643		
School adaptability	v1	.702	3.248	9.279
	v2	.822		
	v3	.733		
	v4	.778		
	v5	.749		

KMO(Kaiser-Meyer-Olkin) : .930, χ^2 : 16251.422, df : 4595, p : 0.000

impulsivity. Academic procrastination was composed of three sub-variables: behavioral, cognitive, and emotional. School adaptability was set as a dependent variable. As a result of the correlation analysis between

Table 4. Reliability analysis

Variables		Numbers	Cronbah -Alpha
Impulsivity	Cognition	5	.839
	Motion	3	.765
	Unplanned	3	.837
Academic procrastination	Behavioral	8	.911
	Cognitive	6	.869
	Emotional	5	.853
School adaptability		5	.850

these variables, the correlation between cognition impulsivity and behavioral (Υ=.509) was the highest, followed by cognition impulsivity, unplanned impulsivity (Υ=.504), unplanned impulsivity and behavioral (Υ=.466) appear.

4.4. Hypothesis Verification
4.4.1. Impulsivity and Behavioral
The hypothesis 1 that the impulsivity of adolescents will affect the behavioral of academic procrastination is verified. The results showed that adolescents' cognition impulsivity, motion impulsivity, and unplanned impulsivity had significant effects on behavioral. First, cognition impulsivity and behavioral have a very high impact, with a Beta of 0.35, t value of 10.548, and p value of 0.001. Second, motion impulsivity and behavioral have a significant influence on the Beta of 0.06, t value of 2.048, and p value of 0.041. Third, the unplanned impulsivity and behavioral had a very high Beta of 0.26, t value of 7.928, and p value of 0.001.

4.4.2. Impulsivity and Cognitive
The hypothesis 2 that the impulsivity of adolescents will affect the cognitive of academic procrastination. The results showed that adolescents' cognition impulsivity, motion impulsivity, and unplanned impulsivity had a significant influence on the cognitive of academic procrastination. First, cognition impulsivity has a high Beta of 0.15, t value of 4.164, and p value of 0.001. Second, motion impulsivity and cognitive have a significant influence on the Beta of 0.12, t value of 3.630 and p value of 0.001. Third, unplanned impulsivity and cognitive has a very high impact with a Beta of 0.30, t value of 8.419, and p value of 0.001.

Table 5. correlation analysis

Variables	Cognition	Motion	Unplanned	Behavioral	Cognitive	Emotional	School
Cognitive	1.00						
Motion	0.419 (<.001)	1.00					
Unplanned	0.504 (<.001)	0.403 (<.001)	1.00				
Behavioral	0.509 (<.001)	0.316 (<.001)	0.466 (<.001)	1.00			
Cognitive	0.350 (<.001)	0.302 (<.001)	0.426 (<.001)	0.576 (<.001)	1.00		
Emotional	0.251 (<.001)	0.084 (.013)	0.156 (<.001)	0.338 (<.001)	0.098 (.003)	1.00	
School	-0.245 (<.001)	-0.202 (<.001)	-0.342 (<.001)	-0.357 (<.001)	-0.446 (<.001)	-0.015 (.663)	1.00

Table 6. Findings in Hypothesis of impulsivity and behavioral

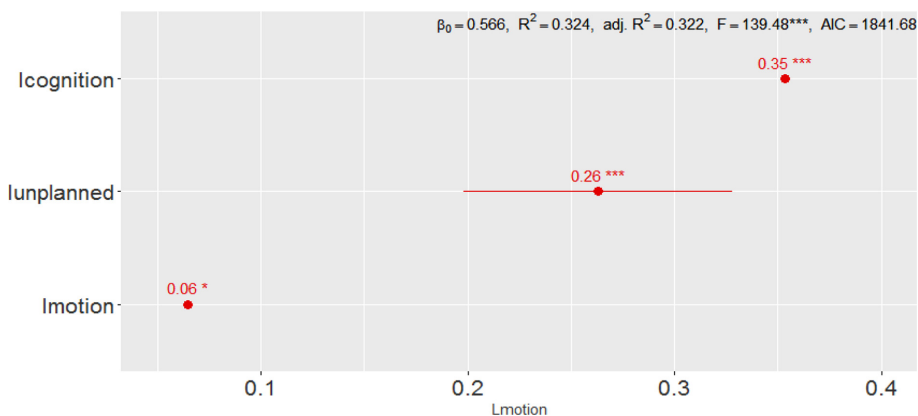| Independent variable	Dependent variable : behavioral				
	B	std. Error	Beta	t value	p
(Intercept)	0.57	0.09		5.980	<.001
Icognition	0.36	0.03	0.35	10.548	<.001**
Imotion	0.07	0.03	0.06	2.048	.041*
Iunplanned	0.23	0.03	0.26	7.928	<.001**
Observations	876				
R^2 / adj. R^2	.324 / .322				
F-statistics	139.477***				

*: $p \leq .05$, **: $p \leq .01$

Fig. 2. Results of impulsivity and behavioral.

4.4.3. Impulsivity and Emotional

The hypothesis 3 that the impulsivity of adolescents will affect the emotion of academic procrastination is verified. The results showed that adolescents' cognition impulsivity had a significant influence on academic procrastination. Motion impulsivity and unplanned impul-

Table 7. Findings in Hypothesis of impulsivity and cognitive

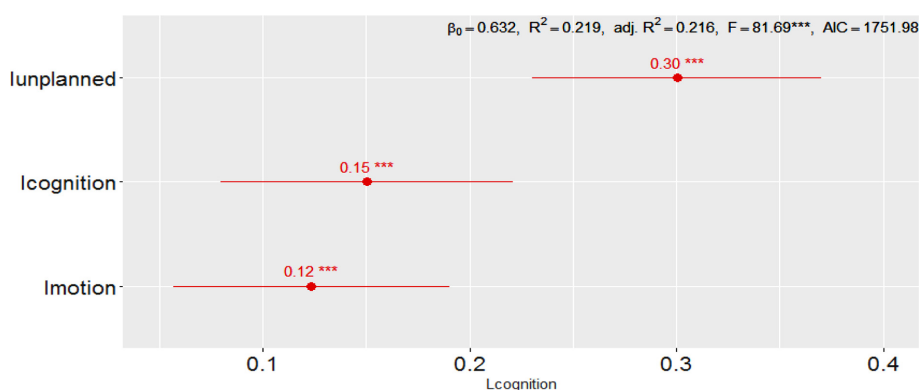| Independent variable	Dependent variable : cognitive				
	B	std. Error	Beta	t value	p
(Intercept)	0.63	0.09		7.083	<.001
Icognition	0.13	0.03	0.15	4.164	<.001**
Imotion	0.11	0.03	0.12	3.630	<.001**
Iunplanned	0.23	0.03	0.30	8.419	<.001**
Observations	878				
R^2 / adj. R^2	.219 / .216				
F-statistics	81.691***				

*: $p \leq .05$, **: $p \leq .01$

Fig. 3. Results of impulsivity and cognitive.

Table 8. Findings in Hypothesis of impulsivity and emotional

Independent variable	Dependent variable : emotional				
	B	std. Error	Beta	t value	p
(Intercept)	2.07	0.13		16.297	<.001
Icognition	0.27	0.05	0.23	5.880	<.001**
Imotion	-0.03	0.04	-0.03	-0.709	.478
Iunplanned	0.05	0.04	0.05	1.256	.209
Observations	878				
R^2 / adj. R^2	.062 / .059				
F-statistics	19.361***				

*: $p \leq .05$, **: $p \leq .01$

sivity showed no significant influence on the academic procrastination and emotional. First, the cognition impulsivity and emotional have a high Beta of 0.23, t value of 5.880, and p value of 0.001. Second, motion impulsivity and emotional have a significant influence on the Beta -0.03, t -0.709, and p-value 0.478. Third, the unplanned impulsivity and emotional have a signif-

icant effect on the Beta of 0.05, t value of 1.256 and p value of 0.209.

4.4.4. Impulsivity and School Adaptability

The hypothesis 4 that the impulsivity of adolescents will affect school adaptability is verified. The results showed that adolescents' cognition impulsivity and
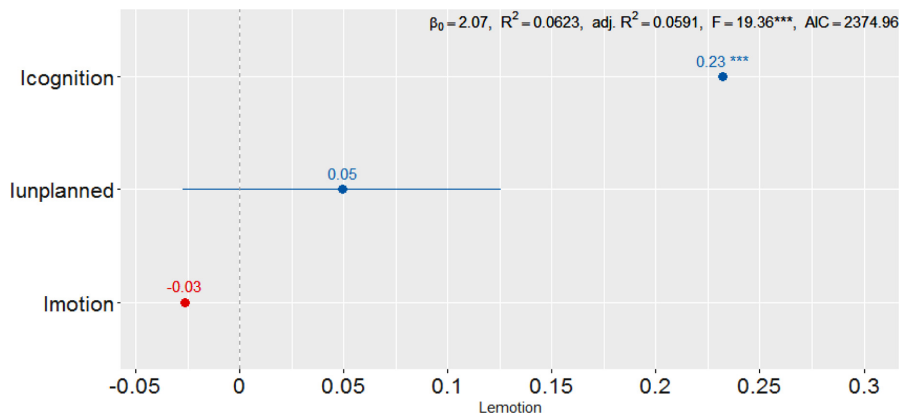
Fig. 4. Results of impulsivity and emotional.

Table 9. Findings in Hypothesis of impulsivity and school adaptability

Independent variable	Dependent variable : school				
	B	std. Error	Beta	t value	p
(Intercept)	4.67	0.10		445.151	<.001
Icognition	-0.08	0.04	-0.08	-2.176	.030*
Imotion	-0.05	0.04	-0.05	-1.447	.148
Iunplanned	-0.23	0.03	-0.28	-7.396	<.001**
Observations	877				
R^2 / adj. R^2	.126 / .123				
F-statistics	42.082***				

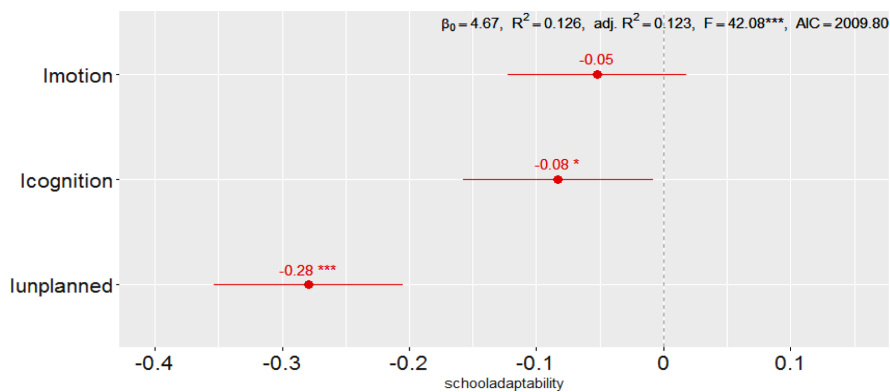*: $p \leq .05$, **: $p \leq .01$

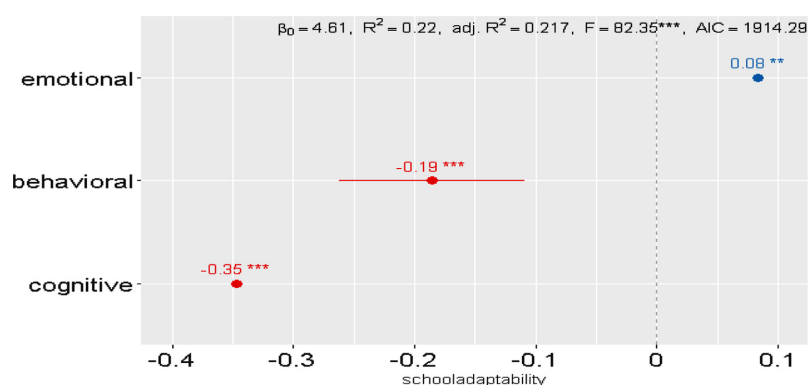**Fig. 5.** Results of impulsivity and school adaptability.

unplanned impulsivity had a significant influence on school adaptability. Motion impulsivity showed no significant effect on school adaptability. First, the cognition impulsivity and school adaptability have a significant influence on the Beta of -0.08, the t-value of -2.176, and

the p-value of 0.030. Second, motion impulsivity and school adaptability have a significant influence on the Beta -0.05, t-value of -1.447, and p-value of 0.148. Third, unplanned impulsivity and school adaptability have a significant influence on the Beta -0.28, t -7.396,

Table 10. Findings in Hypothesis of academic procrastination and school adaptability

Independent variable	Dependent variable : school				
	B	std. Error	Beta	t value	p
(Intercept)	4.61	0.10		48.552	<.001
Behavioral	-0.18	0.04	-0.19	-4.759	<.001**
Cognitive	-0.38	0.04	-0.35	-9.425	<.001**
Emotional	0.07	0.03	0.08	2.626	.009**
Observations	881				
R^2 / adj. R^2	.220 / .217				
F-statistics	82.311***				

*: $p \leq .05$, *: $p \leq .01$

Fig. 6. Results of academic procrastination and school adaptability.

and p-value 0.001.

4.4.5. Academic Procrastination and School Adaptability

The hypothesis 5 that the academic procrastination in adolescents' will have an impact on school adaptability. Results showed that adolescents' behavioral, cognitive, and emotional had a significant influence on school adaptability. First, behavioral and school adaptability have a significant influence on the Beta of -0.19, the t-value of -4.759 and the p-value of 0.001. Second, cognitive and school adaptability have a significant effect on the Beta of -0.35, the t-value of -9.425, and the p-value of 0.001. Third, emotional and school adaptability have a significant effect on the Beta of 0.08, t value of 2.626, and p value of 0.009.

5. Analysis Results and Implications

This study identifies the causal relationship between

adolescent impulsivity, academic procrastination and school adaptability. The main purpose of this study is to confirm the degree of influence among these variables and analyze the causes of school adaptability. Based on the results of the study, the hypotheses were verified to suggest policy implications related to future school adaptability.

First, it can be seen that adolescents 'cognition impulsivity, motion impulsivity, and unplanned impulsivity have a significant influence on behavioral in adolescents'. Especially, the cognition impulsivity of adolescents shows the highest degree of influence on behavioral.

Second, adolescents' cognition impulsivity, motion impulsivity, and unplanned impulsivity a significant influence on the cognitive in the adolescents'. The unplanned impulsivity of adolescents showed the greatest influence on the academic procrastination.

Third, adolescents' cognition impulsivity has significant influence only on emotional in adolescents' cau-

sality with impulsivity. The effects of impulsivity of adolescents on school adaptability showed that cognition impulsivity and unplanned impulsivity had a significant influence on school adaptability. Especially, unplanned impulsivity has a very high impact on school adaptability.

Fourth, adolescents' behavioral, cognitive, and emotional have a significant influence on school adaptability in adolescents' school adaptability. In particular, cognitive has a very high impact on school adaptability.

The results of this study are expected to provide useful information on the school adaptability of adolescents by demonstrating the factors affecting adolescents' school adaptability. Therefore, based on the results of the study, some policy implications for enhancing adolescents' school adaptability are presented.

First, adolescents' cognition impulsivity has the greatest influence on the behavioral. Therefore, it is necessary to make it possible to continue the hobbies for the youth as an appropriate way to control the behavioral, and to create an atmosphere in which to discuss topics of interest.

Second, the unplanned impulsivity of adolescents showed the greatest influence on the cognitive. Therefore, in order to positively approach the study, review, and task learning, it is necessary to positively induce the personalized learning and self-directed learning ability of the youth level. It is also necessary to establish self-motivated learning plans to enhance confidence in academic achievement.

Third, the unplanned impulsivity of adolescents showed very high influence on school adaptability. In other words, the unplanned impulsivity of adolescents has direct influence on school adaptation. Especially, I tend to be tired of complicated problems, I hate solving difficult problems, and the higher the unplanned impulsivity that I do not think carefully, the less I notice the lesson of school life, the respect of the teacher, and the attachment to the subject. Therefore, it is necessary to provide guidance for self-study planning and practice, and it is important to secure self-directed learning ability to study for oneself and customized learning according to level.

Fourth, cognitive has a very high impact on school adaptability. To increase adolescents' school adaptability, students should clearly understand motivation and learning objectives that can be faithful to learning.

The purpose of this study was to analyze the influence of impulsivity of adolescents on academic procrastination and school adaptability. In future research, there is a need to expand studies on the impulsivity, academic procrastination and school adaptability of adolescents by classifying elementary and middle school students.

Acknowledgements

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