

The Influences of Executive Function Dimensions, Personal Values, and Social Situations to Adolescent Aggression

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ABSTRACT--- Aggression behavior displayed by teenagers shows a high number based on data from the Indonesian statistics center, while the task of adolescent development is still extended to mature and the hope of the nation on his shoulders. The development of adolescence includes cognitive, emotional, and behavioral aspects. Executive function in adolescents supports a decision-making ability. Values also support adolescent regarding giving meaning or value to their actions. This study aims to determine the influence (relate to the title) of executive function, personal values, and social context on aggression behavior in adolescents. This research was done by using an inferential method of linear regression analysis technique. The result of hypothesis testing on the proposed model shows that the three variables and their domains as the predictor of reactive aggression and proactive aggression of adolescent.

Keywords— Aggression, Adolescence, Executive function, Values, Social Situations.

I. INTRODUCTION

Adolescents are the next generation, teenagers are said to be the future owners and must be guided to make a better future[1]. There are some evidence that teenagers are capable of achieving and generating ideas and competence in working that benefit many people. As an example of some medias cover of high school students Al-Irsyad, Purwokerto Central Java. The students make the sleepy anti jacket (as covered by Mardianto, 2016 in Liputan6.com). Also Jasmine, (covered in Kompas.com, 2013) 13-year-old teenagers was in class VII SMP Negeri 2 Semarang gave a speech in front of the President of the Republic of Indonesia, Susilo Bambang Yudhoyono, and in front of the international audience at the Millennium Development Goals (MDGs) in Bali. She spoke in English and highlighted the problem of poverty. From the fact, it can be described that adolescent can understand the circumstances around them, they have an initiative, a sensitivity to the problems of the crowd, and they can realize their idea with real work. These abilities are related to the development that occurs in adolescents in their

areas of thinking, managing emotions, future goals, and social interactions. It's just few of cases that we can find from many information about adolescent behavior that deviates from the expectations of the community.

Some medias covered motorcycle raid involving three students of vocational high school[2]. From the media coverage, it can be seen that the behavior of adolescents are not following community expectations. Teenagers behave aggressively, harm others, and solve their problems by using violence. Adolescents' critical role is the next generation of the nation, however they are not fulfilling the communities' expectation. The researchers examine the development of adolescents, especially on aggression behavior, in order to obtain the knowledge about what factors play a role in the appearance of teen aggression behavior.

In Psychology, adolescent behavior is also related to the development that existed there in, it can be studied by several approaches namely biological approach, psychological approach, and social approach. Biological developments explore the role of structures and functions that occur in the brain (King, 2011). In adolescence, the development of the brain with the active reproductive hormone adolescent undergoes many changes, it develops signs of reproduction both primary and secondary. Puberty is a neuroendocrine process that appears early in adolescence that stimulates physical changes throughout adolescence[3].

Given the physical changes during adolescence, this also affects differences in the psychological, and the adolescence at this time becomes fixated on the body[4]. In addition, to prominent reproductive hormone development in adolescence is in the pre-Frontal Cortex brain (after this referred to as PFC), neurotransmitters that affect socioemotional, i.e., serotonin and dopamine and GABA (Gamma Amino Butyric Acid) also change their metabolism. The development that occurs in the development of brain cells and branches with the synapse that connects one cell to another one. The development of synapse reaches its maximum growth at the age of 5, with a continuous process of coating (pruning) that helps the brain cells work. During the "pruning" period the child develops his mental abilities and persists in puberty around the age of 11 and 12, this psychological ability is called the executive function[5].

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Changes in PFC and neurotransmitter metabolism play a role in the active executive function of adolescents. Increasing attention to the amount of information available in the environment, the ability to process memory, make the planning and control of emotions and behavior to direct themselves to the right problem resolution[6]. Executive function is the highest cognitive ability in decision making. Executive function is a multi-faceted neuropsychological construction that contains some neuro-cognitive processes that enable high-level organisms to make meaningful choices, directed toward goals, and future considering behaviors. With the change in PFC experienced by adolescents, so the executive function becomes more active, a question for researchers whether executive function also influences the decision to behave aggression? When it matters, which domains play a role in aggressive behavior?

Adolescence also develops the psychological development of personal values that becomes the reference in determining behavior other than moral, religion, and spirituality. Personal values are something that directs a person or group about something that is considered necessary in his life[7]. Personal values derive from the interaction with the environment, such as peers and the environment in general, and the decline of values between generations, especially in families[8]. Personal values when referring to the theory given Basic Human Values, consists of ten values that are grouped into four motivations that background[9].

The theory of Schwartz has been tested in 65 countries, so its accuracy is acceptable[10]. The ten basic values which are the features of the general objectives of the individual are: 1) Self-Direction, 2) Stimulation, 3) Hedonism, 4) Achievement, 5) Power, 6) Security, 7) Conformity, 8) Tradition, 9) Benevolence, 10) Universalism. The ten values are divided into four groups of motivation that are in self-enhancement motivation there are values of power and achievement; the motive of openness to change is the value of hedonism, stimulation, and self-direction; self-transcendence motivation is the value of benevolence and universalism; as well as on the motivation of conservation there are values of security, tradition, and conformity. The value of behavioral background encourages the researchers to figure out the values that are held by teenagers to behave aggressively, harm others, and solve their problems by using violence.

Teenagers are also expanding their social context, in addition to live with their families, adolescents are also active in the school environment, peers, even in the society generally. Referring to the theory of social learning through modeling, environment can give effect to the individual behavior as well as aggressive behavior. The result from previous research notes that the risk factors of aggression that comes from the family as the parenting pattern of the parents, violence in children or a witness of domestic violence, divorce, mental disorders in the elderly, antisocial families, parents of early age, and the structure and function of the family significantly affect the behavior of aggression. The condition of discomfort in the family can be a bad experience in children and adolescents[11][12]. Study from Ritung which found out of 309 study participants that students from junior high schools in Jabodetabek recorded online have a history of fights or brawl only 37.9% of participants who have antisocial aggression behavior[13].

The finding suggest not all children exposed to violence in family and peers, who witnessed violence will imitate or process the modeling of witnessed violence. Therefore, being a question about this social context is what social context has a role in adolescent aggression behavior.

From the description of some of the problems encountered by researchers related to aggressive behavior in adolescents, it is necessary to study further the role of executive function, personal values, and social context on the appearance of adolescent aggression behavior. Refer to the data from BPS (2015) [14] on the areas of mass fights in Indonesia, major cities that include the highest rates and the lowest cases of DKI Jakarta, West Java represented by Bekasi and Purwakarta city, Central Java represented by DI Yogyakarta and Semarang city.

II. METHOD

Design and Participant, This study differentiated the measurement results on three independent variables for its impact to one dependent variable. Participant was 979 Junior high school (SMPN) students in DKI Jakarta, Bekasi, Purwakarta, D.I. Yogyakarta and Semarang at the age of 11-16, mean participant age is $M = 13,08$. They are an active student in school, does not have a problem of academic achievement that got information from the teacher of student. Research participants were obtained by simple random sampling technique.

Instrument, The instrument in this study involves four measuring instruments in the form of questionnaires. The proactive-reactive aggression tool is constructed by researchers based on a conceptual definition of reactive and proactive aggression and from results of the focused group discussion and theoretical study on the behavior of reactive and proactive aggression, ten items were prepared for the questionnaire named APRRI (Proactive Agent Reactive Indonesian Youth). APRRI has been through the tryout process for tested the validity of the instrument by looking at internal consistency using Confirmatory factor analysis. It is known from the data of 979 adolescent respondents that APRRI instrument has an internal consistency that is 0.65 which indicates that this instrument can measure the reactive and proactive aggression of adolescent consistently.

The conceptual definition used in social situations is the scope where individuals develop, which can be seen in micro-families, schools, peers, the general environment, and religion[15]. Social situation conceptually is an event that occurs between individuals within a particular context. The social situation measuring instrument is named after SSA (Social Situation of Aggression). Validation of this instrument with Confirmatory factor analysis technique. In this study obtained from 979 respondents filling the SSA instrument and acquired internal consistency of SSA of 0.35 - 0.45 with the total SSA internal consistencies is 0.725. The translation of Portrait Values Questionnaire 40 from [16] to Bahasa Indonesia includes ten dimensions. In this study used PVQ40 has an internal consistency of 0.39 - 0.72 of the ten values measured.



On the measurement of executive function uses The Behavior Rating Inventory of Executive function[17]. BRIEF evaluates two main domains: Behavioral Regulation (Inhibit, Shift, Emotional Control) and Metacognitive-Problem-Solving (Initiation, Task Organization / Planning, Environmental Organization, Self-Monitoring, Working Memory) and total or global composite assessment items. Adaptation to BRIEF-BI (Bahasa Indonesia version). Internal consistency test from BRIEF-BI is 0.62 - 0.78, and in total executive function got internal consistencies 0,93.

III. DISCUSSION

In APRRI it was found that aggression measurement model proved to be measured in reactive aggression and proactive aggression. It is known that APRRI measurement model is in accordance with the theory of aggression behavior. Based on the output t values, it can be seen that the value of the loading factor of each item on the dimensions of both reactive and proactive aggression has been > 0.2. For the equal value of the theoretical model associated with the research sample, data can be seen on the value of Goodness of Fit (GOF) model that is RMSEA = 0.018; Standardized RMR = 0.016 ≤ 0.10; CFI = 1.00.

For social situational measurement (SSA) it was found that the model of social situation measurement that encouraged the emergence of this teen aggression has four domains of teenage life, i.e. family, friends, school, and media. It is known that the SSA measurement model is following the theory of social situations in adolescents. Based on the sample data that has been collected by the researchers, the obtained data RMSEA = 0.029; Standardized RMR = 0.022; CFI = 0.99.

Measurement of values measured by PVQ40 found that this measurement model is fit with data that the dimensions of the values of teenagers are self-direction, power, hedonism, stimulation, achievement, tradition, conformity, security, benevolence, and universalism. Based on the output t values the loading factor value of each item in the value dimension has > 0.2, and for the matching value of the theoretical model associated with the research sample data can be seen on the value of Goodness of Fit (GOF) Model, ie, RMSEA = 0.049; Standardized RMR = 0.051; CFI = 0.97. In the measurement of executive function measured by BRIEF-BI it is found that this measurement model is fit with the data obtained, that theoretically as well as the field data shows the dimensions of the executive function including emotional control, inhibition, adaptation, working memory, material organization, planning, monitoring, and initiation. Based on sample data that has been collected by researchers obtained Goodness of Fit dosage (GOF) Model that is RMSEA = 0.047; Standardized RMR = 0.049; CFI = 0.97.

Model Analysis, In this research, the theoretical model to be analyzed the effect of executive function, values, and social situation on reactive and proactive aggression behavior of adolescent. In testing the effect of the dimensions of the social situation on reactive aggression it was found that there was a significant influence between the domains of family, friends, school, and media on reactive aggression of R2 = 0.115, F = 31,766 with significance level p = 0.00 <0.05, means the hypothesis of this research is

accepted that there is an influence between the domains of social situations and reactive aggression.

In detail, the influence of each domain can be seen from the value t which has a significance level of <0.05, is on the table 1.

Table 1. T-value of Social Domains in Reactive Aggression

Social domains	T values
School (*)	t = 4.950 and p = 0.000 <0.01
Family (*)	t = 4.291 and p = 0,000 <0.01
Medias (*)	t = 3.701 and p = 0,000 <0.01
Friends	t = -1.076 and p = 0.282 > 0.05

In testing the effect of the dimensions of the social situation on proactive aggression it was found that there was a significant influence among the domains of family, friends, school, and media on proactive aggression of R2 = 0.269, F = 19.049 with significance level p = 0.00 <0.05, means the hypothesis of this research is accepted that there is influence between the domains of social situations with proactive aggression. For the detail from each domain we can see on table 2.

Table 2. T-value of Social Domains in Proactive Aggression

Social domains	T values
School (*)	t = 4.367 and p = 0.000 <0.01
Medias (*)	t = 5,120 and p = 0,000 <0.01
Family	t = 0.451 and p = 0.652 > 0.05
Friends	t = -1,317 and p = 0,188 > 0.05

From the findings of the influence of the social situation on reactive aggression, it can be explained that the social situation in schools, the use of electronic media, and the family gives a positive and significant effect. This means that the more adolescents interact with people who are in the social situation that reactive aggression behavior is higher. Whereas in proactive aggression, the social situation that influences is the situation in schools and media. This means that the higher interaction of adolescents with the environment in school or by using electronic media such as online games and social media, will result in higher the



proactive aggression. In the test of the effect of executive function dimensions on reactive aggression, it was found that there was no significant influence on emotion control domain, inhibition, adaptation, working memory, material organization, planning, monitoring, and initiation of reactive aggression of $R^2 = 0.016$, $F = 1.910$ with significance level of $p = 0.055 > 0.05$, which means the hypothesis of this study is rejected that there is no influence on the domains executive function with reactive aggression.

In examining the effect of executive function dimensions on proactive aggression it was found that there was a significant influence on emotion control domain, inhibition, adaptation, working memory, material organization, planning, monitoring, and initiation of proactive aggression of $R^2 = 0.153$, $F = 2.894$ with significance level of $p = 0.003 < 0.05$, which means the hypothesis of this research is accepted that there is influence between executive function domains with proactive aggression. The each domain can be described in detail in table 3.

Table 3. T-value of Executive Domains in Proactive Aggression

Executive function domains	T values
Planning (*)	$t = 2.147$ and $p = 0.032 < 0.05$
Initiating	$t = 0.087$ and $p = 0.931 > 0.05$
Organization	$t = -0.157$ and $p = 0.875 > 0.05$
Monitoring	$t = 1.321$ and $p = 0.187 > 0.05$
Adaptation	$t = 0.188$ and $p = 0.851 > 0.05$
Working memory	$t = -1.168$ and $p = 0.243 > 0.05$
Inhibition	$t = 1.670$ and $p = 0.095 > 0.05$
Emotional control	$t = -1.2272$ and $p = 0.204 > 0.05$

Related to the result of the researchers' study about executive function connected to aggression behavior, it was found that the domains of executive function tied up with the aggression behavior such as inhibition, working memory, planning, attention shifting, behavioral regulation index and metacognition index [18]. The findings of this study are in line with the existing findings of proactive aggression that are influenced by executive function not in reactive aggression.

In examining the effect of values dimensions on reactive aggression, it is found that there is a significant influence on self-direction, achievement, power, hedonism, stimulation, conformity, security, tradition, benevolence, and universalism toward reactive aggression of $R^2 = 0.264$, $F = 7.271$ with significance level of $p = 0.00 < 0.05$, which means the hypothesis of this research is accepted that there

is influence between domain values with reactive aggression. To see in detail about the influence of each domain, it can be seen from the value t which has a significance level of < 0.05 as we can see on table 4.

Table 4. T-value of Personal Values on Reactive Aggression

Personal values	T values
Benevolence (*)	$t = -2.620$ and $p = 0.009 < 0.01$
Stimulation (*)	$t = 2.828$ and $p = 0.005 < 0.05$
Hedonism (*)	$t = 4.024$ and $p = 0.000 < 0.01$
Power (*)	$t = 2.197$ and $p = 0.028 < 0.05$
Achievement	$t = 1.369$ and $p = 0.171 > 0.05$
Self-direction	$t = -1.885$ and $p = 0.060 > 0.05$
Universalism	$t = -1.684$ and $p = 0.093 > 0.05$
Security	$t = -0.580$ and $p = 0.562 > 0.05$
Tradition	$t = 0.058$ and $p = 0.954 > 0.05$
Conformity	$t = -0.996$ and $p = 0.319 > 0.05$

In examining the effect of values dimensions on proactive aggression, it is found that there is a significant influence on self-direction, achievement, power, hedonism, stimulation, conformity, security, tradition, benevolence, and universalism toward proactive aggression of $R^2 = 0.076$, $F = 8.006$ with significance level of $p = 0.00 < 0.05$, which means the hypothesis of this research is accepted that there is influence between domain values with proactive aggression. To see in detail about the influence of each domain, it can be seen from the value t which has a significance level of < 0.05 as we can see on table 5.

Table 5. T-value of Personal Values on Proactive Aggression

Personal values	T values
Benevolence (*)	$t = -3.063$ and $p = 0.002 < 0.01$
Stimulation (*)	$t = 4.065$ and $p = 0.000 < 0.05$



Hedonism (*)	t = 3.509 and p = 0,000 <0.01
Power (*)	t = 2.288 and p = 0.022 <0.01
Achievement	t = 1,150 and p = 0.251> 0.05
Universalism	t = 0.567 and p = 0.571> 0.05
Self-direction	t = -1.527 and p = 0.127> 0.05
Security	t = -1.039 and p = 0.299> 0.05
Tradition	t = -0.825 and p = 0.410> 0.05
Conformity	t = -1.781 and p = 0,075> 0.05

In an earlier study conducted by Knafo [19], and Benish-Weisman (2015) it was found in adolescents in Israel that positive power values and values in self-reliance and conservation were negatively related. While the findings in adolescents in Jakarta, values associated with aggression behavior in addition to the power value., It is also found that the value of self transcendence motivation is benevolence, and the value of conservation ie conformity and tradition is also a value stand out [20]. In line with previous findings, the results of this study note that those who have an influence on reactive aggression and proactive aggression are stimulation, hedonism, power, and benevolence that have a negative effect. Adolescent aggression is influenced by the motivation included in the openness to change i.e the stimulation and hedonism, and self enhancement motivation is the value of power. In contrast, self transcendence motivation contradicts both previous motivations. So in adolescence, the more he has a close relationship with his friends as describe in benevolence value than the reactive aggression will be decreased.

Adolescent aggression is influenced by personal values i.e hedonism, stimulation, and power. They are also influenced by negative benevolence, which means that a lack of friendship with others will encourage aggression. Executive function does not play a role in reactive aggression, and only in proactive aggression that shows its role. Means that proactive aggression is more influenced by aspects of thinking (Planning domain of EF) than reactive aggression. Schools and the media have a role in the emergence of both types of aggression. This is related to the lack of supervision of adolescent behavior in schools and at the media. Adolescence do a lot of aggressive behavior like verbal aggression both at school and in the media. Reactive aggression is more influenced by socio-emotional aspects, while proactive aggression is influenced by socio-cognitive aspects as well as personal values.

IV. CONCLUSION

It is concluded that the proposed theoretical model on the influence of executive function, values, and social situation on the behavior of Indonesian adolescent aggression can be accepted. The influence or effect of the social situation on aggression behavior both reactive and proactive. It is also known that there are the effects of values on the behavior of reactive aggression and proactive aggression. In the executive function has an effect on proactive aggression but not on reactive aggression.

For domains that affect reactive aggression are the domains of schools, media, and families in social situations. In the values that affect the reactive aggression is stimulation, hedonism, power, and benevolence that have a negative influence. For domains that have an effect on proactive aggression are the school and media domains of teenage social situations. The dominant executive function is planning on the behavior of proactive aggression. Values that affect proactive aggression are stimulation, hedonism, power, and benevolence that negatively affect.

In this study, there are still limitations related to the extent of the territory in Indonesia that has not been included in the research, hence the suggestion that can be submitted is that for further research on similar topic it is necessary to take a wider area in Indonesia so that it can make the generalization in Indonesia. This research is part of dissertation research, it is about the appearance of aggression behavior in adolescent, so that this research can be developed into theoretical model about the appearance of adolescent aggression behavior in terms of executive functions, values, and social situation.

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