Relationships pattern of social media addiction level to morality level, apathetic level and academic score

I Ralasari, R Setiadi and S M Soemartojo
Department of Mathematics, Faculty of Mathematics and Natural Sciences (FMIPA), Universitas Indonesia, Kampus UI Depok, Depok 16424, Indonesia

Corresponding author’s e-mail: rianti@sci.ui.ac.id

Abstract. Social media addiction is a situation where student uses social media until they do not have time or willingness to do anything else. Social media addictions have already influenced teenagers in many countries including the students at XYZ high school. Social media addiction can affect morality level of the students because of the contents appeared in the social media. They can be influenced by the chatting, pictures and others things when they use social media. The value in the social media is not always good. Sometimes it contains violence, infidelity, drugs, pornography etc. These things are dangerous for the morality of the students. Other than that, social media addiction causes student’s apathetic level will be increased. Students are very interested to chat in social media and do not care of others. Beside it, the students tend to have low academic score because they use their time more to use media social. All of these are very dangerous to the future of the students. Because of these reasons, the writer wants to know the pattern of relationship between social media addiction and morality level, apathetic level and academic score. These variables are latent variables so the data analysis will use partial least square method to solve the problem. The findings of the data analyses show that social media addiction level affect academic score and apathetic level of students in XYZ high school and the morality level affects students’ academic score in XYZ high school.

Keywords: academic score, apathetic level, morality level, partial least square, social media addiction

1. Introduction
Along with the increasing of technology developments, the information and communication developments are also increasing. Media of information as an infrastructure for the exchange of information and communication connected with the internet is also known as a social media. Social media is the tool to ease for people around the world to share knowledge, interact with others around the world, and today it has been used as an infrastructure for all kinds of business by using internet access network.

Social media has become a part of daily life among teenagers. This claim is supported by the use of internet based on age in the world dominated by teenagers 13–17 years old [1]. In Indonesia, the most of using internet network access is social media [2]. Facebook is one of the social media that high usage in Indonesia [3].

Teenagers who actively use internet are likely to cause social media addiction. Social media addiction could have bad influence because the contents in social media are not entirely good, such as inappropriate of media social which is infiltrated by morality deviation, for example: pornography, acts of violence, immorality, and so on.

Beside of that influences, social media addiction will make people who are addicted, in this case are teenagers, will pay less attention to others and the environments around them so that the students spend most of their times for social media. This reduces the times to study and will affect the
achievement of academic score. It can be suspected that in general, social media addiction will affect the morality level, apathetic level and academic score in schools among teenagers.

XYZ high school concerns about the above phenomenon so they want to know whether media social addiction really affects the morality level, the apathetic level, and the achievement of academic score in school.

XYZ high school also wants to see whether there are some influences from other factors such as class, gender, pocket money per week and parents’ marital status towards social media addiction level, morality level, apathetic level and achievement of academic score in school. This research is conducted to answer the need of XYZ high school.

2. Methods

2.1. Research variable
This research considers several variables to determine the relationships pattern of social media addiction level, morality level, apathetic level, class, gender, pocket money per week, parents’ marital status, and academic score of XYZ high school students. The definition of those factors will be stated below. In Statistics, those factors are called variables.

Social media addiction level is the level of the use of social media until forgets other things. This variable will be measured by Likert Scale with indicators that represent the characteristics of social media addiction of the XYZ high school students.

Morality level is willingness level for doing the right moral values [4]. This variable will be measured by Likert Scale using indicators representing the characteristic of morality of the XYZ high school students.

Apathetic level by KBBI means indifferences or insensitivities level to the surrounding environment. This variable will be measured by Likert Scale with some indicators represent the characteristic of the apathetic of the XYZ high school students.

Academic score in this case is the final achievement result of students when survey is conducted. This variable will filled in by the students themselves and will be categorized by researcher’s judgment.

• Class has three categories: X, XI, and XII.
• Gender has two categories namely male and female.
• Pocket money per week earned by students has four categories: <= Rp150.000, Rp150.000-<Rp250.000, Rp250.000-<Rp500.000, >=Rp500.000.
• Parents’ marital status is the marital status of the student’s parents when the survey is conducted. Marital Status has four categories: married, divorced, married more than once, and others

2.2. Research method
Population: all students of XYZ high school at 2017.
Sample: 150 students of XYZ high school at 2017. The sampling technique used here is stratified random sampling with classes as strata. XYZ high school has three classes that is class X, XI and XII.

The method will be used is Partial Least Square (PLS) method. PLS method is a statistical method that can be used to find the correlation among measurable and latent variables and the correlation between latent variables and their forming indicators. Unlike SEM, PLS method does not require distribution assumption, may involve directly measurable and latent variables, may involve variables with nominal, ordinal, interval, and ratio scale of measurement, and may be used for both reflective and formative construct latent variables. Furthermore, PLS can be used to analyze complex models by utilizing relatively small amount of data. Therefore it is easier to use PLS compare with SEM.

2.3. Estimate parameter in the model
The model shows correlation between latent variables is called inner model and the model indicating the correlation between latent variable and their indicators is called outer model. Indicators variables are the representation of latent variables. If indicators variables are the forming indicators or dimensions of latent variables, the latent variables are dubbed as having formative construct. The parameters that link indicator variables to the latent variables in formative construct are called the weighted loading. If indicators variables are the reflections of the latent variable, the latent variables
Figure 1. PLS model.

Note:
X₁, X₂, X₃, X₄, X₅, X₆, X₇, X₈, X₉, X₁₀, X₁₁, X₁₂, X₁₃, X₁₄, X₁₅ are the indicators variables of reflective latent variable ξ₁.
Y₁, Y₂, Y₃, Y₄, Y₅, Y₆, Y₇, Y₈, Y₉, Y₁₀, Y₁₁, Y₁₂, Y₁₃ are the indicators variables of reflective latent variable η₁.
Y₁₄, Y₁₅, Y₁₆, Y₁₇, Y₁₈, Y₁₉, Y₂₀, Y₂₁, Y₂₂, Y₂₃, Y₂₄, Y₂₅ are the indicator variables of reflective latent variable η₂.
ξ₁, ξ₂, ξ₃, ξ₄, ξ₅, ξ₆, ξ₇, ξ₈, ξ₉, ξ₁₀, ξ₁₁, ξ₁₂, ξ₁₃, ξ₁₄, ξ₁₅ are outer loading parameters.
ξ₁₆, ξ₁₇, ξ₁₈, ξ₁₉, ξ₂₀, ξ₂₁, ξ₂₂, ξ₂₃, ξ₂₄, ξ₂₅, ξ₂₆, ξ₂₇, ξ₂₈ are outer loading parameters.
ξ₂₉, ξ₃₀, ξ₃₁, ξ₃₂, ξ₃₃, ξ₃₄, ξ₃₅, ξ₃₆, ξ₃₇, ξ₃₈, ξ₃₉, ξ₄₀ are outer loading parameters.
The parameter that link ξ₁ and η₁, link ξ₁ and η₂, η₁ and η₃, η₂ and η₃ are called path parameters.

The parameter that links indicator variables to the latent variables in reflective construct are called outer loading parameter. The correlations of two latent variables in inner model are called path coefficients. PLS does not have distribution assumptions so the parameter in PLS are estimated by numeric method (iteration) and tested by Bootstrap methods. The PLS Model can be describe as seen in figure 1.

3. Model evaluation

Model Evaluation is made for outer model and inner model.

3.1. Outer model evaluation

Outer loading of each reflective construct latent variable must be significant. Weight loading of each formative construct latent variable must be significant. Discriminant validity could saw in cross loading value. Cross loading < Outer loading. All points above show that the indicating variables are valid. Composite reliability is needed to measure the consistency of measuring variables in PLS.

3.2. Inner model evaluation

Coefficient of Determination $R^2$ is coefficient of determination of latent variables. It indicates the variance of dependent variables that can be explained by independent variables.

$$R^2 = 1 - \frac{\sum_{i=1}^{n}(y_i - \bar{y})^2}{\sum_{i=1}^{n}(y_i - \bar{y})}$$

The value of $R^2$ can be categorized as follows [5, 6]:
Low : around 0.02
Medium : around 0.13
High : around 0.26
**Table 1.** Parameter and hypothesis testing.

| Parameter | Parameter | P-Value |
|-----------|-----------|---------|
| Media Social Addiction -> Tk.apatisme | -0.287 | 0.004 |
| Media Social Addiction -> nilai akademis | -0.231 | 0.006 |
| Morality Level -> nilai akademis | 0.296 | 0 |

**Table 2.** R-square value.

| | Original Sample (R-square) | P Values |
|----------------|---------------------------|---------|
| Apathetic level | 0.082 | 0.094 |
| Academic score | 0.159 | 0.005 |

**Figure 2.** Best model using PLS methods

Path coefficient is a parameter that states the impact value of independent variable to response variable. Path coefficient is obtained by iteration method. If the bootstrap test is used so inner model is fit if the path coefficient significant. Non significance coefficients will delete from the model and the connected line will be deleted from the figure.

**4. Results and discussion**

From the data analysis of XYZ high school students, using PLS method, the best model obtained is as shown in figure 2. The estimated parameters are found by iteration and the p-value to test the significance of the relationship in the best mode is like this. From the table 1, it can be concluded that the effect is direct. Social media addiction affects apathetic level and academic score but not affected morality level. However morality level affects academic score directly. It can be shown because the P-value of the test is < significance level used (0.1). Other parameters are not significant. The line that are not describe any relationship between variables are deleted from the PLS model. Figure 2 above is the best model and from the figure, it can be concluded that there are no indirect relation based on the same reason.

The result from the data analysis, it can be concluded that all indicators in the best model are valid and reliable for Outer model. From the existing data analysis, the values of $R^2$ obtained are shown in table 2. The P value of R-square variable test of apathetic level is 0.094 < 0.1 and academic score
variable is $0.005 < 0.1$. It can be concluded that the R-squares are significant. Since the variables in the best model are significant it can be concluded that the Inner Model fits.

From this research it can be concluded that social media addiction surely influences apathetic level and academic score but does not affect morality level of the students in XYZ high school. In general, it can be concluded that the higher social media addiction level can cause the higher apathetic level and the lower academic score. These results are important inputs especially for parents and teachers at XYZ High School.

Students who are apathetic do not care about the needs of others and the circumstances that occurred around them. In fact life told that humans are created as social beings who need interaction with others. Students need others for help and should have willingness to help others. The apathetic level can make student have high egoism and accustomed to living alone. It is not good for them. Because apathetic level is influenced by social media addiction so parents or teachers must take attention in media social addiction problem. They have to control the activities of the students especially when they often use the media social.

Students who are addicted by social media usually lacks time to study. They prefer social media compare with their academic needs. It is reasonable if these students have low academic score. For the reason, parents or teachers have to control the activities of the students especially when they often use the media social.

Beside that the research finds that media social addition is not influences morality level of the student directly. Maybe even though they are addicted to social media but what they get from social media has not yet emerged in their behavior. However parents and teachers must be aware of this. Maybe all the negative effects that the students get in social media are still deep hidden in their mind and maybe one time it will affects their morality.

Finally from this research, it is known that morality significantly affects the academic score of students. It can be concluded that parents or teachers must be careful if the academic score of the students are low. Maybe it causes because of the hidden morality level of the students.

Based on the findings of this research, one ways to increase XYZ high school students’ academic score is to warn students to limit the use of social media especially for useless things. Parents and teachers have to build and be good morality examples to the students, give explain to students about the importance of giving pay attention to the environment and others.

This research can still be expanded by adding the causal component of the social media addiction or other independent variables such as the length of time for using social media, parental parenting and etc.

5. Conclusions
Social media addiction level affects apathetic level and academic score of XYZ high school students but there is no significant correlation between social media addiction level and morality level of XYZ high school students. Morality level affects academic score of XYZ high school students. These findings can be an important input for teachers and parents to control the student for using media social. There is no significant correlation between variables such as class, gender, pocket money per week and parents’ marital status to social media addiction level. It can be concluded that media social addiction can attack freely too many kinds of students. It is not depend on the demographic factors of the students.

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