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PLS Analysis: How Family Support Affect Students' Self-Confidence in Completing Thesis

Arya Fendha Ibnu Shina[1]
[1]UIN Sunan Kalijaga Yogyakarta, Indonesia

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ABSTRACT

A student's success can not be separated from a final project called a thesis as a determinant of student graduation in college. However, in the process, students often face various obstacles and challenges. To overcome this, students need to have high self-confidence. In increasing self-confidence, the role of the family is required as the main factor that encourages students to succeed. The purpose of this paper is to determine the influence of forms of family support in the form of informational support, instrumental support, appraisal and reward support, and emotional support on the self-confidence of 58 students of the Islamic Guidance and Counseling Study Program class of 2018 UIN Sunan Kalijaga Yogyakarta who are working on a thesis for students. The data analysis method used is Partial Least Square (PLS). Partial Least Square (PLS) is a component or variant-based Structural Equation Model (SEM) model. Partial Least Square (PLS) is a variant-based Structural Equation Model (SEM) model.The results of this study state that 46.7% of students' self-confidence variations in completing a thesis are influenced by family support while the rest is influenced by other factors. In addition, emotional support has a significant effect on student self-confidence in doing a thesis with a p-value of 0.000. Thus, it can be concluded that emotional support becoming the form of family support that played the most important role in increasing student self-confidence. The results of this study will later be used as suggestion for studentss family and also for counselors in modifying behavior to increase studentss self-confidence.

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Corresponding Author:

Arya Fendha Ibnu Shina,
Islamic Guidance and Counseling, UIN Sunan Kalijaga Yogyakarta.
Email: arya.shina@uin-suka.ac.id

A. INTRODUCTION

Successful student have strong academic support from their involved parents. Family support is a form of interaction in family social relationships. The forms of family support are: (1) Informational support, the family as a source of information for family members. This support includes aspects of advice, suggestions, suggestions, instructions and providing information. The benefit of this support is emphasizing the emergence of stressors because the information provided can give specific recommendations to the individual; (2) Appraisal and reward/ appreciation support, the family acts as a feedback guide and guides and mediates the problems experienced. This support provides support, appreciation, and attention; (3) Instrumental support, family is a practical and concrete source of help, including food, drink, and financial needs (Feinberg, 2019); and (4) Emotional support, family as a safe and peaceful place to rest and recover. This support includes caring, listening and being heard, and mutual trust. In the research of Wijaya et al. (2021) informational support, instrumental support and emotional support influenced significanly toward children's learning motivation during distance learning.

Feinberg (2019) said that family might play key roles in promoting self-confident. Self-confidence is a belief in one's abilities so that one will not be influenced by others and can act according to their wishes and be responsible. Self-confidence in doing a thesis means students' belief in their abilities and a strong desire to be able to work on and complete their thesis and obtain satisfactory

results. People who have self-confidence in working on a thesis are based on the following aspects: (1) Confidence in one's abilities is a positive attitude, he can earnestly work on the right strategies and actions in the thesis; (2) Optimistic, the positive attitude of students who always think well about everything about themselves and their abilities; (3) Objective is a person who views something according to the truth it should be, not personal truth or according to oneself; (4) Responsible, namely the willingness of people to bear everything that has become a consequence; and (5) Rational and realistic is a form of analysis of a problem, a thing, and an event using thoughts that can be readily accepted by reason and by reality.

Students are individuals who study at the tertiary level, both public and private, or at other institutions that are at the same level as universities. Students are considered to have a high intellectual level, intelligence in thinking, and good planning in acting (Hulukati et al., 2018). A student's success can not be separated from the final project, which is referred to as a determinant of student graduation in college. When students compose a thesis, they are considered to be able to combine their knowledge and skills in understanding, analyzing, describing, and explaining problems related to the scientific field of interest. In a study of (Iqbal, 2020) on relation of self-confidence and stress in completing thesis of the student from Nursing Faculty of Sumatera Utara University, data show that there is significant relation between self-confidence and stress in completing thesis.

The various difficulties faced, it requires students to have a confident attitude in order to remain confident in their abilities. Students who have good self-confidence will tend to conclude that they are "bigger" than the problem. On the other hand, students who have low self-confidence will tend to conclude that the problem is much bigger than themselves (Sholiha and Aulia, 2020). One of the factors that influence self-confidence is family support. Research conducted by Pulungan et al. (2018) says that there is a significant relationship between family support and the self-confidence of overseas children. In sociology, the family has a significant influence on the individual. This is due to the fact that the first education a person gets is through family, inculcation of values, norms, socialization, interaction, and so on.

Family support is a very important factor in an individual's life. There have been many studies that discuss family support. Isnaini et al. (2021) found that family support and self-efficacy have strong relationship on patients with chronic kidney disease. Family support also influences significanly toward the quality of life of the elderly (Kadarwati et al., 2017). Learning motivation of the students in State University Jakarta during the COVID-19 were positif significanly influenced by family support (Handayani and Usman, 2021). These previous studies have not discussed the most prominent form of family support that influence student self-confidence. This study is used to see the most prominent form of family support and how the influence of forms of family support on studentss self-confidence.

This study were focus on late teens and early adults, namely final semester students who are working on a thesis. Last year students at the BKI Study Program were interested in studying because the BKI Study Program is consistently included in the fastest graduating category among other study programs in the da'wah and communication faculty, with an average study period of 3.3 - 3.5 years. The results of this study will later be used as input for counselors in modifying behavior and collaborating with student families to increase self-confidence in students.

B. RESEARCH METHOD

The subjects in this study were all students of the 2018 Islamic Guidance and Counseling Study Program, Faculty of Da'wah and Communication, as many as 58 students. All research subjects were working on a thesis when this research was conducted. The data analysis method used is Partial Least Square (PLS). SEM can be distinguished into variance-based SEM and covariance-based SEM (Henseler et al., 2015). Partial Least Square (PLS) is a variant-based Structural Equation Model (SEM) model. PLS is a powerful analytical method because it is not based on many assumptions; for example, the data does not have to be normally distributed (Monecke and Leisch, 2012; Kusuma et al., 2021), and the data does not have to be significant. PLS can be used to explain the relationship between latent variables. PLS is widely used in many disciplines and recommended for future use (Sarstedt et al., 2022). Recently researchers have suggested the use of PLS because it is considered a viable estimator for testing theoretical models in psychological research (Willaby et al., 2015). In the past decade, applications of PLS-SEM have grown exponentially (Hair et al., 2022) especially for social science (Ali et al., 2018; Ringle et al., 2020; Willaby et al., 2015; Kazár, 2014)

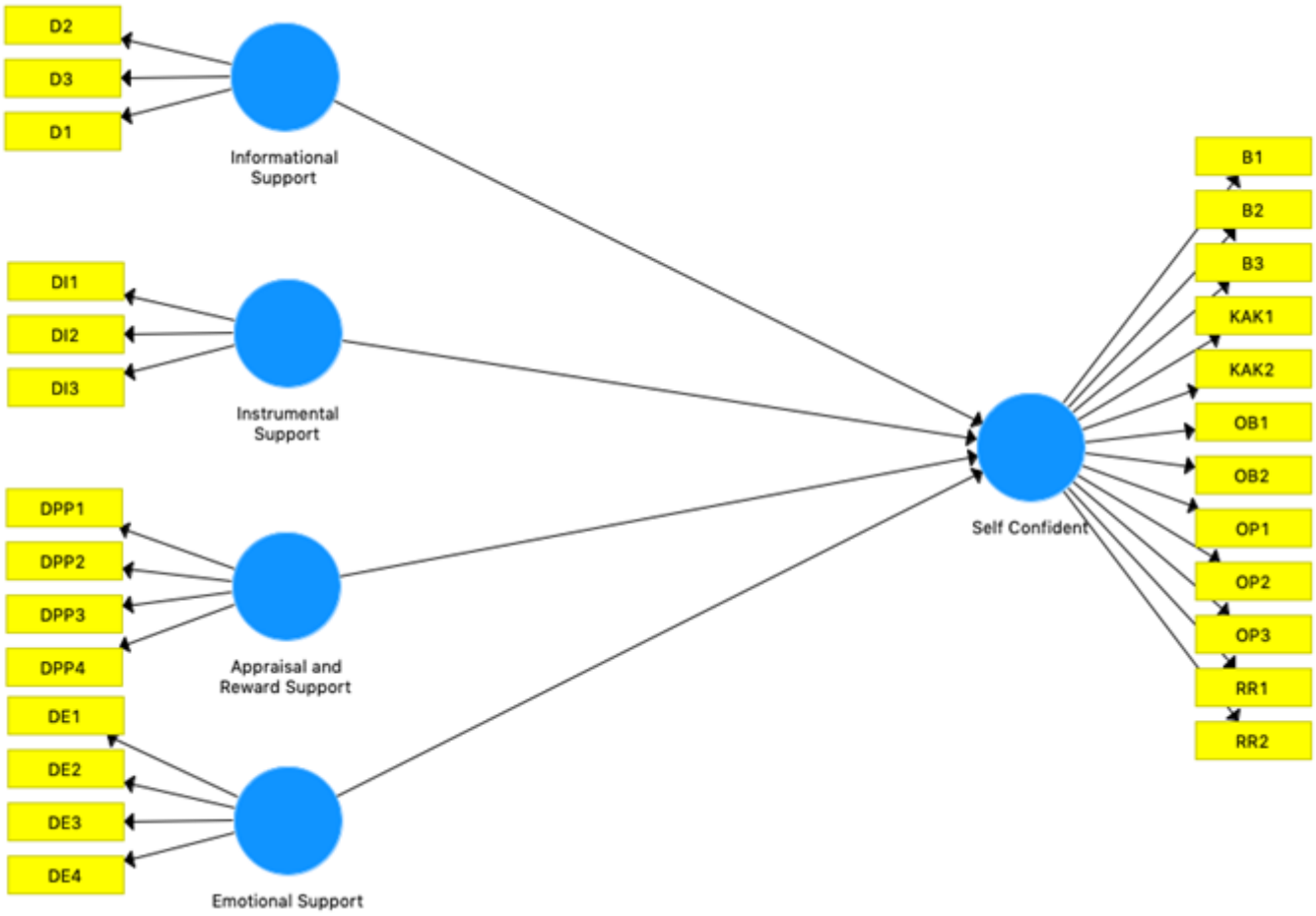

Figure 1. Path Diagram

Table 1. Note for Indicators of Forms of Family Support

Independet Variables: Forms of Family Support	Indicators
Informational Support	D1
	D2
	D3
Instrumental Support	D11
	D12
	D13
Appraisal and Reward Support	DPP1
	DPP2
	DPP3
	DPP4
Emotional Support	DE1
	DE2
	DE3
	DE4

Based on the relationship between latent variables, the structural model is obtained in Equation 1:

$$Self\ Confident = \beta_1 \cdot Informational\ Support + \beta_2 \cdot Instrumental\ Support + \beta_3 \cdot Appraisal\ and\ Reward\ Support + \beta_4 \cdot Emotional\ Support + \varepsilon \quad (1)$$

The path coefficient values $\beta_1, \beta_2, \beta_3$, and β_4 indicate the influence of informational support, instrumental support, emotional

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support, and assessment and appreciation support on students' confidence in completing the final project. The loading and path coefficient value was estimated with the help of SmartPLS 3.0 software.

PLS analysis consists of 2 (two) sub-models, namely:

1. The measurement model (measurement model), also known as the outer model, shows how the indicator represents the measured latent variable. The latent variables formed by PLS have indicators that are reflective and formative. Reflective indicators are indicators that are considered to reflect or represent the latent variable, while formative indicators are defined as indicators that are considered to affect the latent variable.
   (a) The equation of the outer model with reflective indicators are at the Equation 2 and 3:

$$x = \wedge_x \xi + \varepsilon_x \tag{2}$$

$$y = \wedge_x \eta + \varepsilon_y \tag{3}$$

   Where x is the indicator related to the endogenous latent variable (ξ), while y is the indicator associated with the exogenous latent variable (η), $\wedge_x$ and $\wedge_y$ are coefficient matrices, ε_x and ε_y are residual measurement errors.
   (b) The equation of the outer model with formative indicators are at the equation 4 and 5:

$$\xi = \prod_{\xi} x + \delta_x \tag{4}$$

$$\eta = \prod_{\eta} x + \delta_y \tag{5}$$

2. Structural model (model indicator) or also known as an inner model shows the strength of estimation between variables. The inner model equation can be written as shown in equation 6:

$$\eta = \beta\eta + \Gamma\eta + \varepsilon \tag{6}$$

   Where η is an endogenous latent variable, while ξ is an exogenous latent variable, β and Γ are a coefficient matrix of endogenous and exogenous variables, while ε is error vector/residual.

The Godness of Fit evaluation used in PLS is as follows:

1. Outer Model
   (a) Convergent Validity
   Convergent validity measures the magnitude of the correlation between indicators and latent variables. The correlation is said to be valid if it has a value > 0.7 for confirmatory research and 0.6 for exploratory research.
   (b) Discriminant Validity
   The measurement model is assessed based on the measurement of cross-loading with latent variables. If the correlation of each latent variable with the indicator is greater than the correlation with other variables, then the latent variable predicts the indicator better than the other latent variables.
   If the AVE (Average variance extracted) value is higher than the correlation value between the variables, then good discriminant validity is achieved. Highly recommended AVE¿ 0.5. Here is the formula for calculating AVE:

$$AVE = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum_i (\varepsilon_i)} \tag{7}$$

   (c) Composite Reliability
   The variable is said to have high reliability if the composite reliability value is 0.8.

$$PG = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum_i Var(\varepsilon_i)} \tag{8}$$

   (d) Cronbach Alpha
   In PLS, the reliability test with Cronbach Alpha is said to be good if the value of 0.05
2. Inner Model The structural model (inner model) is evaluated using R-Square with Stone-Geisser Q-Squaretest size and looks at the path coefficients. The value of Q-Square> 0 indicates the model has predictive relevance; on the contrary, if the value of Q-Square< 0, then the model lacks predictive relevance.

$$Q^2 = 1 - (1 - R_1^2)(1 - R_2^2) \ldots (1 - R_p^2) \tag{9}$$

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C. RESULTS AND DISCUSSION

Testing the outer model to see the validity is done by testing the convergent validity and discriminant validity. Convergent validity measures the magnitude of the correlation between indicators and latent variables. The correlation is said to be valid if it has a value > 0.7 for confirmatory research and 0.6 for exploratory research. This research is exploratory research, so the cut-off used is 0.6.

Figure 2. Path Diagram with Loading Factors

Based on the path diagram in Figure 1, all loading factor (λ) values are more than 0.6. In addition, both AVE values are > 0.5 to meet convergent validity.

Table 2. Note for Indicators of Forms of Family Support

Idependent Variables	Average Variance Extracted (AVE)
Appraisal and Reward Support	0.951
Emotional Support	0.869
Informational Support	0.941
Instrumental Support	0.901
Self Confident	0.547

Furthermore, discriminatory validity, it is assessed based on the measurement of cross-loading with latent variables. If the correlation of each latent variable with the indicator is greater than the correlation with other variables, then the latent variable predicts the indicator better than the other variables. Based on table 2, it is concluded that the cross-loading of each indicator on the latent variable is greater than the other latent variables, so it can be supposed that discriminatory validity is met.

Table 3. Cross Loading

	Appraisal and Reward Support	Emotional Support	Informational Support	Instrumental Support	Self Confident
D1	0.426	0.597	0.978	0.948	0.539
D2	0.380	0.574	0.985	0.940	0.514
D3	0.377	0.536	0.947	0.936	0.532
DE1	0.463	0.941	0.608	0.602	0.556
DE2	0.487	0.911	0.535	0.516	0.644
DE3	0.389	0.964	0.540	0.518	0.634
DE4	0.390	0.912	0.506	0.512	0.518
DI1	0.403	0.557	0.953	0.962	0.592
DI2	0.409	0.526	0.851	0.925	0.397
DI3	0.335	0.553	0.947	0.960	0.484
DPP1	0.946	0.394	0.335	0.316	0.312
DPP2	0.990	0.439	0.393	0.398	0.450
DPP3	0.984	0.477	0.425	0.430	0.498
DPP4	0.982	0.489	0.418	0.401	0.433
KAK1	0.221	0.391	0.357	0.350	0.646
KAK2	0.428	0.454	0.390	0.393	0.792
OB1	0.393	0.600	0.510	0.479	0.823
OB2	0.326	0.520	0.469	0.471	0.843
OP1	0.371	0.489	0.498	0.502	0.829
OP2	0.256	0.343	0.392	0.395	0.682
OP3	0.026	0.409	0.263	0.243	0.646
RR1	0.368	0.500	0.435	0.420	0.678
RR2	0.468	0.535	0.388	0.364	0.714
B1	0.224	0.473	0.452	0.404	0.703
B2	0.405	0.455	0.358	0.357	0.780
B3	0.314	0.381	0.216	0.217	0.699

Testing the outer model to see the reliability is done by testing Composite Reliability and Cronbach Alpha. The value of composite reliability is good for all variables > 0.8. In addition, Cronbach's Alpha value of the two latent variables is also > 0.7. Thus it can be concluded that the reliability is met.

Table 4. Reliability

Idependent Variables	Cronbach's Alpha	Reliability
Appraisal and Reward Support	0.983	0.987
Emotional Support	0.950	0.964
Informational Support	0.969	0.980
Instrumental Support	0.946	0.965
Self Confident	0.924	0.935

After the model meets the criteria for the outer model, the next step is to test the inner model by looking at the R2 and Q2 predictive relevance. The value of R2 is 0.467. This means that 46.7% of the variance in the student self-confidence variable in completing the thesis is influenced by family support. In comparison, the remaining 53.3% of the student's self-efficacy variance is influenced by other factors. In addition, the value of Q2 in this study is as follows:

Table 5. Predictive Relevance

Idependent Variables	SSO	SSE	$Q^2(= 1 - SSE/SSO)$
Appraisal and Reward Support	232,000	232,000	
Emotional Support	232,000	232,000	
Informational Support	174,000	174,000	
Instrumental Support	174,000	174,000	
Self Confident	696,000	551,394	0,208

Value of $Q^2 = 0,208 > 0$ indicates that the model has a good relevant predictive.

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Table 6. Standardized Root Mean Residual (SRMR)

Criteria	Saturated Model	Estimated Model
SRMR	0.08	0.08

The SRMR is defined as the difference between the observed correlation and the model implied correlation matrix. Thus, it allows assessing the average magnitude of the discrepancies between observed and expected correlations as an absolute measure of (model) fit criterion.

Values for the SRMR range from 0 1, with model fit having a value as high as 0.08 considered acceptable. A value less than 0.10 are considered a good fit. (Henseler et al., 2015) introduce the SRMR as a goodness of fit measure for PLS-SEM that can be used to avoid model misspecification.

The evaluation of the outer and inner models has been completed. The next step is to test the hypothesis on the study's results using the bootstrap resampling method. The hypotheses in this study are as follows:

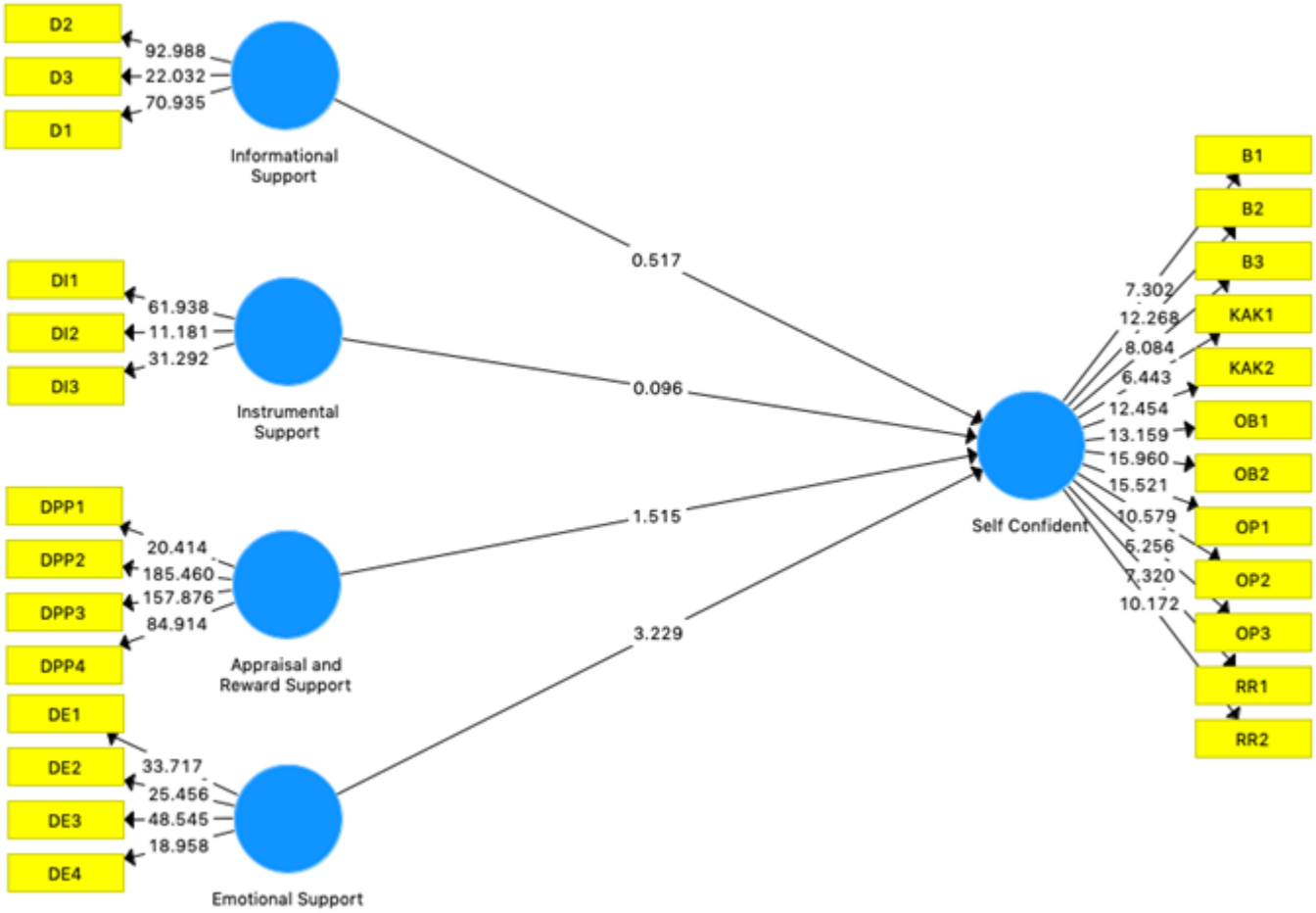

Figure 3. Path Diagram with Path Coefficient

Table 7. Result of Parameter Estimation

Affects	Path Coefficients	T Statistics	P Values
Appraisal and Reward Support → Self Confident	0.150	1.451	0.147
Emotional Support → Self Confident	0.431	3.546	0.000
Informational Support → Self Confident	0.282	0.472	0.637
Instrumental Support → Self Confident	-0.052	0.088	0.930

The results of computational data show that the estimated model parameters are as in table 7. Emotional Support very significantly affects students's self-confidence in completing their thesis. While other factors such as Appraisal and Reward Support, Informational Support, and Instrumental Support did not significantly effect on self confidence.

Emotional support family as a safe and peaceful place to rest and recover. In general, emotional support is trust, caring, empathy, acceptance, warm interaction, and genuine affection. Regarding the emotional support of parents for students who are completing their thesis, including taking the time to be present both physically and emotionally, listening to students tell stories about the difficulties they are facing, and motivating children to keep struggling to complete the thesis. Based on the research conducted by Hasiolan and Sutejo (2015), family emotional support influenced significantly toward the formation of studentss self esteem. Impact of the self-esteem family support is optimism, strong stance, and self confidence. So the conclusion is emotional support become form of family support that plays an important role in increasing student self-confidence.

D. CONCLUSION AND SUGGESTION

One of studentss success can be determined by success in clompleting thesis that has many challenges and obstacles. Studen need to have high self confidence to over come this. The results of this study indicate that family support in the form of emotional support plays an important role in increasing studentss self-confidence in completing their thesis. Emotional support has a very significant effect on students's self-confidence in completing a thesis with a p-value of 0.000. Thus, this aspect is important to emphasize when Islamic guidance and counseling counselors collaborate with parents of students. In addition, 46.7% of the variation in student confidence in completing the thesis is influenced by family support, while the rest is influenced by other factors. This result can be a suggestion for parents to emphasize emotional support and counsellor in modifying behavior to increas studentss self-confidence.

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