

# Learning Flexibility and Quantum Teaching As Predictors of Learning Quality

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## Abstract

The purpose of this study was to analyze the low quality of education at the Community Learning Activity Center (PKBM), to analyze the effect of learning flexibility and quantum teaching on the quality of learning either partially or simultaneously. The method used is quantitative using the Structural Equation Models approach. The research population was all students who took the package C equation test. The sampling technique was proportional random sampling. The sample size is 120 people. Data was collected using a closed questionnaire. Data were analyzed using Smart PLS 3.3 software. Based on the results of the analysis, it can be concluded that learning flexibility affects the quality of learning either through learning motivation or directly. Likewise, quantum teaching affects the quality of learning both directly and through learning motivation. Learning motivation has a direct effect on the quality of learning. The factor that most influences the quality of learning is learning motivation. The novelty of the research lies in the direct and indirect influence of both learning flexibility and quantum teaching on the quality of learning, both directly and through learning motivation. To improve the quality of learning at the community learning center, it can be done by increasing all exogenous variables in the model.

**Keywords:** learning quality, learning flexibility, quantum teaching.

## INTRODUCTION

So far, the quality of education in community learning activity centers ranging from Package A equivalent to elementary school, Package B equivalent to SMP, and Package C equivalent to SMA is still very low. Evidently, they do not have adequate capacity when it comes to working as an employee. They have difficulty when it comes to self-development to keep up with the latest trends and thinking (Aggarwal, 2010).

The low quality of PKBM graduates cannot be separated because they do not follow a structured learning process such as home schooling or module-based learning, so they do not have any readiness when taking the equality exam in the form of Packages A, B and C.

The advantages of packages A, B, and C are that they give recognition to people who have worked on the basis of previous educational competencies, and are expected to be able to do the equivalent of a diploma after working for so many years. Unfortunately, it didn't work out perfectly. PKBM also provides services to students who do not graduate from school to take the equivalence exam after the announcement of disqualification is received. Conditions like this violate the provisions on whether or not someone can follow package C.

The problem becomes more complicated when faced with vocational high school children who have studied vocational education for three years, but once the school exam and national assessment are declared below the passing

grade, they do not pass. After a few days they registered and took the package C equalization exam for the equivalent of high school level. This becomes very strange, because for three years they have studied vocational school, while the equivalent diploma is not a vocational school but a high school (general).

Table 1. *the number of Package C graduates who are accepted at state universities*

Year	Number of participants for Package C	Successfully entered State Universities	%
2019	312	1	0,3
2020	287	2	1,0
2021	298	1	0,4
Total	897	4	0,5

Source: PKBM 2022

The Table 1 provides information that in 2019, out of 312 graduates of

Package C (equivalent to a high school diploma) only 1 person was accepted at a state university (0.3%). In 2022, out of 287 Package C graduates, only two were accepted into state universities (1.0%). In 2021, out of 298 people, only 1 person was accepted into a state university.

Table 2. *Utilization of High School Equivalent Diplomas (Package C)*

Utilization	2019	2020	2021
Legislative candidate	5	0	0
Register for college	26	24	28
Register as a civil servant	43	39	48
Enroll Army	52	48	37
Register Police	52	46	48
Register to work for the company	60	54	62
Registering Village Apparatus	74	76	75
Amount	312	287	298

Source: PKBM 2022

The Table 2 can be understood that most of the diplomas received were used to register for village officials, followed by registering to work in companies, registering for the police, registering as soldiers, civil servants, and registering for college. Only very few are used to register candidates for legislative members.

The literature states that the quality of learning will increase when motivation increases, the level of learning flexibility increases, and the use of the quantum teaching method can be carried out properly. When these three aspects can run simultaneously, of course, the quality of learning will increase, and the quality of graduates from Package C (equivalent to high school) can be better.

The motivation of students can be said to be still very low. For more details can be seen in table 3.

Table 3. *motivation of students in taking part in the Package C exam debriefing*

Criteria	Frequency	%
Very high	6	6
Tall	10	10
Currently	22	22
Low	29	29
Very low	33	33
Amount	100	100

Source: Pre survey 2022

The data above shows that the majority of PKBM students and their motivation are very low (33%), low 29%, moderate 22%, high only 10% and very high only 6%. The flexibility of learning carried out by PKBM is also still very low, for more details can be seen in the following Table 4.

Table 4. *Flexibility of learning according to students' perceptions*

Criteria	Frequency	%
Very good	6	6
Well	10	10
Currently	22	22
Not good	29	29
Not very good	33	33
Amount	100	100

Source: Pre survey 2022

Table 4 informs that the majority of students rate the level of learning flexibility as very poor at 33%, not good at 29%, moderate at 22%, good at 10%, and very good at 6%. The implementation of quantum teaching is also not optimal. The majority of students were not satisfied with the process of implementing quantum teaching during the Package C exam preparation process.

Table 5. *Quality of Quantum Teaching according to students' perceptions*

Criteria	Frequency	%
Very good	5	5
Well	11	11
Currently	24	24
Not good	28	28
Not very good	32	32
Amount	100	100

Source: Pre survey 2022

Previous research that examined similar studies showed that there were still inconsistencies because some researchers found a significant effect, but some others showed the opposite results. Vazquez (2021) concludes that learning flexibility is very important in improving the quality of learning itself. Ujiarto et al., (2017) the quality of learning is largely determined by the flexibility of learning, the more flexible the learning, the better the quality of learning. Restu, (2020) concluded that learning flexibility helps students in the motivational aspect, and has implications for the quality of learning in general. Saihu, (2020) flexible learning helps students understand difficult subject matter. Resbana, (2021) with the flexibility, the quality of learning which is characterized by the high level of mastery of students is getting better.

Bernie, (2020) explained that quantum teaching can improve learning motivation and learning performance. Chatterjee, et.al, (2021) also concludes that with the implementation of quantum teaching, it is hoped that student motivation will increase and the quality of learning will increase. DePorter, (2001) concluded that the better the implementation of quantum teaching, the better the learning motivation and quality of learning carried out by tutors. Chepchieng, (2006) also found that the quality of learning will increase when the tutor or teacher is able to apply quantum teaching well. Even quantum teaching is also able to increase student motivation in learning. Even quantum teaching can improve student achievement and motivation because it provides a different atmosphere where the teacher pays attention to the character of each student (Dewobroti, 2020)

The contribution of this research is expected to improve the quality of learning carried out by informal education tutors, including being able to determine the contribution of motivation, learning flexibility, and quantum teaching. In addition, the contribution of this research is also able to provide answers to the level of direct and indirect influence

The novelty of this research lies in the subject of the study, namely the students of informal schools (centers of community learning activities) not formal schools. The aspects discussed are also related to the flexibility of learning, the majority of which are studied in formal schools, including the quantum teaching model which is also more widely studied in formal education institutions. Judging from the model built, this study measures the effect of learning flexibility, quantum teaching on the quality of learning either directly or indirectly through learning motivation.

## THEORY

### Quality of learning

The quality of learning is the quality of the learning process as indicated by an increase in learning achievement in the form of final grades achieved by students. The quality of learning is the output of the learning process which can also be in the form of skills and learning experiences that can be applied in everyday life. Taylor & Tyler (2012) explained that the quality of learning is closely related to teacher performance. Good learning quality indicates good teacher performance (Smith, et. al., 2019). Good quality of learning is a characteristic of teacher performance, good quality of learning reflects good teacher performance, and vice versa teacher performance decreases because the quality of learning also decreases (Yamin & Maisah, 2010).

Aguinis (2009) explains that one of the factors that indicate the high and low performance of teachers is the quality of learning. When the quality of learning is good, it can be ascertained that the teacher's

performance is also good. Danielson & McGreal, (2000) concluded that the quality of learning can be seen from the competence of students and the number of new experiences gained by students. Day (2013) also concluded that the quality of learning can be improved through the use of quantum teaching, as well as increasing learning flexibility, including increasing learning motivation. When the flexibility of learning and quantum teaching can increase, it is certain that learning motivation will increase which in turn has implications for improving the quality of the learning process.

#### Learning flexibility

The theory that underlies the flexibility of learning is the Experiential Learning Theory (ELT) theory of learning cycles, learning styles, and learning flexibility. The student's learning cycle is seen from the movement and the willingness to learn is regulated by the students themselves. (Peterson, et.al, 2015). Flexible learning gives freedom to students with full control to be responsible for their learning outcomes. They will freely determine the allocation of time which is actually more than the scheduled study time (Kolb, 2014). Commitment, responsibility, and accountability emerge from within students to freely utilize their learning resources, places, materials, tutors, and learning strategies (Sharma & Kolb, 2012).

In the implementation of a flexible learning process, the learning process is like a cycle between actions, experiences, reflections, and thinking processes that rotate continuously. The results of the student learning process through the thinking process will be turned into knowledge through a process of reflection, and actions to practice the learning outcomes in daily actions. (Kolb, 2014)

Thus, it can be concluded that learning flexibility is an effort made by the teacher during the process of giving subjects both in class and outside the classroom by giving students the freedom to determine the material, place, time, study partners, tutors and others so that learning participants become more

comfortable. and get more learning experiences.

The more flexible the implementation of learning, the higher the student's learning motivation, and the higher the quality of learning. Conversely, when the learning process is carried out inflexibly, the motivation of students will decrease, as well as the quality of the learning process will decrease which is indicated by their low learning achievement.

H1. There is a significant influence between the quality of the learning process on the motivation of PKBM students, especially the SMA equivalency (package C)

H2. There is a significant influence between learning flexibility on the quality of learning for PKBM students, especially high school equivalence (package C)

#### Quantum teaching

Dube & Tsotetsi, (2019) explained that quantum teaching is a teaching method that emphasizes fun speed so that it has an impact on achieving predetermined learning targets. Aka (2016) also explains that quantum teaching is able to change people who are not talented into talented, people who don't love certain materials to be very loving, and from those who experience difficulties into ease. Hinck & Brandell, (2000) explain that quantum teaching will be able to speed up the process of understanding a subject matter well. Ige (2019) explained that quantum teaching is able to prepare students to become children who are ready to compete with other students of equal status who in fact do not use this method.

Karmini et.al (2020) When students only have limited time, such as going to college entrance selection, the learning process will be meaningful when they are able to be accepted into state universities. Lucey, (2021) concluded that quantum teaching gives students the freedom to seek and find new experiences in their learning.

Based on the description above, it can be concluded that quantum teaching will be able to increase the motivation and quality of learning that is followed by students. With the

implementation of quantum teaching, the motivation and quality of learning will increase, and vice versa, when the quality of quantum teaching decreases, motivation will decrease, including the quality of learning will also decrease.

H3. There is a significant influence between the implementation of quantum teaching on learning motivation in PKBM students, especially the SMA equivalence (package C)

H4. There is a significant influence between quantum teaching on the quality of the learning process for PKBM students, especially high school equivalence (package C)

#### Motivation to learn

Motivation is an encouragement that comes from outside and within the individual that is able to improve the quality of the learning process. With high motivation, the quality of learning will increase. On the other hand, with low motivation, students' enthusiasm for learning to participate in the learning process will decrease.

H5. There is an influence of learning motivation on the quality of the learning process for PKBM students, especially high school equivalence (package C)

H6. There is an indirect effect between learning flexibility on the quality of the learning process through learning motivation for PKBM students, especially high school equivalence (package C)

H7. There is a significant indirect effect between quantum teaching on the quality of the learning process through learning motivation for PKBM students, especially high school equivalency (package C)

## METHOD

### Research approach

The research approach used is quantitative research, especially correlational, which tries to relate exogenous and endogenous variables either directly or through intervening variables.

With regard to hypothesis testing, this research can also be categorized as verification research, meaning that it tries to test research hypotheses based on data in the field. A solid theory and supported by valid and reliable research data will be able to prove the hypothesis perfectly.

### Population and Sample

The study population was all students who took the package C equivalence exam in Palangka Raya, Indonesia in the 2021/2022 period, totaling 298 people. The sampling technique is proportional random sampling. The sample size is 120 people.

### Data and data sources

The data in this study include primary data and secondary data. Primary data comes from field data obtained using a survey method using a questionnaire (Basrowi & Utami, 2020). In other words, data was collected using a closed questionnaire using a Likert scale with five dimensions ranging from strongly agree, agree, undecided, disagree, and strongly disagree.

Secondary data in the form of data from interviews with students, tutors, alumni, and alumni users (Basrowi & Utami, 2019). Secondary data is also obtained using documentation techniques from books, journals, official government annual reports, provinces in figures, and others.

### Data Analysis

In accordance with the research design, this study uses a structural equational modelling (SEM) design, involving two exogenous variables, 1 endogenous variable, and 1 intervening variable. The data were analysed using the Smart PLS 3.3 software with the outer model analysis stages followed by the inner model.

## RESULTS

### Testing Outer Model

Outer model analysis defines how each manifest relates to its latent variable. The tests carried out on the outer model include:

### 1. Convergent Validity.

Convergent validity aims to determine the validity of each relationship between the manifest and its latent construct or variable. The convergent validity of the measurement model with manifest reflection is assessed based on the correlation between item scores or component scores with latent variable scores or construct scores estimated by the SmartPLS program. The following is a picture of the calculation results of the PLS SEM model, then see the manifest loading factor value for each variable.

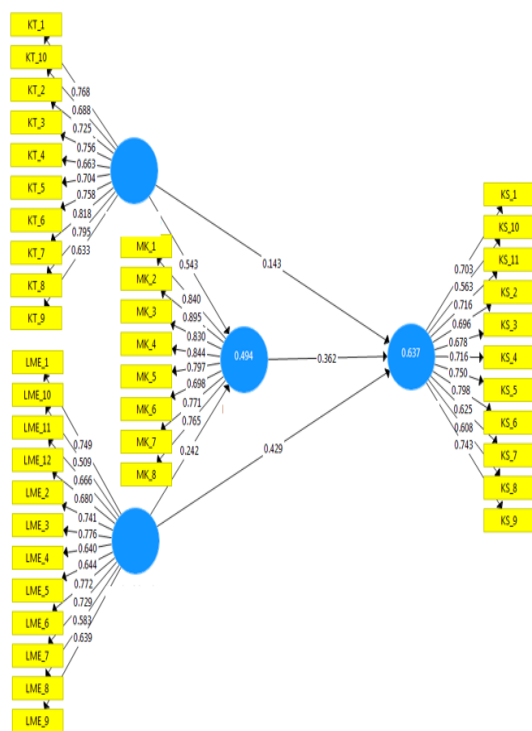


Figure 1. Run PLS Algorithm First Model

From the results of data processing with SmartPLS seen in the picture above, it can be seen that the majority of manifests on the learning quality variable in this study have a loading value greater than 0.60 except for manifest KS\_10 which has a loading value of less than 0.60, namely 0.563. This shows that the manifest variable which has a loading value greater than 0.60 has a high level of validity, thus fulfilling convergent validity. While the manifest variable that has a loading value of less than 0.60 has a low level of validity so that the manifest variable needs to be eliminated or removed from the model.

The following is a picture of the calculation results of the PLS SEM model after several manifests that do not meet the loading factor requirements are deleted or eliminated.

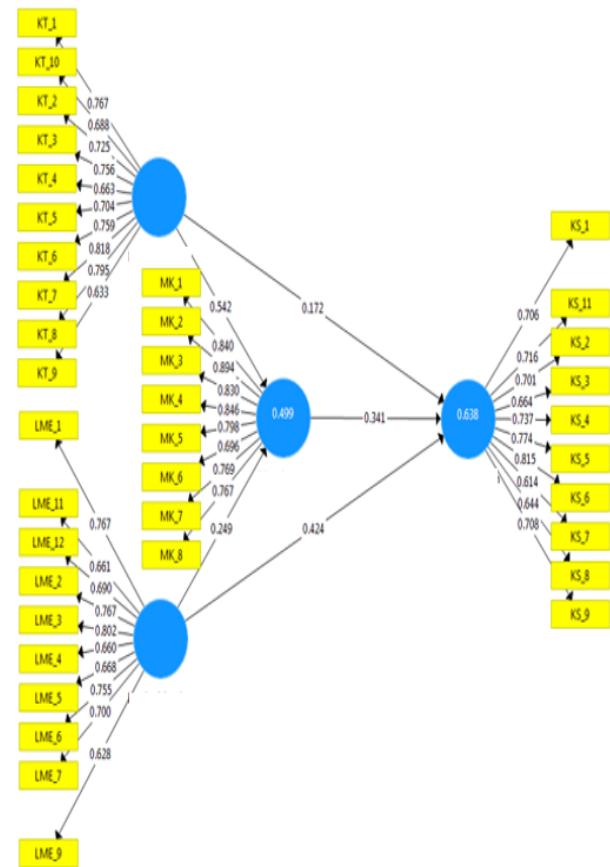


Figure 2. Run PLS Algorithm Second Model

From the picture above, it can be seen that all manifest variables have values above 0.6 so they are considered to have high validity and meet convergent validity.

Based on the output data, it can be seen that the average of each manifest variable studied has a Loading Factor value of > 0.6. So based on these results it can be concluded that the overall manifest used in this study has met the reliable criteria and can be used for further analysis.

### 2. Average Variance Extracted (AVE).

Another method to assess discriminant validity is to compare the roots of the Average Variance Extracted for each construct with the correlation between the construct and other constructs in the model. The model has sufficient discriminant validity if the AVE root

for each construct is greater than the correlation between the construct and other constructs (Ghozali, 2014: 63). The expected AVE value exceeds the number  $> 0.5$

Table 6. *AVE, ROOT OF AVE and Latent Variable Correlation*

Variable	AVE	AVE . root	Teaching quality	flexibilities	Quantum teaching	motivation
Quality of learning	0,504	0,710	1	0,623	0,675	0,685
Flexibility	0,537	0,733		1	0,543	0,674
Quantum teaching	0,507	0,712			1	0,543
motivation	0,651	0,807				1

From the table above, it can be concluded that all AVE roots are higher than the correlation value between constructs and other constructs, which means that all constructs in the estimated model meet the discriminant validity criteria.

### 3. Composite Reliability.

Composite reliability is the part that is used to test the manifest reliability value on a variable. A variable can be declared to meet composite reliability if it has a composite reliability value  $> 0.7$ . The following is the composite reliability value of each variable used in this study:

Table 7. *Composite Reliability*

Variable	Composite Reliability
Quality of learning	0,871
Flexibility	0,912
Quantum teaching	0,823
Motivation	0,913

Based on the presentation of the output data in the table above, it can be seen that the composite reliability value of all research variables is  $> 0.7$ . These results indicate that each variable has met composite reliability so that it can be concluded that all variables have a high level of internal consistency reliability.

### 4. Cronbach Alpha.

To strengthen the reliability test results above, Cronbach's alpha value is also used. Where a variable can be declared reliable if the value of

The following is a presentation of data related to the AVE value, the AVE root and the correlation between variables:

Cronbach's alpha  $> 0.6$ . Here are the cronbach' alpha values for each variable:

Table 8. *Cronbach's Alpha*

Variable	Cronbach's Alpha
Quality of learning	0,783
Learning Flexibility	0,981
Quantum Teaching	0,782
Motivation to learn	0,912

Cronbach's alpha output results show that all variables have Cronbach's alpha values above 0.6, so it can be concluded that all variables have good reliability.

### Inner Model Test

Testing of the structural model (Inner Model) is carried out by looking at the R-square value which is a goodness-fit model test, Q-square, F-square and hypothesis testing (Ghozali 2014:66).

#### 1. R-Square Uji Test

The value of R<sup>2</sup> shows the level of determination of the exogenous variable to the endogenous variable. The greater the R<sup>2</sup> value, the better the level of determination. According to Hair in Latan & Ghozali (2012), a model is said to be strong if the R-square value is 0.75, the model is moderate if the R-square value is 0.50, and the model is weak if the R-square value is 0.25. The calculation results in table 4.17 below show that the R-square value for the learning quality model is 0.638, so the model is

said to be moderate and for motivation is 0.99, so the model is said to be moderate.

Table 9. *R-square*

Variable	R Square	R Square Adjusted
Quality of learning	0,638	0,627
Motivation to learn	0,499	0,489

2. Q-Square

The Q-square value of structural model testing is done by looking at the Q2 value (predictive relevance), where the higher the Q-Square, the more fit the model can be with the data. The results of the calculation of the Q-Square value are as follows:

The results of the Q2 calculation show the Q2 value of 0.82. According to Ghozali (2014), the value of Q2 can be used to measure how well the observed values are generated by the model and also the estimated parameters. A Q2 value greater than 0 indicates that the model is said to be good enough so that the predictions made by the model are considered relevant.

3. F-Square

The value of the f square model is used to determine the effect size of the endogenous latent variable on the exogenous latent variable. If the value of f square is equal to 0.35, it can be interpreted that the latent variable predictor has a large influence, if it is equal to 0.15 then it has a medium effect and if it is equal to 0.02 then it has a small effect (Ghozali, 2014).

Table 10. *Effect Size*

Variable	Quality of learning	Motivation to learn
Quality of learning	--	--
Learning Flexibility	0,041	0,422
Quantum teaching	0,329	0,089
Motivation to learn	0,161	--

Based on the table above, the results of the effect size are interpreted as follows:

a. The relationship between learning flexibility and learning quality has an effect size value of 0.041, a weak category.

b. The relationship between quantum teaching and learning quality has an effect size value of 0.329, in the middle category.

c. The relationship of motivation to the quality of learning has an effect size value of 0.161, the middle category.

d. The relationship between learning flexibility and motivation has an effect size value of 0.422, the high category.

e. The relationship between quantum teaching and motivation has an effect size value of 0.089, a weak category.

4. Bootstrapping Results

In SmartPLS, each relationship is tested using a simulation using the bootstrapping method on the sample. This test aims to minimize the problem of abnormal research data. The results of testing with the bootstrapping method using the SmartPLS software are as follows:

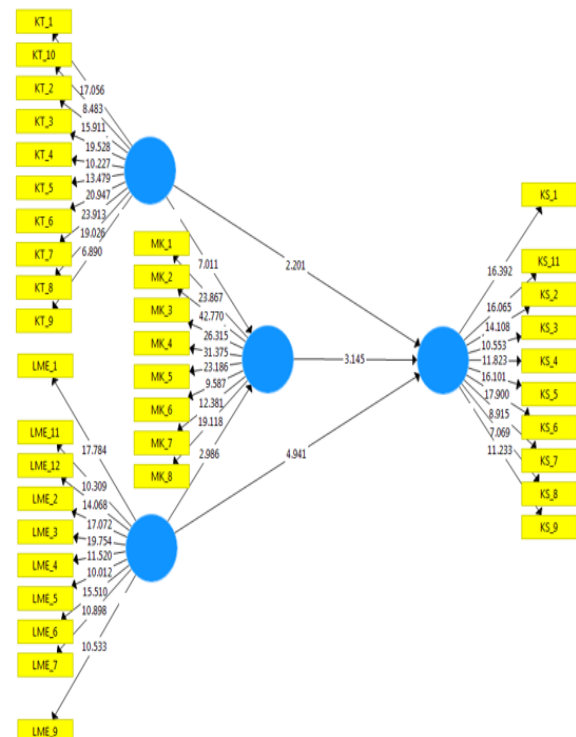


Figure 3. *Bootstrapping Inner Model*



## 5. Evaluating of Path Coefficients

From Figure 3 it can be explained that the largest path coefficient value is indicated by the influence of learning flexibility on learning motivation of 0.542. Then followed by the influence of quantum teaching on the quality of learning by 0.424..

Based on the description of the results above, it shows that all variables in this model have path coefficients with positive numbers. This shows that the greater the path coefficient value on an independent variable on the dependent variable, the stronger the influence between the independent variables on the dependent variable.

## 6. Hypothesis Test

To measure the significance value of the acceptance of a hypothesis, it is done by looking at the P-Values. The research hypothesis can be declared accepted if the P-Values  $<0.05$ .

To see the P-value in SmartPLS, it is done through a bootstrapping process on models that are already valid and reliable and meet the model's feasibility. The results of bootstrapping can be seen in the table below:

Table 11. *Path Coefficients*

Influence	Original Sample	T Statistics	P Value
Learning flexibility— quality of learning	0,172	2,201	0,028
Learning flexibility-- motivation	0,542	7,011	0,000
Quantum teaching— quality of learning	0,424	4,941	0,000
Quantum teaching— motivation	0,249	2,986	0,003
Motivation-- quality of learning	0,341	3.145	0,002

After the bootstrapping process has been carried out on the measurement model, the results of hypothesis testing are obtained as follows:

H1: There is a significant effect of learning flexibility on motivation

From the results of the path coefficient obtained between learning flexibility on motivation of 0.542 with a P-Value value of  $0.000 < 0.05$ , it is concluded that there is a significant influence between learning flexibility on motivation. A positive value in the parameter coefficient means that the higher the learning flexibility, the higher the motivation, then H1 is accepted.

H2: There is a significant effect of learning flexibility on the quality of learning

From the results of the path coefficient obtained between learning flexibility on learning quality of 0.172 with a P-Value value of  $0.028 < 0.05$ , it is concluded that there is a significant influence between learning flexibility on learning quality. A positive value on the parameter coefficient means that the higher the flexibility of learning, the higher the quality of learning, then H2 is accepted.

H3: There is a significant effect of quantum teaching on motivation

From the results of the path coefficient obtained between quantum teaching on motivation of 0.249 with a P-Value value of  $0.003 < 0.05$ , it can be concluded that there is a significant influence between quantum teaching on motivation. A positive value in the parameter coefficient means that the higher the quantum teaching, the higher the motivation, then H3 is accepted.

H4: There is a significant effect of quantum teaching on the quality of learning

From the results of the path coefficient obtained between quantum teaching on the quality of learning of 0.424 with a P-Value value of  $0.000 < 0.05$ , it is concluded that there is a significant influence between quantum teaching on the quality of learning. A positive value in the parameter coefficient means that

the higher the quantum teaching, the higher the learning quality, then H4 is accepted.

H5: There is a significant effect of motivation on the quality of learning

From the results of the path coefficient obtained between motivation and learning quality of 0.341 with a P-Value of  $0.002 < 0.05$ , it can be concluded that there is a significant influence between motivation and learning quality. A positive value in the parameter coefficient means that the better the motivation, the higher the quality of learning, then H5 is accepted.

The results of the mediation effect hypothesis test can be seen in the following table.

Table 12. *Specific Indirect Effect*

Influence	Original Sample	T Statistics	P Value
Learning flexibility— motivation-- quality of learning	0,185	2,851	0,005
Quantum teaching— motivation— quality of learning	0,085	2,105	0,036

H6: There is a significant effect of learning flexibility on the quality of learning through mediation of motivation.

From the specific indirect effect test, it is known that learning flexibility has a positive effect on the quality of learning through motivation where the P-Values value is  $0.005 < 0.05$  (significance alpha 5%). From the results of the total effects analysis, it was found that the relationship between learning flexibility and learning quality was still significant with P-Value  $0.000 < 0.05$  (significance alpha 5%). Thus, it can be concluded that this mediation is only quasi or partial (partially mediating), then H6 is accepted.

H7: There is a significant effect of quantum teaching on the quality of learning through motivational mediation

From the specific indirect effect test, it is known that quantum teaching has a positive effect on the quality of learning through motivation where the P-Values value is  $0.036 < 0.05$  (significance alpha 5%). From the results of the total effects analysis, it was found that the relationship between quantum teaching and learning quality was still significant with a P-Value of  $0.000 < 0.05$  (significance alpha 5%). Thus, it can be concluded that this mediation is only pseudo or partial (partially mediating), so H7 is accepted.

Thus, it can be concluded that this mediation is only pseudo or partial (partially mediating), meaning that the independent variable is able to directly influence the dependent variable without going through or involving the mediator variable (intervening). Full mediation (fully mediating) occurs if the total effects found the relationship of the independent variable to the dependent variable to be insignificant (Hartono and Abdillah, 2014).

## DISCUSSION

The effect of learning flexibility on learning motivation

The results showed that a flexible learning process can increase motivation and learning achievement. The better the flexibility of the learning process, the students' learning motivation will increase which in turn has implications for improving the quality of the learning process, including the output of the learning process.

The results of the research above are in accordance with the findings of Day (2013) which states that learning flexibility is the key to increasing learning motivation and improving the quality of the learning process which is indicated by high learning achievement. The results of the study (Zbar, et.a, 2017) that learning flexibility gives meaning both to increasing motivation and the quality of the learning process.

### Learning Flexibility on Learning Quality

The results showed that learning flexibility had a significant effect on the quality of learning. That is, when the learning process can be carried out flexibly, the quality of learning will increase. Improving the quality of learning will go hand in hand with increasing the flexibility of learning. The results of this study strengthen the findings of Naidu (2017) that flexible learning provides a positive meaning compared to rigid learning. Flexible learning will have a significant effect on improving the quality of the learning process. The same thing was stated by Sharma & Kolb, (2010) that to improve the quality of the learning process in adult education, it can be done by applying flexible learning methods.

The results of this study support the findings of Pamel & Procter (2011) which concludes that flexible learning by giving students the freedom to choose the method, time, place, study partner, learning resource will give better results. The same thing was also stated by Edward (2012) that the learning process will improve in quality when the teacher or tutor can increase the flexibility of his learning.

### Quantum Teaching to motivation

The results of the study also found that quantum teaching was able to increase student learning motivation, and was able to improve student learning achievement. The implementation of quantum technology that is not good will reduce students' learning motivation and will reduce the quality of the learning process and student learning achievement. The results of this study are in line with the findings of Chepchieng, (2006) who concluded that learning motivation can be improved, one of which is through the application of the quantum teaching method.

The results of this study strengthen the findings of Dewobroto, (2020) which concludes that, to increase learning motivation, tutors or teachers can use the quantum teaching method. This research is also able to strengthen the findings of Dube & Tsotetsi, (2019) which concludes that quantum teaching that is done well will be able to increase students' learning motivation.

The same thing was also found by Aka, (2016) who concluded that student learning motivation can be improved properly when the teacher or tutor can apply quantum teaching in the learning process.

### Quantum Teaching on the Quality of the Learning Process

The results of Chatterjee, et.al. (2021) also found the same thing, that the high and low quality of quantum teaching will determine the high and low quality of learning. The results of this study are also in accordance with the findings of De Porter (2021) which states that when teachers want to improve the quality of learning, then one of the steps that teachers can take is to apply the quantum teaching method.

The results of this study are in accordance with the findings of Hinck & Brandell (2000) which significantly argue that quantum teaching that is implemented well will be able to improve the quality of the learning process which in turn will increase the quality of output. The results of this study are also in accordance with the view of Ige (2019) that when teachers are able to apply the quantum teaching method, the quality of learning will increase. The same thing was found by Lucey (2021) that when teachers want to improve the quality of the learning process, one of the steps that can be taken is by increasing the quality of using the quantum teaching learning method..

### Motivation on the Quality of the Learning Process

The results showed that the better the student's learning motivation, the better the quality of learning as seen from the output of student learning outcomes. The better the learning motivation, the better the output obtained. Therefore, when teachers want to improve the quality of learning outcomes, the aspect that needs to be improved is increasing student learning motivation.

The results of this study are in accordance with the findings of Islam, et al (2019) which states that when the motivation of students is good, the output of the learning process will also increase. The results of this study also

strengthen the findings of Walters et al. (2017) that the higher the motivation possessed by students, the better the learning outcomes to be achieved. The same thing was also found by Chen, (2017) that to improve learning outcomes, one aspect that needs to be considered is learning motivation. So, learning motivation has a significant effect on the quality of the learning process which is reflected in the value achieved (Noor, 2019).

## CONCLUSION

Based on the results of research and discussion, it can be concluded that, first, learning flexibility can increase students' learning motivation. With learning that is carried out with high flexibility, it can increase students' learning motivation. Second, quantum teaching is able to increase students' learning motivation at the center of community learning activities. Students' learning motivation can be increased by providing a learning process using the quantum teaching method. Third, learning flexibility is able to improve the quality of the learning process aimed at increasing the output of graduates from community learning activity centers. Fourth, quantum teaching is able to improve the quality of learning. The quality of learning will increase along with improving the quality of quantum teaching carried out by teachers or tutors. Fifth, learning motivation has a significant effect on the quality of the learning process or learning achievement. Sixth, quantum teaching indirectly affects the quality of the learning process through student learning motivation. Seventh, quantum teaching has a significant indirect effect on the quality of the learning process through learning motivation.

## CONFLICT OF INTERESTS

The author declares no conflict of interest

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