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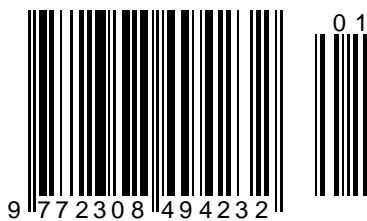
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RESEARCH ON THE STRUCTURE AND PROPERTIES OF PTERYGOTA INDICA WOOD AS A RAW MATERIAL FOR PULP AND PAPER

Abstract: *This research was conducted with the hope of supporting the development of Industrial Plantation Forests, because this wood is likely to be recommended as raw material for pulp and paper. The purpose of this study was to obtain a description of the structure and properties of Pterygota indica wood, as well as measurements of fiber dimensions from the base to the tip of the tree. The other objective is to determine the physical properties of wood, namely specific gravity, wood chemistry which is located at the base to the tip of the tree, the wood at the base to the tip of the deciduous tree, as well as Pterygota indica wood, which has different structures and wood properties. If we obtain data on some of the structures and properties of Pterygota indica wood, it is hoped that we can determine its suitability as a raw material for the pulp industry. Implementation this study used the ASTM D 1103-60 method/guideline (Anon, 2019). The results of this study indicate that Pterygota indica wood can be used as a raw material for the pulp and paper industry, and can also be used as carpentry wood or plywood, because this wood has a level/class of durable wood III.*

Key words: wood structure, wood properties, Pterygota indica.

Language: English

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Introduction

Background

Implementation of national development which simultaneously develops the environment, it is necessary to pay attention to the management and processing of renewable natural resources. With the preservation of natural resources such as forests, soil, water and sea as well as natural biological resources, these natural resources remain intact for SUSTAINABLE use, not only for the present generation but also for future generations. Therefore,

natural resources must be utilized in such a way that their sustainability is guaranteed.

The forest area in Indonesia, which is estimated at 143 million hectares, is spread over ± 13,000 islands, both large and small islands. This forest is composed of approximately 4000 species of plants. However, only 267 species are classified as commercial timber-producing plants, 133 species are lesser known, while 90% are still unknown plants. This fact is supported by the collection conducted by the Forest Research and Development Center in Bogor. In that place, 3667 species belonging to 675

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genera from 119 families have been collected (Anon., 2018).

Forests as one of the natural resources can produce economic objects that are human needs. One example of such economic object is the raw material for the timber industry. Thus natural resources in the form of forests can be used as a source of funds for Indonesia's development.

The need for development funds at home and the increasing demand for timber abroad has resulted in an increase in timber production and exports. However, prior to 1980 most of the production and export of wood (approximately 90%) was in the form of logs, while in the form of processed wood it was only relatively small. This condition is of course detrimental to the interests of the state. This can be seen from the 4 gatrass. First, the export of logs deprives the country of opportunities to obtain the necessary jobs in wood processing. Second, the export of logs removes additional foreign exchange in the form of added value arising from the wood processing industry. Third, losing the opportunity to transfer technology in the wood industry. Fourth, log exports will further accelerate the depletion of forest resources (Soenardi), Realizing that these losses exist, the government is making various efforts to limit log exports and spur processed wood exports. It seems that this effort was successful after the promulgation of a Joint Decree of the Three Ministers in 1980. This was proven by the explosion in the wood processing industry, especially dominated by the plywood industry. Prior to 1980 there were only 29 plywood factories in production. After that year, the number of plywood factories increased rapidly, reaching a total of 110 in 1988 (Soenardi, 2018).

Sustainability of the production of such a number of plywood factories definitely requires raw materials in large quantities and continuously. In the next few years, it is estimated that the need for raw materials will reach 90 million m³. At that time, it is estimated that the existing natural forests will no longer be able to meet the increasing demand for timber. Therefore, the government has taken steps to develop Industrial Plantation Forests. The development of Industrial Plantation Forests is targeted to reach 4.4 million hectares in the next 15-20 years. Together with the existing plantation forests of 1.8 million hectares, the total area will reach 6.2 million hectares. Such a large plantation forest area will in time be able to supply the expected 90 million m³ of wood (Soenardi, 2018).

The role of selecting the species to be planted is very decisive in the development of Industrial Plantation Forests. The selected plant species must meet several criteria, including having high economic value, easy to plant, suitable for the place where it grows, has a high increment, has a short cycle, is more resistant to pests and diseases and has wood quality (characteristics) that meets requirements as a raw

material for the wood industry (Apandi, 2018; Djamaluddin, 2018 and Subardjo, 2018). In this regard, *Pterygota indica* trees that grow in Indonesia may be recommended as a type of fiber wood (pulp). This is due to the good nature attached to *Pterygota indica*. These good properties include: this plant has fast growth, can grow on rather fertile laterite soils and nutrient-poor lime soils, resistant to pests and diseases and branch-free stems can be said to be Juras (Fundter and Wisse, 2018). In addition, the quality requirements (characteristics) of the selected wood must also meet the requirements as a raw material for the wood industry.

The natural resource in the form of forest needs to be endeavored to diversify the use of the types of wood. In addition to the types of wood that have been traded, the utilization of this species can extend to other types of wood, both those that are less well known and those that are not yet known.

One of the types of plants that can support Industrial Plantation Forests, *Pterygota indica* is still poor in information about the characteristics concerned with the field of Forest Product Technology. This fact has the possibility that in the future the *Pterygota indica* plant may be suggested as a raw material supplier for paper making, given the whitish color of the wood. Given that its use in Indonesia is limited as firewood or charcoal, the method of using it as a raw material for paper will increase the economic value of *Pterygota indica*. To be able to determine a type of wood for its proper utilization as a raw material for paper, there are several wood properties that need to be known, including some anatomical properties, specific gravity and some chemical properties.

The anatomical properties examined in this study included fiber length, fiber diameter, fiber wall thickness and lumen diameter. In addition, the percentage of vessel cells, radius cells, fiber cells and parenchyma cells. Research on chemical properties included extractive content soluble in cold water, extractive content soluble in hot water, extractive content soluble in alcohol-benzene, holocellulose, alpha cellulose, pentose, lignin and ash; wood physics research on specific gravity.

Aim

This research aims to:

1. Knowing the structure of *Pterygota indica* wood which includes the anatomical arrangement and fiber dimensions from the base to the tip of the tree in one tree.
2. Knowing the properties of *Pterygota indica* wood which includes several chemical properties and specific gravity, from the base to the tip of the tree in one tree.
3. On the basis of 1 and 2, it is hoped that the suitability of this type of *Pterygota indica* wood

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for its use, especially as a fiber (pulp) material, can be determined.

Materials And Methods

Ingredient

The wood as a material in this study was obtained from the Faculty's Arboretum Forestry Gadjah Mada University in Yogyakarta. In addition, materials such as films, photographs, paraffin are also used. distilled water and chemicals eg perhydrol. Sodium hydroxide and Furfural phloroglucinol. Some of these materials were purchased at a chemical supply store and some were obtained from the Forest Product Technology laboratory, Faculty of Forestry, Gadjah Mada University in Yogyakarta.

Tool

The tools used in this study saw blades, drying kilns, analytical balances, 40–60 mesh screens, sanding machines, microscopes, fibroscopes, photographic equipment, kurvinsters, electric cookers, measuring cups, erlenmeyer flasks and distillation coolers.

Research procedure

Selection of trees

One of several *Pterygota indica* trees that grow in the Arboretum I of the Faculty of Forestry, Gadjah Mada University, Yogyakarta, was chosen. The selected trees are in good health.

Felling of trees

Be measured tall buttress roots of *Pterygota indica* trees and the height of buttress roots is 92 cm above the ground. Then logging was carried out at a height of 92 cm above the ground level. After it fell, the tree was measured for its height, diameter and thickness of the bark.

The division of stem height

The tree trunk is divided into 5 parts in the direction of the long axis of the tree, in such a way that each piece has the same length. Each successive cut from the position of the base to the tip of the stem is coded A, B, C, D, and E, as shown in Figure 1 below.

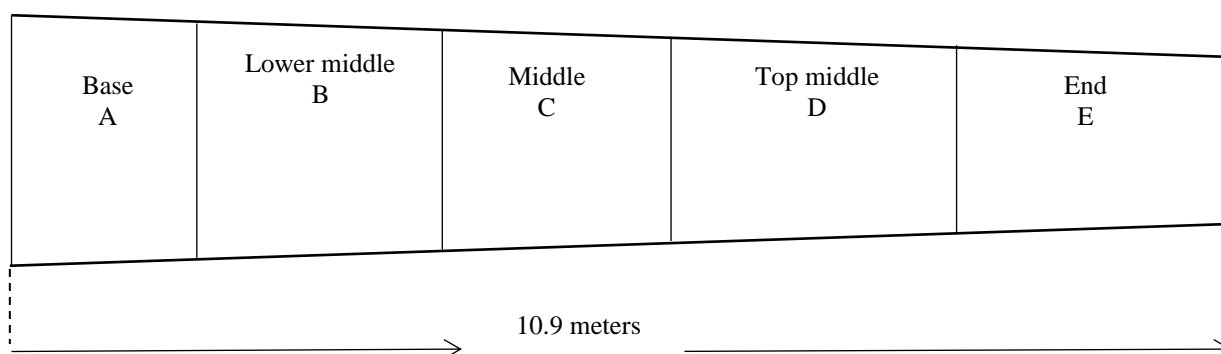


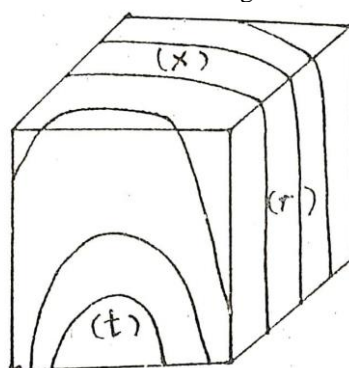
Figure 1 - The division of *Pterygota indica* wood pieces from the base position to the end of the tree

Sampling test

From each piece of stem, a disc 10 cm thick is taken. This taken one in the middle of the long axis of the tree. From this 10 cm long piece, test samples were made. Then 8 fruits were taken randomly to be examined.

Research implementation

Example wood for the preparation of microscopic slides and maceration slides were taken from the same sample. For this purpose, wood samples are made in three orientation planes, namely the latitude (x), radial (r) and tangential (t) planes. For details, it can be seen in Figure 2 below.



Information:
x : transverse
r : radials
t : tangential

Figure 2 - Preparation of test samples for microscopic slides.

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Study of wood anatomy

The test samples were in the form of small pieces of wood (sticks) with a size of 3 cm x 0.75 cm x 0.75 cm (length x width x height) from each treatment which were taken randomly from all parts of the wood. The pieces of wood were sliced with a microtome in cross section, radial section and tangential section with a slice thickness of 10–20 microns. From the wood slices obtained, preparations are made. After that, the preparations were photographed using a microscope photo with a magnification of 125 times. Anatomical photos in cross-sections obtained were then cut according to the cell type and weighed for each. The percentage of these cell types was calculated based on the ratio of the weight of the photo paper for each cell type (vessels, fibers, fingers and parenchyma) to the weight of one photo sheet (expressed in percent).

Research on fiber dimensions

Test samples shaped small pieces of wood (sticks) with a size of 20 mm x 1 mm x 1 mm (length x width x height) taken from each piece of wood at random. The pieces of wood are put into a test tube containing a mixture of one part glacial acetic acid and 20 parts perhydrol (1:20). The test tube is then boiled in water at 100 C for 3–5 hours until a white test sample is obtained. The test sample in the test tube is then washed and filtered repeatedly. Washing using distilled water until the test sample is free from chemicals (acids). To obtain fiber, the clean test sample is shaken and dyed (safranin). The fibers obtained were then taken with a pipette placed on top of the object glass and covered with a cover glass and ready to be measured.

Measurement fiber length, fiber diameter, lumen diameter and cell wall thickness were determined in the following way:

a. Fiber length

Fiber length was measured on maceration preparations using a magnification fibroscope 50 times and measured with a curvimeter (which has been corrected for the ratio of the scale between 1 cm in the object and the scale in the curvimeter). Fiber length measurements were carried out 40 times for each test sample. The number of fibers measured is determined based on the results of preliminary measurements of 100 fibers. Fiber length data (in mm) obtained is then calculated by the formula:

$$N = \frac{4S^2}{L^2}$$

Where:

$$S^2 = \frac{\sum f_i x_i^2}{n} - \frac{(\sum f_i x_i)^2}{n^2}$$

$$L = \frac{\sum f_i x_i}{n} \times 0,05$$

Information.

N: measured fiber count.

S: standard deviation.

L: the average value of fiber length times 0.05. (5% error is considered sufficient).

Xi: fiber length.

fi: fiber frequency.

n: the number of fibers measured in the preliminary measurement (100 pieces of fiber).

With measurement As many as 40 of these obtained an average fiber length with an accuracy of 95%. Measurement repetitions were set 8 times.

b. Fiber diameter, lumen diameter and fiber wall thickness

Fiber diameter and lumen diameter were measured directly on the maceration preparation under a microscope (which is equipped with an objective scale and the scale has been corrected) with a magnification of 500 times. Measurements for each test sample are also determined by 40 fibers

Measurement of cell wall thickness was not carried out directly, but through the relationship between the difference in fiber diameter and lumen diameter divided by two (in microns).

The implementation of this research uses a modified method from the Forest Product Laboratory (in Silitonga et al. 2019).

In this research also calculated the value of fiber dimension derivatives. The calculation is carried out by the formula:

$$1. \text{Bilangan Runkel} = \frac{2W}{d^2 - l^2}$$

$$2. \text{Bilangan Muhlsteph} = \frac{L}{d}$$

$$3. \text{Daya Tenun} = \frac{w}{d}$$

$$4. \text{Koefisien Kekakuan} = \frac{I}{d}$$

$$5. \text{Nilai fleksibilitas} = \frac{I}{d}$$

Information:

W: cell wall thickness

d: fiber diameter

L: length, weight.

I : lumen diameter

Research on the physical properties of wood

a. Wood density

The test sample was made with a size of 5 cm x 2.5 cm x 2.5 cm, taken randomly from each wood. The test samples obtained were then immersed in distilled water for 3 days to achieve saturation conditions. The volume of the test sample was measured by placing it in distilled water. The difference in the weight of the sir after adding the ul sample and before that is the wet volume. The test sample (Vb= in cm³). After that the test samples were allowed to air dry for several days. Then the test samples were dried in a drying kiln at a temperature of 100–105°C. This drying is carried out

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continuously until it reaches a constant weight. This constant weight sample weight is defined as the furnace dry weight (B_0 in grams): Measure the volume of the sample in the furnace dry condition by placing it in distilled water. Implementation research using British Standards guidelines 373. Specific gravity is calculated using the formula:

$$BD = \frac{B_0}{v_b} \quad \text{according to wet volume}$$
$$BD = \frac{B_0}{V_0} \quad \text{menurut volume kering tanur}$$

Research on the content of wood chemical components

Materials for research on the content of chemical components of wood are taken from the remaining wood after sample research test on the anatomy and physical properties of wood. The sample wood is

cut into small pieces (chips), then cut into pieces the size of sticks to be ground into wood powder. This powder is filtered (sifted) with a 40–60 mesh sieve. This powder is then stored in closed bottles so that the water content of this powder is evenly distributed. Then the water content is calculated.

a. The extractive content is soluble in cold water

Provided are 2 units of sawdust \pm 2 grams each. Put the sawdust in glass 400 ml cup and filled with 300 ml of distilled water. This mixture was left for 48 hours at room temperature with each stirring. Transfer the mixture into a filter cup whose weight is known. Washed with cold distilled water and dried to constant weight. The levels of extractive substances in cold water were calculated based on the reduced weight of sawdust. This lost weight is expressed as the weight of the cold water-soluble extractive using the following formula:

$$\text{Extr rate.} = \frac{\text{b extractive weight}}{\text{powder weight in kiln dry condition}} \times 100\%$$

b. The extractive content is soluble in hot water

Provided 2 units of sawdust \pm 2 grams each. The sawdust was digested with 100 ml of distilled water into a 300 ml Erlenmeyer flask which was equipped by standing cooling and heating in a water bath whose level can be adjusted to remain higher than the surface of the solution in the cup. After heating for 3 hours, the contents of the cup are transferred to a filter cup whose weight is known, washed with hot water and in the furnace until the weight is constant. The reduced weight of the powder is calculated and expressed in terms of soluble content in hot water as a percent of the dry weight of the furnace or the initial weight of sawdust. - initially that is free of water (kiln dry) (W_1) minus the furnace dry weight of extracted powder (W_2) divided by the weight of the original sawdust which is free of water (furnace dry) multiplied by 100%.

$$\text{Formula: } \frac{W_1 - W_2}{W_1} \times 100\%$$

c. Extractive levels are soluble in alcohol-benzene

provided 2 units of sawdust weighing \pm 2 grams each in a filter cup. The cup is inserted into the Soxhlet device and the end of the filter cup is arranged higher than the tip of the siphon, but the powder surface is lower. The cup is covered with a fine piece of metal sieve, so that no sample is lost. Extraction was carried out with 200 ml of alcohol-benzene with a ratio of 95% alcohol : benzene = 1 : 2 for 4–6 hours. Heating is regulated so that the velocity of exit and entry of the solvent into the filter cup is the same. The cup is removed from the socket and sucked until the contents are dry and washed repeatedly filling the cup with

alcohol and then suctioned. After that, it is dried at 100–105°C until the weight is constant. Calculate the reduced weight of the powder. This lost weight is expressed as the weight of the alcohol-benzene soluble extractive. There are two ways to find the solubility in alcohol-benzene:

- by finding the weight of the powder as in (a) and (b).
- by finding the weight of the extractive in the extractive flask. This is done by evaporating the solvent, then drying the flask for 1 hour at 105°C or with the formula:

$$\frac{W_2}{W_1 \cdot P} \times 100\%$$

where:

W_1 = initial powder weight.

W_2 = furnace dry weight of extracted powder.

P = Proportion of water-free wood in air-dried specimen:

$$\frac{100}{100 + \text{water content}}$$

d. Determination of holocellulose content

Weigh 0.7 grams of air-dried sawdust which is free of extractives and put it in a 250 ml Erlenmeyer bottle. Into the bottle, 10 ml of solution A is also put in, then 1 ml of solution B. The administration is carried out with a pipette. The bottle was closed with a rubber stopper and placed in a water bath at 70°C \pm 2°C. The bottle was shaken every 0.5 hours. After heating for 0.75 hours, 1 ml of solution B was put into the bottle followed by shaking the bottle, repeated twice, each time the heating had lasted for 4 hours, the bottle was taken out and put in an ice water bath. Into

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the bottle was put another 15 ml of distilled water. The entire contents of the bottle is transferred to a filter cup whose weight is known. Wash the remaining contents of the bottle with 100 ml of 1% acetic acid solution and pour it into a filter cup, then suck it with a suction pump. Pour in 5 ml of acetone and wait until all the acetone drips out of the onwan filter. Ingi sucked the filter cup with a suction pump for 3 minutes, then left it for 4 days to reach air-dry moisture content. The filter cup was weighed and then the holocellulose content was determined according to the oven method. The holocellulose content was calculated. The samples were not discarded, but were kept for the determination of alpha cellulose content. Then allowed to stand for 4 days to reach wind-dry moisture content. The filter cup was weighed and then the holocellulose content was determined according to the oven method. The holocellulose content was calculated. The samples were not discarded, but were kept for the determination of alpha cellulose content. then allowed to stand for 4 days to reach wind-dry moisture content. The filter cup was weighed and then the holocellulose content was determined according to the oven method. The holocellulose content was calculated. The samples were not discarded, but were kept for the determination of alpha cellulose content.

Solution A is a solution consisting of glacial acetic acid, NaOH and distilled water with a ratio of

60 ml, 20 grams and 1 liter, respectively. Solution B is asolutionconsisting of NaClO₂ and distilled water with a ratio of 200 g and 1 liter, respectively.The implementation of this research uses the ASTM D 1103-60 method (Anon, 2019).

e. Determination of alpha cellulose content

Solution 17.5% NaOH was added as much as 3 ml into the caring cup containing the holocellulose produced in advance. The filter cup is placed into a watch glass filled with distilled water so that the filter cup is submerged 1 cm. The holocellulose was stirred using a glass stirrer for 1 minute so that all of the holocellulose was wetted by 17.5% NaOH solution. After 5 minutes, another 3 ml of 17.5% NaOH solution was added while stirring again for 1 minute. After 35 minutes, 6 ml of distilled water was added. The filter cup is removed from the watch glass, and the filter cup is sucked in with a suction pump while pouring! 60 ml of distilled water. 10 ml of 10% acetic acid solution was added and followed by stirring using a glass stirrer. The filter cup is sucked with a suction pump while 80 ml of distilled water is poured. Pour 10 ml of acetone into the filter cup, wait until all the acetone drips out of the filter cup. The filter cup is dried in a drying furnace to a constant weight. Alpha cellulose content is calculated by the formula:

$$\text{Cellulose alpha content} = \frac{\text{alpha cellulose weight}}{\text{weight of kiln dry wood}} \times 100\%$$

Implementationthis study used the ASTM D 1103–60 method/guideline (Anon, 2019).

f. Determination of pentose content

Determination of pentose content was carried out using the ASTM D 1106–56 guideline method (Anon, 2019).Weigh 1.5 grams of sawdust into a 300 ml distillation flask. Put a piece of paraffin to prevent foaming and some poreus stuff top revent evaporation. Added 100 ml of 12% HCl by connecting it to a cooler (condenser). Heat the flask in such a way that the distillation takes place at the rate of 30 ml every 10 minutes. The distillate must be passed through filter paper before entering the measuring cup. After collecting 30 ml of distillate, another 30 ml of 12% HCl was added while washing the particles adhering to the flask, until the distillate accommodated 360 ml. The entire distillate was gradually added to 40 ml of a new solution of phloroglucinol-HCl which had been filtered while stirring (11 grams of phloroglucinol in 1500 ml of 12% HCl), so that the distillate would turn black-green. For 16 hours the distillate is left to stand, the black precipitate from the furfural phloro gluside will gather at the bottom of the measuring cup. The liquid is checked with aniline acetate paper. If it gives a pink color, it means that the precipitation is incomplete, therefore, another amount of

phloroglucinol-HCl solution is added and allowed to stand for another 16 hours. The precipitate was collected and added to 100 ml of distilled water, dried in a furnace for ±2.5 hours at 100–105 °C. The result is furfural phloro gluside. The pentose weight calculation is:

$$\text{Pentoses} = (a + 0.0052) f$$

where:

a = furfural phloro gluside weight in grams.

b = 0.895 kalnu a less than 0.03 grams.

0.887 if a is between 0.03–0.3 grams,

0.882 if & greater than 0.3 grams.

The pentose weight was calculated as a percent of the kiln dry weight.

g. Determination of lignin content

Determination of lignin content was carried out using ASTM D guidelines/methods1108-58 (Anon, 2019).Wood powder that has been extracted, weighed 1 gram. The extracted sawdust was transferred into a 1000 ml beaker and digested with 400 ml of hot water over a water bath (100°C) for 3 hours. The powder was filtered with a filter cup and the powder was allowed to air dry, then transferred to a small beaker covered with a watch glass. Slowly, while stirring, 115 ml of cold (12–15°C) 73% H₂SO₄ is added. The sawdust is stirred for at least 1 minute so that it is

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thoroughly mixed and allowed to stand for 2 hours after each stirring while the temperature is kept at around 18–20°C (the outer beaker is cooled to reach this temperature). The sawdust was washed in an Erlenmeyer glass of 1 liter, diluted to 3% acid concentration by adding 560 ml of distilled water. The powder in this glass is boiled under a vertical cooler for 4 hours, trying to keep the volume constant by adding hot water from time to time. After the insoluble materials are allowed to settle, they are filtered with a filter cup, washed with hot water until free from acid. The powder is dried in a furnace at 105°C until the weight is constant, cooled and then weighed. Lignin content is calculated as a percentage of the dry weight of the wood kiln before extraction.

Analysis of Results

Data regarding the anatomical arrangement, fiber dimensions, physical properties including fresh water content, wood specific gravity and wood chemical components, are calculated according to the applicable formulas. Results calculation. The obtained data is the result of research on the structure and properties of *Pterygota indica* wood. Analysis of the results of the study was carried out by statistical analysis (analysis of variance) for one variable that differed in the location of the wood parts (base, middle and ends) in 8 repetitions.

To find out more about the influence of factors that show significant differences in the analysis of variance, tests were carried out with Least Significant Difference (LSD) and graphical representations.

Results And Discussion

Treatise on *Hevea brasiliensis* This study gave the result that this wood was already known by the

trade world. Therefore, there is no standard trade name for this wood. The scientific name of this log as mentioned above is *Havea*. Circle the year the type of log is not so clearly visible. The sapwood and heartwood are difficult to distinguish, as are early and late wood.

The structure of this log has vessels with single and double radial distribution, there is a yellowish white precipitate. Parenchyma has vasicentric type, metatracheal and aliform type to a small extent. The paratracheal parenchyma is often misshapen and the apotracheal parenchyma is straight and wavy. The radius of the wood is easy to see in sections (x), (t) and (r). There were no sap or resin channels found on the fingers. These fingers are multiseriate and there are sheath cells or sheath cells. This wood has an integrated fiber. The color of this wood is yellowish white and does not have a distinctive odor; belongs to wood which is rather heavy, slightly shiny in fresh condition and gradually becomes dull in line with the decrease in water content; is a medium strength wood; The touch effect on the surface is classified as moderate. The wood is easily attacked by blue mold (blue stain).

Timber Structure

Wooden structure *Pterygota indica* studied include wood anatomy and wood fiber dimensions. The properties of wood include physical properties and chemical components.

Anatomy of wood

Results study the average percentage of wood elements according to the location of the wood parts can be seen in Table 1 below

Table 1. Average percentage of the anatomical structure of *Pterygota indica* wood.

Wood element	Lay out the wood					Average
	A	B	C	D	E	
vessels	8.01	8.76	11.97	9,10	9.05	9,38
Fiber	60,66	60,87	60,32	66,60	55,64	60,82
Parenchyma	11.76	9.50	9,72	8.35	10,15	9.89
Fingers	27,57	20.86	17.97	15.93	16,15	19.69

Information:

- A = Part of base wood
- B = The lower middle part of the wood
- C = The middle part of the wood
- D = Upper middle part of wood
- E = end of wood

Table 1 the showed that in general *Pterygota indica* wood was dominated by fibers, followed successively by radii, parenchyma and vessels. Observation of the effect of position along the stem shows that each element has a different tendency. The percentage of vessels increased from the base position

to the middle position and then gradually decreased towards the stem tip. The percentage of fibers fluctuates from the position of the base towards the tip of the stem. The percentage of parenchyma and radius respectively decreased from the base position towards

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the stem tip, except at the most recent position (E position).

Table 1 shows that *Pterygota indica* wood has an average number of vessels of 9.38%, 60.82% of fiber and 29.30% of parenchyma (9.89% longitudinal parenchyma and 19.69% radius parenchyma). The percentage of *Pterygota indica* wood vessels can be said to be relatively low (a few) compared to other cells such as parenchyma, radii and fibers. These few vessel cells probably also have a high pulp yield. The percentage of vascular cells ranged from 8.01–9.05% for wood from the base to the tip of the tree. The higher it is on the tree trunk the greater the percentage of vascular cells and at a certain height it drops again to the tip but is still relatively high at the ends from the base.

The results of the research on the percentage of fiber cells (Table 1) ranged from 55.64–66.60% for wood from the base to the tip of the tree. The percentage of fiber cells is very large for *Pterygota indica* wood species and is very advantageous when used as pulp and paper material, because there are many good fibers as pulp and paper. Besides that, the percentage of *Pterygota indica* fibers is almost the same from the base to the tip of the tree, with increasing height on the tree trunk the percentage of fiber cells is getting bigger but at the end of the wood it is relatively decreasing.

The results of the study showed the percentage of longitudinal parenchyma cells (Table 1) ranged from 8.35–11.76% for wood from the base to the tip of the tree. The low percentage of parenchyma in

relation to its content does not impair pulp processing nor impede drainage and processing machinery. In addition, with increasing location on the trunk, the percentage of longitudinal parenchyma cells tends to decrease. The results of this study are in accordance with the opinion of Soenardi (2018). The results of the radius cell studies (Table 1) ranged from 15.93–27.57% for wood from the base to the tip of the tree. The higher it is on the trunk, the smaller the percentage of radius cells but relatively larger at the ends than the wood at the bottom center.

The anatomical arrangement of the studied *Pterygota indica* wood gives the percentage of cell types that are not different from one another. Thus, the anatomy of *Pterygota indica* wood can be said to be uniform in all parts from the base to the tip of the tree. If the percentage of this anatomical structure is entered into the value of the Dadswell and Wardrop (2018) triangle, it will be somewhat at the top of the triangle. This means that it provides good information when used as pulp and paper material, because the data on the proportions of the anatomical structure when included in the Dadswell triangle is in the apex area slightly to the right. This structural uniformity of pulping is very advantageous because it will provide uniformity in the properties of the pulp.

Fiber dimensions

The results of the study of the dimensions of *Pterygota indica* wood fiber according to the location of the wood parts can be seen in Table 2 below.

Table 2. Average dimensions of *Pterygota indica* wood fiber.

Fiber dimensions	Lay out the wood					Average
	A	B	C	D	E	
Fiber length(mm)	1,531	1,627	1.075	1,922	1,822	1,721
Fiber diameter (micron)	14.79	19.69	23.08	31.80	31.99	24,27
Lumen diameter (microns)	9,15	12.81	15.68	29,49	30,86	23.58
Cell wall thickness (microns)	2.80	3,16	3.76	4,13	5,22	3.80

Information:

A = Part of base wood

B = The lower middle part of the wood

C= The middle part of the wood

D= Upper middle part of wood

E = end of wood

Table 2 shows that the values of fiber diameter and lumen diameter are increasing from the position of the base towards the tip of the rod. Likewise for fiber length and wall thickness. Exceptions are provided in section B for fiber length and in section D for wall thickness. Table 2 shows that the average dimension of *Pterygota indica* wood fiber is 1.721 mm; fiber diameter 23.58 microns; The lumen diameter is 16.09 microns and the cell wall thickness is 3.08 microns. With statistical analysis, the determined factors actually gave a difference

according to the location of the wood part, but only the cell wall thickness showed no difference.

Judging from the length of the fiber (Table 2), the wood species of *Pterygota indica* have short fibers, because the average fiber length of the wood from the base to the tip of the tree is 1.721 mm, but for hardwood, the fiber is 1.721 mm long. Fiber length tends to increase from the base to the tip of the tree, but before reaching the tip of the tree it decreases. The results of this study are in accordance with Sanio's research (Bisset and Dadswell, 2018).

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The results of fiber diameter measurements (Table 2) show medium-sized fiber diameters (cells), from the base to the tip of the tree measuring 14.97–31.99 microns (average 24.17 microns). The fiber diameter dimension tends to increase from the position of the base to the tip of the stem. The fiber diameter in the middle position was not significantly different from the fiber diameter in the other positions. The fiber diameter at the base position was not significantly different from the fiber diameter at the bottom center position and the middle position, but significantly different from the top center position and the end position. Likewise, the fiber diameter at the end position was not significantly different from the fiber diameter at the top center position and the middle position, but significantly different from the fiber diameter at the bottom center position and the start position.

The dimensions of the lumen diameter apparently have the same trend as the dimensions of

the fiber wall thickness. This lumen diameter dimension also increases from the base position towards the top center then decreases to the end position. The lumen diameter dimension was not significantly different only with the base position, while the lumen diameter dimension at the bottom center position was not significantly different from the lumen diameter dimension at any position in the stem.

According to Table 2, the dimension of fiber wall thickness increases from the apex position towards the middle position. From the middle position the thickness of the fiber wall dimension slightly decreases to the top center position, then increases again so that it reaches the maximum dimension size at the end position.

Derived values of fiber dimensions

The test for the derived fiber dimension values which includes the Runkel number, Muhlsteph number, weaving power, stiffness number and fiber flexibility value, is presented in Table 3 below.

Table 3. Average runkel number, muhlsteph number, weaving power, stiffness coefficient, and the flexibility value of Pterygota indica wood fiber.

Lay out the wood	Runkel's number	Muhlsteph number (%)	Weaving Power	Stiffness Coefficient	Flexibility Value
A	0.484	53.97	54,253	0.163	0.672
B	0.885	79,40	57,664	0.234	0.530
C	0.849	69,10	60,420	0.229	0.540
D	0.539	36,91	68,097	0.296	0.627
E	0.656	47,66	64,555	0.228	0.603
Average	0.753	57,41	60,998	0.214	0.570

Information:

- A = Part of base wood
- B = The lower center of the wood
- C = Middle wood section
- D = Upper middle part of wood
- E = End wood section

Table 3 is the easiest to conclude, namely the runkel number and the muhlsteph number, because the numbers can be related to the possibility of a wood being made into pulp and paper based on the fiber dimensions. According to the value of the Runkel number obtained from the comparison between 2 times the thickness of the cell wall (fiber) and the diameter of the lumen, the wood type Pterygota indica has fiber quality that is quite good for pulp, because it has an average Runkel number of 0.753. Thus, the maximum fiber quality category includes class III, namely because the Runkel number is above 0.50 and below 1.00. This means that this type of wood has a relatively thick cell wall and a relatively narrow lumen diameter. Thus, when this type of fiber is made of paper, it will produce sheets that are still quite flat (flattened) and provide a bond between the fibers that is still quite strong and good (Silitonga et al. 2019).

Judging from the value of the Muhlsteph number, which is a value obtained from the difference

in the square of the diameter of the fiber and its lumen divided by the square of the diameter of the fiber (in percent), Pterygota indica wood is considered to have good fiber quality for pulp, because it has an average Muhlsteph number of 57, 41% or included in the class III fiber quality category, which is a class if the fiber has a Muhlsteph number between 30–80% (for wood materials). Thus, the fiber of this type of wood is plastic and when cooked it will produce paper with sheets that are quite smooth and even (Silitonga et al. 2019).

Judging from the woven power value of Pterygota indica wood fiber is quite high (average 60.998), it is sufficient to provide a smooth surface when making paper. From the stiffness coefficient value of Pterygota indica wood, the average is 0.211. A relatively small stiffness coefficient means that the type of fiber is not stiff, elastic and has a high folding strength, and conversely, a high coefficient of stiffness means that the fiber is not good for paper.

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The average flexibility value of 0.570 can be said that this fiber is quite flexible, meaning that it can provide flexibility in terms of strength, especially breaking length strength. The higher the flexibility value means the better type of wood fiber to be used as pulp and paper material.

Properties of Wood

The properties of wood under review include those related to wood as a raw material for pulp and

paper, especially the specific gravity and chemical components of wood.

Specific Gravity

The results of the study of the average specific gravity of *Pterygota indica* wood at various locations of the wood parts can be seen in Table 4 below.

Table 4. Specific gravity based on wet volume and dry volume of *Pterygota indica* wood kiln.

Specific gravity	Lay out the wood					Average
	A	B	C	D	E	
Wet volume	0.465	0.440	0.415	0.395	0.380	0.419
Furnace dry volume	0.510	0.506	0.500	0.499	0.4995	0.502

Information:

A = Part of base wood

B = The lower middle part of the wood

C = The middle part of the wood

D = Upper middle part of wood

E = end of wood

Table 4 shows that the average value of wood density based on wet volume is lower than that based on kiln dry volume. The specific gravity tends to decrease from the position of the base towards the tip of the stem, both of which are determined based on the wet volume and the dry volume of the kiln. From the base position to the direction From the tip of the rod it can be seen that the decrease in specific gravity according to soil volume is steeper than the decrease in specific gravity according to the dry volume of the kiln. The results of the research specific gravity (Table 4) ranged from 0.380–0.465 (average 0.419) for wet conditions and dry conditions of the furnace ranged from 0.495–0.510 (average 0.502). Judging from the numbers, *Pterygota indica* has a medium specific gravity.

In the fresh condition, the average water content of *Pterygota indica* wood is 108.69%, while in the wet condition, when it is measured for its specific gravity according to wet volume, it has an average moisture content of 48%. Table 4 shows that the highest specific gravity in both wet and dry conditions of the kiln is at the base of the tree. The higher the location of the tree trunk, the smaller the specific gravity. The

results of this study are in accordance with Cockrell's research (Browning, 2019).

B According to the location of the wood parts after analysis, the close relationship between the types of wood shows a significant difference from one to the other. The difference tends to be seen between the ends or base of the wood, while the other parts are not different. If it is related to the thickness of the cell wall which also varies, then the direct support for the specific gravity is quite clear. because the value of the cell wall thickness also varies from the wood at the base to the tip. If related to extractives, this support is clearly visible with extractives in alcohol-benzene, whereas with extractives that dissolve in hot water and in cold water it is not clear, because it has a percentage that varies from the base to the tip of the tree. However, the decrease in specific gravity from the base to the tip of the stem in general can still be said to be correct if it is associated with the opinion of Brown et al. (2018).

Chemical components of wood

The results of the study of the chemical components of *Pterygota indica* wood according to the location of the wood parts can be seen in Table 5 below.

Table 5. Percentage of chemical components of *Pterygota indica* wood

Variable measured (%)	Lay out the wood					Average
	A	B	C	D	E	
Soluble extractive cold water	2.04	2,14	2.84	2.44	2.61	2,41
The extractive dissolves in hot water	3,19	3.70	3.73	3.63	3.57	3.58
Soluble extractive alcohol-benzene	6.03	5.97	5.93	5.86	5,26	5,81

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holocellulose	77,80	76,98	75,48	75,55	74,34	76,03
Alpha cellulose	50,49	49,97	49,25	47,70	46,81	48,84
Pentosa	18,21	17,97	18,69	18,23	18,02	18,22
Lignin	19,35	19,18	19,06	18,98	18,87	19,09
Ash	0,61	0,54	0,50	0,41	0,52	0,52

Information:

- A = Part of base wood
- B = The lower center of the wood
- C = Middle wood section
- D= Upper middle part of wood
- E = End wood section

Observation of the effect of position along the stem shows that each component has a different trend. The percentage of extractives soluble in cold water increased from the base position to the middle position, then gradually decreased towards the upper middle then increased again towards the stem tip. The percentage of extractive soluble in hot water increased from the base position to the middle position, then gradually decreased towards the stem tip. The percentage of alcohol-benzene soluble extractive decreased from the base position towards the tip of the stem. Likewise the alpha cellulose content, lignin content and ash content. The percentage of holocellulose decreased from the base position to the middle position, then increased again to the upper middle position, and then increased again towards the tip of the stem.

Judging from the value of the chemical component of *Pterygota indica* wood, the average percentage of extractives that dissolves in cold water is 2.41%, in hot water is 3.56% and in alcohol-benzene is 5.81%, the content of alpha cellulose is 48.84%, the morta content the average lignin is 19.09%.

From the figures for the content of these chemical components, the extractives are quite high, especially in alcohol-benzene. This may be due to the presence of deposits in the cells, especially in the form of tannins, fatty acids or dyes and essential oils that may be present.

In addition, the extractive content at the base to the tip of the tree can be said to be almost the same and does not make a real difference. It's just that there are differences in the content of soluble extractives in alcohol-bennen. With an analysis of variance, the difference is especially evident in the base wood, while towards the end the extractive content decreases slightly. The results of this study are in accordance with the opinion of Browning (2019).

According to Table 5, the *Pterygota indica* wood species has an alpha cellulose content of actually 48.84%. When viewed from the distribution of its content in the direction of the long axis of the tree, it can be seen that the alpha cellulose content decreases from the position of the base towards the tip of the stem. With a fairly high alpha cellulose content and almost the same for all parts of the wood, it means that

Pterygota indica wood is quite good as pulp and paper material.

The results of the study showed that the lignin content (Table 5) averaged 19.09%, and was relatively moderate. When compared with lignin levels according to Soenardi (2019), *Pterygota indica* wood hasThe lignin content is relatively low, but when compared to Tsoumis (2020), the lignin content of *Pterygota indica* is moderate and tends to decrease from the base to the tip of the tree, but the decrease is relatively small.

Of all the chemical components studied, the chemical content of *Pterygota indica* is low to high with details of high cellulose content, relatively low lignin content and soluble extractive content: in cold and hot water (on average) moderate (Anon., 2018) and moderate alcohol-benzene soluble extractive levels (Soenardi, 2019 and Tsoumis, 2020). If this conclusion is related to its possibility as raw material for pulp, then *Pterygota indica* wood species can be said to meet the requirements.

Conclusions and Recommendations

Conclusion

From the results of research on the structure and properties of *Pterygota indica* wood as raw material for pulp by treating the wood from the base to the tip of the tree, the following conclusions can be drawn:

1. The average volume of *Pterygota indica* wood cells in percentage to the total wood volume. Anatomical structure: vessels 9.38%, fibers 60.82%, radii 19.69%, parenchyma (longitudinal) 9.89%.

2. The results showed that the average dimensions of *Pterygota indica* wood fiber produced: fiber length of 1.721 mm, fiber diameter of 23.58 microns, lumen diameter of 16.09 microns and cell wall (fiber) thickness of 3.80 microns.

3. The average results of some *Pterygota indica* wood properties show:

a. Specific gravity based on wet volume is 0.419 and 0.502 based on the dry volume of the kiln.

b. Chemical components: soluble extractive ingredients: 2.41% cold water, 3.56% hot water, 5.81% alcohol-benzene; 48.84% alpha cellulose content, 76.03% holocellulose content, 18.22% pentose content, 19.09% lignin content and 0.52% ash content.

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4. According to its location in the wood from the base to the tip of the tree, the percentage of radii, specific gravity based on wet volume and dry volume, the percentage of alcohol-benzene soluble extractives, the percentage of holocellulose, the percentage of alpha cellulose and the percentage of lignin tend to decrease while for the wall thickness fiber, the fiber diameter tends to increase. For vessel presentation, fiber percentage, fiber length, lumen diameter, hot water-soluble extractives rose from the base to the top center then decreased again at the apex of the tree. Parenchyma percentage, cold water soluble extractive percentage, pentose percentage generally varies in *Pterygota indica* wood.

5. Fiber length, lumen diameter, specific gravity based on kiln dry volume showed differences in the wood from the base to the tip of the tree at a confidence level of 12. For fiber diameter, specific gravity based on wet volume, alcohol-benzene soluble extractives differed at the 5% test level while the percentage vessels, parenchyma percentage, radius percentage, fiber percentage, cell wall thickness, cold and hot water soluble extractives, alpha cellulose, holocellulose, pentose, ash and lignin percentages did not show significant differences from one part to another (base, middle and end).

6. With analysis of variance, at different positions in the direction of the long axis the tree will have: fiber length, lumen diameter which is very significantly different, fiber diameter is significantly different, while fiber wall thickness and the percentage of each wood element are not significantly different, specific gravity based on the dry volume of the kiln differed significantly, while the specific gravity based on the wet volume was significantly different: the extractive content in alcohol-benzene was significantly different while the extractive content in cold water, extractive content in hot water, alpha cellulose, holocellulose, pentose, lignin and ash were not real different.

7. The anatomical structure of *Pterygota indica* wood has a fairly large number of fiber cells (60.82% on average), vessels (9.38% on average) and parenchyma (29.59% on average) consisting of 8.89% longitudinal parenchyma and parenchyma radius (19.69%) which is low. When placed in the triangle

Dadswell and Wardrop (2018) the proportion of this anatomical structure is in the slightly apex area, so that *Pterygota indica* wood is good enough to be used as pulp and paper material.

8. From the results of measuring the dimensions of *Pterygota indica* wood fiber, it has short fibers, medium diameter and moderate cell wall thickness. In the derivative test, the Runkel number was 0.753, the Muhlsteph number was 57.411%, the weaving power was 60.998, the stiffness coefficient was 0.214 and the flexibility value was 0.570. From these figures, it means that *Pterygota indica* wood is quite good as a pulp material because it can produce flat sheets and provides a fairly strong and good fiber bond when paper is made which is quite smooth, flat and has a smooth surface, not stiff (elastic) and high paper strength.

9. From the results of research on specific gravity based on wet and dry volumes of the kiln, specific gravity can be categorized as medium class, so it is likely to be quite good if pulp and paper is used as raw material because it can provide a fairly high yield of pulp.

10. From the results of the chemical components of the studied wood, *Pterygota indica* wood species has a fairly high alpha cellulose content, relatively low lignin content and moderate extractive content. From the chemical research results, *Pterygota indica* wood is good enough for pulp and paper.

Suggestions

Some suggestions that need to be submitted in connection with the implementation of research and the results of this study are:

1. Further research is needed on the structure and properties of *Pterygota indica* wood with various ages and parts of its location, so that it can be found what age and location of the wood is the best for pulp and paper.

2. It is necessary to carry out research on the properties related to its use as construction wood on *Pterygota indica* wood at wind dry moisture content by applying treatments that can prevent fungal attack which is used as material for this research to determine precisely.

References:

1. Anon (2018). *Vademecum Kehutanan Indonesia*. Departemen Pertanian. Direktorat Jenderal Kehutanan. Jakarta.
2. Anon (2018). *Laporan Pembangunan Timber Estates*. Fakultas Kehutanan IPB. Bogor.
3. Anon (2019). *Annual Book of ASTM Standards*, Part 22. Wood and Adhesives. Rase St. Philadelphia, Pa 10103.
4. Apandi, M. (2018). *Pola Umum Hutan Tanaman Industri*. Sekretariat Pengendalian Pembangunan

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- Hutan Tanaman Industri. Departemen Kehutanan. *Penerbitan*, No. 2/2018. Jakarta.
- Brown, H.P., Pashin, A.J., & Forsaith, C. (2018). *Textbook of Wood Technology*. Vol I. Mc. Graw-Hill Book Co. Inc, New York-Toronto-London.
 - Browning, B.L. (2019). The Polysaccharide Fraction of Wood Chemistry. *Reinhold Publishing Corporation*, (2): 1138-1158.
 - Dadswell, H.E., & Wardrop, A.B. (2018). Some aspects of wood anatomy in relation to pulping quality and to tree breeding. *Jour of Pulp and Paper Ind. Tech. Ass.* 13 (5): 180-171.
 - Djamaluddin, S. (2018). *Pembangunan Hutan Tanaman Industri di Pulau Laut*. Kumpulan Makalah Seminar dan Reuni IV Fakultas Kehutanan UGM, 11-12 September 2018. Yogyakarta.
 - Fundter, J.M., & Wisse, J.H. (2018). *40 Belangrijke Houtsoorten uit Indonesische Nieuw Guines (Irian Jaya) Met de Anatomische en Technische Kenmerken*. Afdeling Bombouw Techniek Landbouwhogeschool. Wageningen. Nederland.
 - Panshin, A.S., & Zeeuw, C.de (2018). *Textbook of Wood Technology*, Vol. I Third Edition, Structure, Identification, Uses and Properties of the Commercial Woods of The V.S. and Canada. Mc. Graw Hill Book Company-New York-Toronto-San Francisco-Dusseldorf-London-Mexico-Panama-Sydney-St. Louis.
 - Sadan, W. (2019). *Suatu Kajian Teknologi untuk Menentukan Jenis-jenis Kayu Penting untuk Industri kehutanan Indonesia pada Awal Pelita VI, Sarasehan I di Wanagama I. Kerjasama Fakultas Kehutanan Universitas Gadjah Mada dan Departemen Kehutanan*. Yogyakarta.
 - Serrano, R.C. (2018). *Ecology and Silvics of Selected Industrial Tree Plantation Species in the Philippines (Leucaena leucocephala, Gmelina arborea and Eucalyptus deglupta)*. Symposium on Forest Regeneration in South East Asia. Bogor, Indonesia.
 - Silitonga, T., Siagian, R., & Nurachman, A. (2019). Cara Pengukuran Panjang Serat di LPHH. *Publikasi Khusus* No. 12. Direktorat Jenderal Kehutanan. Dep. Pertanian. Bogor.
 - Soenardi (2018). Hubungan antara Sifat-sifat Kayu dan Kualitas Kertas. *Berita Selulosa*. 10 (3): 111-123.
 - Soenardi (2019). *Sifat Kimia Kayu*. Penerbit Yayasan Pembina Fakultas Kehutanan UGM. Yogyakarta
 - Soenardi, P. (2018). *Hutan, Industri Kayu dan Ekspor Non-Migas. Pidato Ilmiah dalam rangka Acara Pembukaan Awal Kuliah Semester I Tahun Akademik 2018/2019 pada 5 September 2018*. Fakultas Pasca Sarjana Universitas Gadjah Mada. Yogyakarta.
 - Subardjo (2018). Penanaman *Eucalyptus spp.* dan *Acacia mangium* di Areal HPH, PT. Arara Abadi. Seminar dan Reuni IV. Fakultas Kehutanan UGM, 11-12 September 2018. Yogyakarta.
 - Tsoumis, G. (2020). *Wood as a Raw Material, Source Structure, Chemical Composition, Growth, Degradation and Identification*. Pergamon Press. Oxford-London-Edinburg-New York-Toronto-Sidney-Paris-Braunschweig.

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Article



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THE INFLUENCE OF PROMOTIONAL MIX ON PURCHASE DECISION AT PT. ASTA KARYAPEKANBARU, MEDIATED BY CONSUMER INTEREST IN PURCHASING A HOME

Abstract: In Pekanbaru, there is currently fierce competition for market share in the housing sector. The corporation must work to maintain and boost its revenues if it hopes to accomplish its aim of continuing to exist and grow over the years. Every housing needs the ability to draw customers through communication or promotions that can entice customers to acquire the goods or services given. A marketing strategy is simply a comprehensive, integrated, and unified approach in the field of marketing. This study set out to identify and evaluate the impact of direct marketing, personal selling, and sales promotion on consumer interest. to research and analyze how consumer buying interests are used to influence purchasing decisions through advertising, personal selling, sales promotion, and direct marketing. Moreover, to understand and examine how customer interests in making purchases affect such selections. The people who will purchase homes from PT. AstaKaryaPekanbaru in 2020 make up the study's demographic. 86 persons made up the study's sample. Structural Equation Modeling (SEM) PLS is used to analyze the data used in this study. The findings of the study demonstrate that sales promotion, personal selling, direct marketing, and advertising all have an immediate impact on consumer interest and purchasing behavior. While the interest variable mediates the impact of sales promotion, direct marketing, personal selling, and advertising on purchasing decisions.

Key words: Promotional materials, in-person sales, direct marketing, consumer interest, and purchase decisions.

Language: English

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Introduction

In Pekanbaru, there is currently fierce competition for market share in the housing sector. The corporation must work to maintain and boost its revenues if it hopes to accomplish its aim of continuing to exist and grow over the years. A marketing strategy is essentially a thorough, integrated, and unified plan in the field of marketing, and every building needs to be able to draw customers through advertising or other ways to encourage them to purchase the goods or services being supplied.

The purchasing decision is the consumer's choice to purchase a product after first debating whether it is worthwhile to do so in light of the knowledge he has about the product's reality as a result of having seen it in person. As an alternative to the word purchase choice proposed by Nugroho (2015), which states that purchasing decisions are acts from consumers to wish to buy a product, the outcomes of this thinking are determined by the strength of the consumer's want to buy. The following graph shows how PT Asta Karya Pekanbaru sold homes:

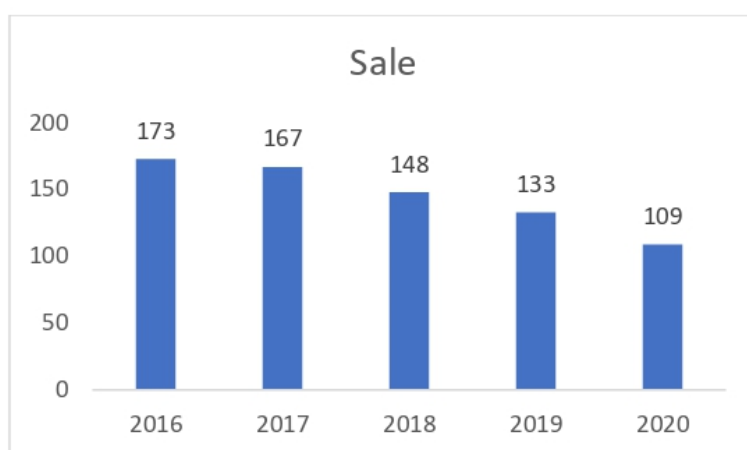


Figure 1 - Home Sales Data PT. AstaKarya in Pekanbaru City 2016-2020

Source: PT. AstaKarya, 2022

Figure 1 demonstrates how PT. AstaKaryaPekanbaru's sales have declined during the previous five years. This drop in sales suggests that fewer consumers are choosing to make purchases. The Pekanbaru City area is a vital location, therefore businesses must be able to maximize their products in the hopes of increasing sales. This must undoubtedly get the company's attention.

Morissan (2007:13) lists the following as elements that can affect someone's decision to buy: (1) Advertising, which is a kind of promotion using various media to encourage purchases. (2) Face-to-face sales (personal selling), a type of self-promotion that involves oral presentations during a conversation with potential customers with the goal of encouraging purchases. (3) Sales promotion (Sales promotion) is another type of promotion in addition to the three mentioned above that aims to encourage purchases. As well as (4) direct marketing, a type of personal selling that aims to directly influence consumer purchases.

Then, according to Schiffman and Kanuk (2015: 160), promotion is one of the factors that affects buying decisions. Sales promotions (sales promotion), personal selling (personal selling), and advertising are a few examples of promotions. Then, according to Alma (2015: 25), advertising, personal selling, and

sales promotions can all have an impact on consumers' purchasing decisions.

PT Asta Karya employs a variety of advertising media to promote the Astam House housing, including print, outdoor, and brochure media. Outdoor media includes the erection of billboards (Billboards). It is hoped that promotions can be carried out successfully with a targeted marketing concept, but occasionally, if there has been a recent price change, the company's advertising activities are not updated, leaving potential customers disappointed because they do not match the advertisements displayed.

Personal selling is another tool that can affect consumer choices in addition to advertising. According to Kotler and Armstrong (2014: 75), personal selling is the process of interacting with a prospect or client to close deals and uphold connections. According to Nickels in Priansa (2017: 55), personal selling is defined similarly as a face-to-face encounter between people with the goal of establishing, enhancing, mastering, or maintaining trade connections with other people. Personal selling is the process of engaging in direct dialogue with prospective customers to introduce a product, gain their comprehension of it, and pique their interest in purchasing. The same point is emphasized by all three definitions, namely that product promotion is done

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directly. The information about personal selling is shown in Figure 1.2 below:

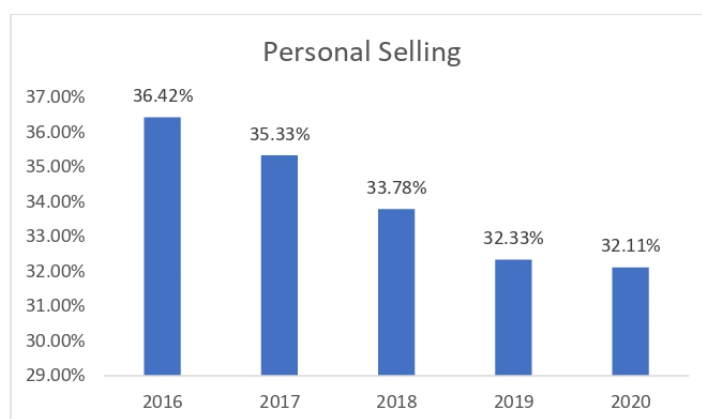


Figure 2 - Personal Selling Sales Data for 2016-2020

Source: PT. Asta Karya Pekanbaru, 2022

Data on personal selling sales during the previous five years tend to drop, as seen in Figure 2. Of course, the corporation should be concerned about this since effective personal selling will boost revenues, whereas less-than-ideal personal selling will result in less-than-ideal overall sales.

Sales promotion is the next element that can affect consumers' purchase decisions. Personal selling and other forms of marketing communication, such as sales promotion, use temporary incentives to persuade customers and other participants in the distribution chain to buy products or services. Tjiptono (2016): 90 When PT AstaKarya conducts sales promotion activities, it introduces Astam House housing by showing examples of finished homes, then offers discounts to every customer who purchases a home and offers door prices to lucky customers.

Direct marketing is the last element that can affect a consumer's choice to buy. Direct marketing is the practice of communicating directly with certain consumers who are intended to receive a quick reaction. In addition to online platforms and direct mail, the company also employs social media for direct marketing. The success of the company's early marketing management phases, particularly those involving consumer behavior knowledge, market segmentation, competition analysis, target market identification, and product positioning, heavily influence the creation of an effective promotion strategy. The business uses public relations, personal selling, and advertising to construct its marketing strategy.

Given the aforementioned context of the issue, there is a gap, specifically the disparity in the findings of earlier studies that have been conducted. In addition to the research gap, there is a backdrop gap from the context of the presented problem. The gap between current theory and realities, which is known as the

"gap phenomenon," has been shrinking over the past five years, from 2016 to 2020. The distinction between current research and earlier research also lies in the research's subject and year, as well as the addition of an interesting variable as a mediator. The authors' research project, "The Effect of the Promotional Mix on Purchase Decisions Mediated by Consumer Interests in Buying Homes at PT. AstaKaryaPekanbaru," was inspired by the description of the concerns mentioned above.

Literature Review Purchasing Decision

Kotler and Keller claim that the decision-making process is a problem-solving strategy that entails problem recognition, information seeking, several option evaluations, making purchase decisions, and conduct after buying that is accepted by customers in Dasuki (2013: 194). Purchasing decisions are characterized by Simamora (2014: 415) as an integration process that integrates knowledge to assess or more different behaviors and select one of them.

One of the key elements of customer behavior is the purchase decision. A decision entails making a choice between two or more possible courses of action. As a manufacturer, the corporation must pay more attention to its understanding of consumer behavior. According to Schiffman and Kanuk (2015: 75), purchasing decisions involve "the selection of an option from two or alternative possibilities." This indicates that the decision to buy is one that a person makes after weighing his options. The internal power that propels people to do action is called motivation. A person will be motivated to act in ways that will help him master the product if he has a high motivation for that particular object. In contrast, if the motivation is low, he would attempt to avoid the relevant object.

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Consumer Interests

Reality demonstrates how challenging it may be to understand consumer demands and desires. Consumers have the freedom to change their minds at any time. Marketers naturally anticipate that customers will be eager to purchase the products being presented. Marketers must first comprehend how consumers decide in order to attract or increase consumer buying interest. The following definition of consumer buying interest applies:

According to Assael (2014: 51), buying interest is the propensity of consumers to purchase a brand or engage in purchasing-related behavior and is determined by the likelihood of customers making purchases. Buying interest, according to Kotler and Keller (2014:137), is consumer behavior that manifests in response to items that suggest a person wants to make a purchase.

Sciffman and Kanuk (2015:228) claim that the idea of buying interest is a model of a person's attitude toward the object of goods and is particularly useful for assessing attitudes toward particular categories of goods, services, or brands.

Although it is a very complicated issue, marketers must nonetheless be concerned about consumer buying interest. The stimulus (stimulus) provided by the business may spark consumer interest in making a purchase. Each of these stimuli is intended to cause a consumer to make a purchase.

Using these definitions as a foundation, the author comes to the conclusion that buying interest refers to the propensity of consumer attitudes to engage in purchase-related activities at various phases prior to deciding to make a purchase of a specific good, service, or brand.

Promotion Mix

The promotional mix is the idea that is typically employed to deliver messages. Also known as the promotion mix since marketers frequently combine different sorts of promotions into a strategy for product promotion.

The marketing communication mix, also referred to as the promotional mix, is a unique combination of advertising, sales promotion, public relations and publicity, events and experiences, direct marketing, interactive marketing, word-of-mouth marketing, and sales force that businesses use to achieve their marketing and goal-achieving objectives, according to Kotler (2014: 189).

The integrated marketing communication mix, also known as the promotion mix, is a unique combination of five elements, including advertising, sales promotion, public relations, personal selling, and direct marketing, with the primary objective of increasing business sales, according to Tjiptono (2015: 392).

The more funds allocated for each of these promotional ingredients and the more emphasis

placed on the managerial aspects of each technique, the more important it is that this element be thought of as the overall mix, according to Lamb in Wulansari (2014: 8). Management's belief in the target market's needs is demonstrated by meeting overall organizational goals.

The success of the company's early marketing management phases, particularly those involving consumer behavior knowledge, market segmentation, competition analysis, target market identification, and product positioning, heavily influence the creation of an effective promotion strategy. Through the use of advertising, personal selling, sales promotion, and public relations, the company creates its marketing strategy.

According to Lamb, Hair, and Daniel in Wahyudi (2014:12), a promotional mix is a variety of promotional methods used to reach the target market and accomplish the organization's overarching objectives, including advertising, public relations, and sales promotion. Depending on its goals, resources, and target market, each sector and business decides on the unit's promotional mix. Regardless of the product they are offering, all marketers need to create a promotional mix that enables them to effectively reach their target audience.

From a few of the definitions given above, it can be inferred that promotional activities are ways for businesses to communicate the existence of a product as well as its advantages or benefits. Then, in order to boost the number of sales of goods and services, persuade, influence, and convince consumers to want to buy and use the product while also reminding target customers about the offerings.

Dimensions Promotion Mix (Promotional Mix)

Kotler and Keller (2014:201) categorize the dimensions of promotion mix (promotional mix) into the following types:

Personal Selling

The practice of assisting and influencing one or more potential customers to purchase products or services or act upon particular ideas through oral presentations is known as sales (personal selling). Because personal selling is very expensive, a business should only allocate a large percentage of its marketing budget to its sales staff when face-to-face contact is the most effective way to accomplish communication goals.

According to Kotler & Armstrong (2014: 105), personal selling entails interactions between sellers and clients in order to close deals and preserve connections. According to Nickels in Priansa (2017:9), personal selling is a face-to-face engagement between people with the goal of establishing, enhancing, mastering, or maintaining connections of reciprocal benefit with other people. According to Priansa (2017:10), personal selling

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entails having direct conversations with prospective buyers in order to introduce a product, help them comprehend it, and pique their interest in purchasing. The same point is emphasized by all three definitions, namely that product promotion is done directly.

Advertising (Advertising)

One of the most popular methods of marketing used by businesses to market their goods is advertising. Advertising, according to Tjiptono (2016: 82), is a type of indirect communication based on facts about a product's advantages or benefits that are presented in a way that arouses pleasure and persuades a viewer to make a purchase.

Advertising is a blend of several things. The following are examples of promotions that are simple to locate in a variety of media: is a way of providing non-personal information about a good, name, business, or store in exchange for a price. In commercials, the sponsoring company is typically displayed. advertisements intended to sway consumer perceptions of products and brands through influencing consumer emotion and cognition, evaluation, feelings, knowledge, beliefs, attitudes, and images Olson and Peter.

Advertising, as defined by Durianto (2013:55), refers to all non-personal presentations, promotions, and ideas about products or services that are funded by a sponsor. Shimp (2013:38) described advertising as a non-personal form of mass communication or direct-to-consumer that is supported by a business firm, a non-profit organization, or individuals recognized in various ways in the advertising

message. Members of particular audiences may be informed or persuaded by the funder.

Advertising is any sort of compensated non-personal presentation, promotion of ideas, products, or services by identified sponsors, according to Kotler and Keller (2014: 538). Advertising is a powerful tool for getting the word out and creating brand loyalty.

Direct Marketing According

With Kotler Direct marketing is an interactive marketing method that use one or more advertising medium to produce responses and/or transactions that can be tracked in-person. This definition places a focus on quantifiable outcomes, especially consumer orders. Consequently, direct marketing is also known as direct order marketing. For consumers, direct marketing offers a variety of advantages. Customers claim that buying from home is enjoyable, practical, and hassle-free.

Direct marketing involves direct communication with customers via mail, phone, SMS, fax, email, or the internet in order to get their feedback. Direct marketing uses a variety of mediums, including the phone, mail, catalogs, and the internet.

Direct marketing, according to Kotler and Armstrong (2014: 242), is direct communication with specific consumers who are intended to be responded to right away.

Thinking Framework

A study framework can be created based on the description above as follows:

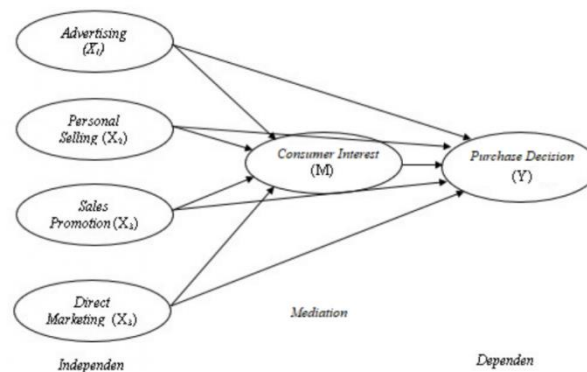


Figure 3 - Research Framework

Research Hypotheses

The following hypotheses are put forth in light of the theoretical investigations previously mentioned:

1. Consumer interest in purchasing a home at PT. AstaKaryaPekanbaru is influenced by advertising
2. Personal selling at PT. AstaKaryaPekanbaru has an impact on customers' desire in purchasing a home.
3. Sales promotions at PT. AstaKaryaPekanbaru have an impact on consumers' desire in purchasing a home.
4. At PT. AstaKaryaPekanbaru, direct marketing has an impact on customers' interest in purchasing a home.

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5. Customer interest in PT. AstaKaryaPekanbaru's products has a bearing on consumer purchase decisions.
6. Through consumer interest in purchasing from PT. AstaKaryaPekanbaru, personal selling has an impact on consumer purchasing decisions.
7. Does PT. AstaKaryaPekanbaru's sales advertising influence customer desire in making purchases?
8. At PT. AstaKaryaPekanbaru, consumer interest in direct marketing has an impact on purchase decisions.
9. Consumer buying interest influenced PT. AstaKaryaPekanbaru's decision to sell a home.

Research Methods

Approach

This study employed a quantitative design with SEM analysis to investigate the link between the independent variable, the dependent variable, and the mediating variable. A researcher can respond to regressive and dimensional research inquiries using SEM research modeling. SEM is an alternate instrument used for this research when a researcher faces a research question in the form of defining the dimensions of a concept or construct and at the same time wants to measure the influence of the level between the components whose dimensions have been defined. Therefore, it is possible to say that SEM essentially combines multiple regression analysis and factor analysis.

Research Location

The PT. AstaKaryaPekanbaru, which is situated in Jl. Mangosteen No. 3, Wonorejo, Kec. MarpoyanDamai, Pekanbaru City, Riau 28122, was the site of the research

Types and Sources of Data

The author needs complete and accurate data and information to do this research. The following categories of data and data sources are included in this study:

1. Primary data, or information gathered by the distribution of questionnaires to a set sample size. The kind of information required for this study takes the form of responses from respondents that are listed in the questionnaire's results.
2. Secondary Information, That information has undergone processing, presentation, and documentation. Where the information is in the form of company data, sales data, information on the profile of the company under study, and other information pertinent to this research.

Population and Sampling Techniques

Sugiyono (2015: 90) claims that a population is a generalization area made up of things or persons

with particular attributes and characteristics that researchers have chosen to study in order to derive conclusions. The people who will purchase homes from PT. AstaKaryaPekanbaru in 2020 make up the study's demographic. The sample is a subset of the population being studied or a subset of the population's various characteristics. If the population is known, the sampling strategy employs the Slovin formula. The sample calculation was rounded up to 86 participants to aid in the research. Simple random sampling was used to conduct the sampling. Simple random sampling approach is a method of collecting samples from the population at random without taking into account the population's strata.

Data collection technique

In order to gather the information required from the sample, the author utilized a questionnaire as a data collecting instrument in this study. The questionnaire was either created by the author and submitted by the respondents, or it was created by the author and completed by them. The author will process the preset data to create a tabulated presentation.

Data Analysis Techniques Data

Structural Equation Modeling (SEM), a method of analysis used in this work, is carried out using the Smart PLS 3.0 software. In order to answer research questions and identify specific social phenomena, this study needs to analyze the data and interpret it. Thus, data analysis is the act of reducing the complexity of data such that it is simpler to read and understand. To evaluate the given hypothesis, a causality model or relationship of impact will be used in this study. SEM will then be used as the analytical technique. The Smart PLS version 3.0 structural equation model has been applied to equations and management studies.

Research Results And Discussion

SEM Analysis (*Structural Equation Model*)

PLS is the SEM estimation technique employed in this investigation. PLS can be used to model structural equations without the assumption of multivariate normality and with relatively modest sample numbers. The definition of the problem or research hypothesis serves as the foundation for designing the structural model of the relationship between latent variables in PLS.

Structural Model (*Inner Model*) and Measurement Model (*Outer Model*)

The definition of the problem or research hypothesis serves as the foundation for designing the structural model of the relationship between latent variables in PLS. The path analysis model of all latent variables in PLS, according to Abdillah and Hartono (2015: 188), consists of an inner model that specifies the relationship between the latent variables in the

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structural model and an outer model that specifies the relationship between latent variables and their indicators or manifest variables.

The causal relationship between latent variables that is based on the core of the theory is described by

the inner model or structural model. A structural model called a "inner model" is used to foretell causation between latent variables. The inner structural model in PLS employed in this investigation is shown in Figure 4 below:

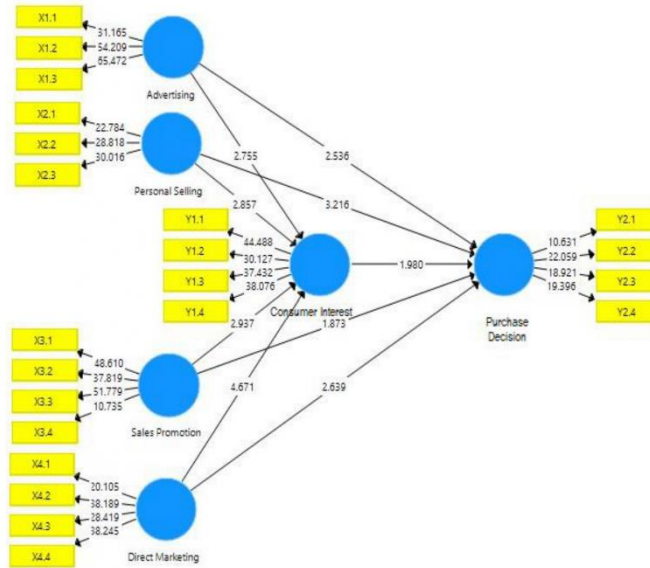


Figure 4 - Structural Model (Inner Model) and Measurement Model (Outer Model)

Modeling from within Causation (cause-and-effect linkages) between latent variables, or variables that cannot be directly assessed, is predicted by structural structure. The structural model (inner model), which is based on the core of the theory, describes the causal relationship between latent variables.

Additionally, the Outer model—also known as the outer relation or measurement model—defines the relationships between each indicator block's latent variables. The PLS outer structural model utilized in this investigation is shown in Figure 5 below:

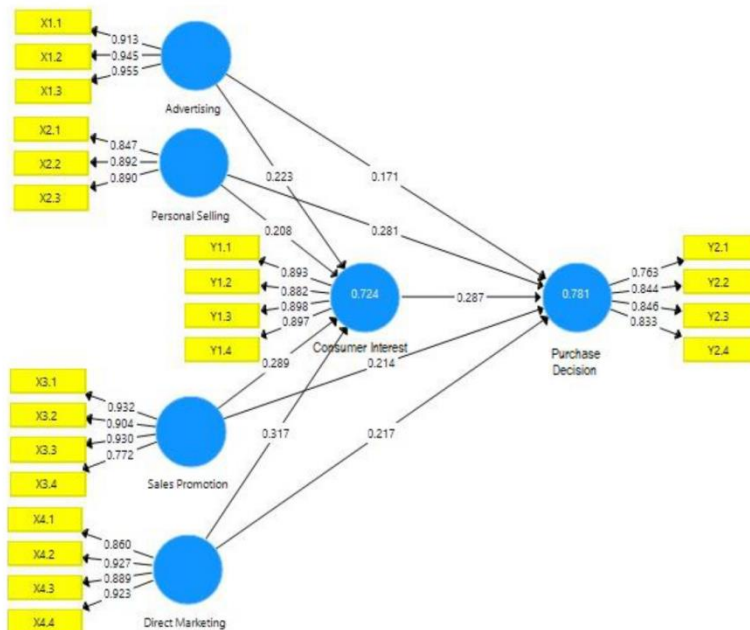


Figure 5 - Outer Model Pathway Diagram Structural Model PLS

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The measurement model is often referred to as the outer model or outer measurement. The objective of the outer model is to describe how latent variables and their indicators interact. Test the PLS Algorithm for the outer model procedure.

Estimate

The least squares method is used in PLS as the parameter estimation technique (estimation). Literacy

is used to carry out the computation, and if the convergence condition is met, literacy will come to an end. The R-squared coefficient of determination measures the proportion of the change in endogenous/criteria constructs that can be accounted for by the exogenous/predictors constructs.

Table 1 - R Square

	R Square	R Square Adjusted
Purchase Decision	0.781	0.767
Consumer Interest	0.724	0.710

Source: Processed Data Smartpls, 2022

According to table 2, the purchasing decision variable's R square is 0.781. This indicates that consumer interest, personal selling, personal selling, advertising, and 78.1% of the purchasing decision variables are influenced by these factors, with the remaining 26.1% being influenced by other variables not examined in this study. Therefore, the consumer interest variable's R square value is 0.724. This indicates that advertising, personal selling, personal selling, and advertising together influence 72.4% of customer interest variables, with other variables not evaluated in this study influencing the remaining 27.6%.

Convert Path Diagram to Equation

Additionally, using the data from above, the following equation can be used to determine the predictive-relevance (Q2) value:

$$Q^2 = 1 - (1 - R1^2) (1 - R2^2)$$

$$Q^2 = 1 - (1 - 0.781) (1 - 0.724)$$

$$Q^2 = 0.940$$

This indicates that the variables employed in the model account for 94% of the variation in the purchase decision variable, with other factors outside the model accounting for the remaining 6%.

Goodness Fit

The same meaning as regression is applied to the R-Square dependent latent variable used to measure the model's goodness of fit. R-Square goodness of fit measurement.

Table 2 - R Square Goodness Of Fit Model

	R Square
Purchase Decision	0.781
Consumer Interest	0.724

Source: Smartpls Processed Data, 2022

Table 3 shows that a model has predictive relevance if its Q-Square value is more than zero, whereas a model lacks predictive relevance if its Q-Square value is less than zero.

Testing

Direct Effect Hypothesis.

The following step is hypothesis testing once the complete and incomplete model has been examined.

Testing this hypothesis is helpful for assessing study findings in relation to the objectives of the bootstrap resampling approach. By examining the T-Statistics in the table of path coefficients, p-values, standard errors, and effect sizes for path coefficients, one can determine whether a causal relationship exists in SEM-PLS using Smartpls. The outcomes of the direct

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effect hypothesis test will be provided in Table 3 in the paragraphs that follow.

Table 3 - Results of Direct Effect Hypothesis Testing

	Original Sample (O)	T Statistics (O/STDEV)	P Values
Advertising -> Consumer Interest	0.223	2.654	0.008
Personal Selling -> Consumer Interest	0.208	2.926	0.004
Sales Promotion -> Consumer Interest	0.289	2.998	0.003
Direct Marketing -> Consumer Interest	0.317	4,769	0.001
Consumer Interest -> Purchase Decision	Table	3,941	0.000

Source: Processed Data Smartpls, 2022

The significance of the predicted parameters is shown in Figure 4, which provides very helpful details regarding the interaction between the research factors. According to Ghazali (2016:211), the T-table and T-statistic values can be used to determine the size of the importance of the hypothesis support. When the T-statistic value exceeds the T-table value, hypothesis 32 is considered to be supported. The T-table value for the two-tailed hypothesis should be 1.96 for the 95% confidence level (with 5% alpha). If the outer model's hypothesis testing yields significant results, the indicator can be utilized as a tool to measure the latent variable. A significant effect of latent variables on other latent variables can be inferred if the test results on the inner model are significant. The output path coefficients' value serves as the foundation for testing the hypothesis:

Advertising's Impact on Consumer Interest

The influence of advertising on customer interest is significant, according to table 4 above, with a path coefficient value of 0.223, a t statistic of 2.654, and a p value of 0.008. These findings imply that there is a relationship between advertising and consumer interest as the value of the t count is more than 1,978 (t table). Therefore, it is recognized in this study that "there is an influence between advertising and customer interest."

Personal Selling's Impact on Consumer Interest

Based on Table 4, which has a coefficient value of 0.208, a t statistic of 2.926, and a p value of 0.004, it can be seen that personal selling has a considerable impact on consumer interest. These findings demonstrate that there is a relationship between

personal selling and consumer interest since the value of the t count is more than 1,978 (t table). Thus, it is acknowledged in this study that "personal selling affects consumer interest."

Direct Marketing's Impact on Consumer Interest

According to table 4 above, the relationship between sales promotion and consumer interest is significant, with a path coefficient of 0.289, a t statistic of 2.998, and a p value of 0.003, all of which are based on the data. These findings demonstrate that there is a relationship between sales promotion and consumer interest since the value of the t count (t table) is more than 1,978. Therefore, it is acknowledged in this study that "there is an influence between sales promotion and consumer interest."

Direct marketing's impact on consumer interest

Based on Table 4, which has a route coefficient value of 0.317, a t statistic of 4.769, and a p value of 0.001, it can be concluded that direct marketing has a considerable impact on consumer purchase decisions. These findings demonstrate that there is a relationship between direct marketing and consumer interest as the value of the t count is more than 1,978 (t table). Thus, it is acknowledged in this study that "direct marketing affects consumer interest."

Consumer Interest's Effect on Buying Behavior

Based on Table 4, which has a route coefficient value of 0.287, a t statistic of 3.941, and a p value of 0.000, it can be concluded that there is a substantial correlation between consumer interest and purchase decisions. These findings demonstrate that there is a relationship between consumer interest and purchase

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decisions as the value of the t count is more than 1,978 (t table). Thus, it is acknowledged in this study that "customer interest affects purchase decisions."

Indirect Effect indirect

Utilizing T-table and T-statistic values, this effect is supported in order to examine the mediating influence of numerous hypotheses. When the T-

statistic value exceeds the T-table value, hypothesis 32 is considered to be supported. The value of the T-table for the two-tailed hypothesis for the 95% confidence level (with 5% alpha) should be 1.96. Table 5 displays the outcomes of the indirect effect test.

Table 4 - Hypothesis Test Results Indirect Effect

	Original Sample (O)	T Statistics (O/STDEV)	P Values
Advertising -> Consumer Interest -> Purchase Decision	0.203	2,359	0.019
Personal Selling -> Consumer Interest -> Purchase Decision	0.147	2,375	0.018
Sales Promotion -> Consumer Interest -> Decision Purchase	0.016	0.127 2.406	Direct
Marketing -> Consumer Interest -> Purchase Decision	0.109	1.997	0.048

Source: Processed Data Smartpls, 2022

Table 4 above shows the indirect relationship between the research variables; for additional information, read the details below:

Influence of Advertising on Consumer Interest-Driven Purchase Decisions

Based on Table 5, it can be shown that there is a strong relationship between consumer interest and advertising, with a path coefficient of 0.203, a t statistic of 2.359, and a p value of 0.019. These findings demonstrate that there is a relationship between advertising and customer interest in purchase decisions since the value of the t count is more than 1,978 (t table). Thus, it is acknowledged in this study that "advertising influences purchasing decisions through customer interest."

Personal Selling's Effect on Purchase Decisions via Consumer Interest

According to table 5 above, personal selling and customer interest-based purchase decisions are significantly correlated, with a path coefficient value of 0.147, a t statistic of 2.375, and a p value of 0.018. This result is higher than 1978 (t table), which suggests that there is a relationship between personal selling and customer interest-based purchasing decisions. According to this study, it is believed that "personal selling has an impact on purchasing decisions through consumer interest."

Influence of Sales Promotion on Consumer Interest-Driven Purchase Decisions

According to Table 5, which has a path coefficient coefficient of 0.127, a t statistic of 2.406, and a p value of 0.018, there is a strong relationship between sales promotion and consumer interest in terms of influencing purchase decisions. These findings demonstrate that the value of the t count is more than 1,978 (t table), indicating that there is a relationship between sales promotion and customer interest-driven purchasing decisions. Therefore, it is acknowledged in this study that "sales advertising affects purchase decisions through consumer interest."

The Impact of Direct Marketing on Consumer Interest-Driven Purchase Decisions

According to table 5 above, there is a substantial link between direct marketing and customer interest-based purchasing decisions, with a path coefficient value of 0.109, a t statistic of 1.997, and a p value of 0.048. This outcome is higher than it was in 1978 (see table), which suggests that direct marketing has an impact on consumer interest-driven purchasing decisions. Therefore, it is acknowledged in this study that "there is an influence between direct marketing and purchasing decisions through consumer interest."

Conclusion And Suggestions

Conclusion

The following conclusions can be taken from the research's findings and the topic that was advanced in the earlier chapters:

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1. Advertising significantly and favorably affects customer interest. This demonstrates how advertising can influence customer interest levels. Customer interest will rise the better the advertisement is.
2. The interest of the consumer is positively and significantly impacted by personal selling. This demonstrates how personal selling may gauge customer interest. Consumer interest will rise the better the personal selling.
3. Consumer interest is positively and significantly impacted by sales marketing. This demonstrates how sales marketing can influence consumer interest levels. Consumer interest will rise the stronger the sales promotion.
4. Consumer interest is positively and significantly impacted by direct marketing. This demonstrates how direct marketing may estimate consumer interest levels. Consumer interest will rise with stronger direct marketing.
5. Through piqued customer attention, advertising has a favorable and considerable impact on buying decisions. This demonstrates how advertising can influence consumers' levels of interest and purchasing choices. Consumer interest and choices will rise the better the advertisement is.
6. Through consumer attention, personal selling has a favorable and considerable impact on buying decisions. This demonstrates how personal selling can influence consumer interest and purchasing behavior. Consumer interest and decision-making will rise with improved personal selling.
7. Through piqued consumer attention, sales promotion has a favorable and considerable impact on buying decisions. This demonstrates how consumer interest and purchasing decisions can be influenced by sales promotions. Consumer attention and decisions will rise the better the sales promotion.
8. Through consumer interest, direct marketing has a favorable and considerable impact on decisions about what to buy. This demonstrates how direct marketing can influence consumer interest and purchasing behavior. Consumer interest and choice will increase with improved direct marketing.

9. Interest influences buying decisions in a favorable and important way. This demonstrates how purchase decisions can be influenced by interest. The likelihood of making a purchase will rise as interest levels rise.

Suggestion

Following are some recommendations that can be made in light of the foregoing conclusions:

1. In order to demonstrate that the house being offered appeals to potential buyers, the corporation should create an attractive advertising display for varied advertising in order to increase customer interest.
2. The corporation is expected to exhibit examples of finished items by directly showing to customers, regardless of whether they visit the place or learn about it from prepared media, in order to increase consumer interest.
3. The corporation offers unique coupons with every home purchase as a varied sales incentive to pique consumer interest.
4. Companies should also develop catalogs that describe the shape of the house and the design inside, as this is considered to be able to draw consumer attention for direct marketing and increase consumer interest.
5. Businesses should exhibit unique, interesting, and varied commercials that highlight the company's attributes to pique consumers' attention and boost advertising's influence on purchasing decisions.
6. To enhance personal selling on consumer-driven purchase decisions, always paying attention to the outcomes of consumer-marketing meetings so that businesses may assess.
7. In order to increase sales by piquing consumers' interests in making purchases, it is necessary to provide lottery tickets with every purchase.
8. Cataloging is still an option for direct marketing of purchasing decisions based on customer interest. This allows consumers to view the size and model of the home, which increases the likelihood that they will be interested in making a purchase.
9. Businesses must offer benefits to each customer to encourage them to tell others about the promotion in order to raise consumer interest.

References:

1. Adrian, I. (2018). Analisis Pengaruh Bauran Promosi Terhadap Keputusan Pembelian Pelanggan *It's My Cake* Bandung. *e-Proceeding of Applied Science* : Vol.4, No.1 Maret 2018.
2. Alma, Buchari (2015). *Manajemen Pemasarandan Pemasaran Jasa*, Cetakan Keenam, Alfabeta: Bandung.

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3. Ayu, A.A. (2011). Pengaruh Variabel - Variabel Bauran Promosi Terhadap Keputusan Pembelian (Studi Kasus Pada Dealer Suzuki Sentral Motor Surabaya Di Jl. Kedungdoro 80). *E-Journal UPN "Veteran" Jatim. E-Jurnal Manajemen* Vol. 2, No. 5.
4. Basu, S.H.H. (2011). *Manajemen pemasaran analisis perilaku konsumen*, Yogyakarta: BPFE.
5. Cristian, Sandro (2018). Pengaruh Kualitas Produk Dan Harga Terhadap Keputusan Pembelian: Peran Minat Beli Sebagai Variabel Moderating. *Jurnal Manajemen Strategid dan Aplikasi Bisnis*, Vol 1, No.2, Desember 2018, pp.109–118.
6. Hendri, W. (2014). Pengaruh Bauran Promosi Pada Keputusan Pembelian Konsumen Mobil Toyota Auto 2000 Cabang Padang. *Journal Economics*, 2014.
7. Khanfar, I.A. (2016). The Effect Of Promotion Mix Elements On Consumers Buying Decisions Of Mobile Service: The Case Of Umniah Telecommunication Company At Zarqa City-Jordan. *Journal Economics*.
8. Khusna (2017). Pengaruh Bauran Promosi Terhadap Keputusan Pembelian Dunkin Donuts Bandung. *Jurnal Ekonomi, Bisnis & Entrepreneurship*. Vol. 11, No. 1, April 2017, 27-36.
9. Kotler, P., & Amstrong, G. (2014). *Dasar-Dasar Pemasaran*, Edisi V, jilid 2, Intermedia, Jakarta.
10. Lovelock, C.H., & Wright, L.K. (2011). *Principles of Service Management*, Cincinnati, Ohio: Thomas Execution Press.
11. Nour, M.I. (2014). The Impact Of Promotional Mix Elements On Consumers Purchasing Decisions. *Journal Economics*.
12. Indah, M.G. (2014). Pengaruh Bauran Promosi Terhadap Keputusan Pembelian Sepeda Motor Honda Vario Techno Melalui Lembaga Pembiayaan Pt. Adira Finance Surabaya. *Journal Economics*.
13. Naurman, & Kathleen, G. (2010). *Customer Satisfaction Measurement*. Jakarta :Gramedia
14. Nurjannah (2014). *Modul Pelatihan SPSS*, Retrieved from <http://www.pendmat.unsyiah.ac.id/umam/spss1.pdf>
15. Oliver, R.L. (2014). *Satisfaction A Behavioral Perspective On The Consumer*. McGraw-Hill Education, Singapore.
16. Ongoh, D.G. (2015). Analisis Strategi Promosi Dan Harga Pengaruhnya Terhadap Keputusan Pembelian Mobil Suzuki Ertiga Pada PT. Sinar Galesong Pratama Manado. *Jurnal EMBA*. Vol.3 No.3 Sept. 2015, Hal.582-594.
17. Panjaitan, I. (2016). Pengaruh Pelayanan Dan Harga Pada Go-Jek Terhadap Keputusan Konsumen Dengan Minat Sebagai Variabel Moderating. *Media Studi Ekonomi* Volume 19 No. 2, Juli – Desember 2016.
18. Ramadoni, W. (2020). Pengaruh Promosi Ovo Terhadap Minat Beli Dan Keputusan Pembelian Pada Pengguna Ovo. *Jurnal Ecopreneur Fakultas Ekonomidan Bisnis*. Volume 3, No. 1 Tahun 2020, ISSN: 2614-3968.
19. Riduwan (2011). *Cara mudah belajarsps*, Penrbit : Alfabeta.
20. Sandy, F. (2014). Pengaruh Bauran Promosi Terhadap Keputusan Pembelian. (Survei pada Mahasiswa Jurusan Bisnis Angkatan 2010-2014 Fakultas Ilmu Administrasi Pengguna Indosat di Universitas Brawijaya). *Jurnal Administrasi Bisnis (JAB)* Vol. 9 No. 2 April 2014.
21. Shahriar, A.Ch., & Hamdard, J. (2011). The Affect Of Sales Promotion On Consumer Interest To Purchase In Ikco Automotive Company. *Journal Economics*.
22. Sihaloho, & Sri, H. (2016). Pengaruh Strategi Promosi Terhadap Keputusan Pembelian Konsumen Pada Carrefour Citra Garden Medan. *Jurnal Akuntansidan Bisnis Volume 2 Nomor 2* Nopember 2016.
23. Simamora, B. (2014). *Panduanri setperilaku konsumen*, Jakarta:Gramedia.
24. Schiffman, L.G., & Kanuk, L.L. (2011). *Consumer Behavior*, New Jersey: Perason: Yogyakarta.
25. Tjiptono, F. (2014). *Strategi Pemasaran*, Edisi 3. Yogyakarta: Andi Offset.
26. Wahyudi, U.S., & Yuliana, S. (2014). Pengaruh Kualitas Produk, Harga, Iklan terhadap Keputusan Pembelian pada Dealer MPM Motor Madiun. *Jurnal Akuntansidan Pendidikan*, Vol. 3 No. 1.
27. Windusara (2015). Pengaruh bauran promosi terhadap keputusan Pembelian oppo smartphone. *E-Jurnal Manajemen*. Vol. 2, No. 9.

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Article



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INCREASING THE COMPETITIVENESS OF WOMEN'S MSMES (SURVEY ON CAKE INDUSTRY IN PEKANBARU CITY)

Abstract: This study aims to analyze the increase in the competitiveness of women's SMEs (a survey of the cake industry in Pekanbaru City). The analytical method used in this research is a quantitative descriptive analysis method. The analytical tool used is multiple regression analysis using SPSS Version 20.0. The results of this study indicate that simultaneously Learning, Innovation, Motivation, and Creativity affect increased competitiveness. Partially the Learning Variables affect the increase in competitiveness, Innovation influences the increase in competitiveness, Motivation influences the increase in competitiveness, and Creativity influences the increase in competitiveness.

Key words: Learning, Innovation, Motivation and Creativity, and Increased Competitiveness.

Language: English

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Introduction

Background of the study

Small and Medium Industries are considered to have low resilience and a low level of flexibility in dealing with a pandemic situation. SMEs are considered to lack resilience and flexibility in dealing with this pandemic due to several things such as the low level of digitalization, difficulties in accessing technology, and a lack of understanding of strategies to survive in business. Based on these problems, it is important to take various actions in the form of

policies to save the sustainability of IKM amid the Covid 19 pandemic. IKM operations are heavily influenced by, one of them, market conditions. Market conditions have become erratic since the Covid-19 pandemic occurred. The pandemic has hurt various sectors, especially the economic sector. The Organization for Economic Cooperation and Development (OECD) report states that the Covid 19 pandemic can cause an economic crisis that is marked by a halt in economic activity in several countries. In addition, the pandemic has caused a low level of

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public consumption. IKM is one of the businesses that also feel the impact. This happens because SMEs are a business sector that has a strategic position in a country's economy. In ASEAN, SMEs can create jobs with a percentage between 50% and 95%. IKM has also contributed as much as 30% to 50% to the Gross Domestic Product. The pandemic has caused a low level of public consumption. IKM is one of the businesses that also feel the impact. This happens because SMEs are a business sector that has a strategic position in a country's economy. In ASEAN, SMEs can create jobs with a percentage between 50% and 95%. IKM has also contributed as much as 30% to 50% to the Gross Domestic Product. The pandemic has caused a low level of public consumption. IKM is one of the businesses that also feel the impact. This happens because SMEs are a business sector that has a strategic position in a country's economy. In ASEAN, SMEs can create jobs with a percentage between 50% and 95%. IKM has also contributed as much as 30% to 50% to the Gross Domestic Product.

Micro, small and medium enterprises (MSMEs) play a very important role in the economic development of a country, especially in Indonesia. The number of MSMEs in Indonesia has reached 56.2 million units and can absorb 97.2% of the workforce from the total existing workforce. In addition, MSMEs also play a role in economic growth and reduce unemployment and poverty. This shows that the existence of MSMEs will improve people's welfare by increasing income and reducing unemployment. However, this high MSME development is still overshadowed by obstacles, which differ from one area to another, from rural areas to urban areas, or between sectors. MSMEs at this time cannot be run solely based on intuition and foresight but must go through good management and proper marketing techniques. Appropriate marketing techniques cannot work without good communication from MSMEs which will later be conveyed to consumers, because communication and marketing are inseparable. The development of home industries through empowering women in the household economic system is part of the integration of the government's priority agenda in the work cabinet. Through this home industry, women can produce without having to leave their homes, even advanced home industries can absorb labor and create jobs. Coupled with advances in technology, these home industry products can be marketed from home via the internet. Appropriate marketing techniques cannot work without good communication from MSMEs which will later be conveyed to consumers, because communication and marketing are inseparable. The development of home industries through empowering women in the household economic system is part of the integration of the government's priority agenda in the work cabinet. Through this home industry, women can produce without having to leave their homes, even

advanced home industries can absorb labor and create jobs. Coupled with advances in technology, these home industry products can be marketed from home via the internet. Appropriate marketing techniques cannot work without good communication from MSMEs which will later be conveyed to consumers, because communication and marketing are inseparable. The development of home industries through empowering women in the household economic system is part of the integration of the government's priority agenda in the work cabinet. Through this home industry, women can produce without having to leave their homes, even advanced home industries can absorb labor and create jobs. Coupled with advances in technology, these home industry products can be marketed from home via the internet. because communication and marketing are inseparable. The development of home industries through empowering women in the household economic system is part of the integration of the government's priority agenda in the work cabinet. Through this home industry, women can produce without having to leave their homes, even advanced home industries can absorb labor and create jobs. Coupled with advances in technology, these home industry products can be marketed from home via the internet. women can produce without having to leave their homes, even advanced home industries can absorb labor and create jobs. Coupled with advances in technology, these home industry products can be marketed from home via the internet. women can produce without having to leave their homes, even advanced home industries can absorb labor and create jobs. Coupled with advances in technology, these home industry products can be marketed from home via the internet.

Of the number of micro, small and medium enterprises (MSMEs), data from the Ministry of Cooperatives and SMEs noted that there are around 52 million MSME actors throughout Indonesia, and as many as 60 percent of businesses are run by women. Their business development has contributed a lot to their families, environment, and society. Empowering women in the MSME sector is expected to reduce poverty rates, provide better income increases, increase knowledge and quality of human resources and prepare women's communities to become friendly communities.

The city of Pekanbaru is a strategic area where

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the population is increasing and it is a city that has a very high MSME development. sector. One very prominent business is the business in the culinary or food sector. On almost every corner there are culinary businesses available in Pekanbaru City with various culinary choices. This culinary business, not only provides drinks but also provides food such as snacks, and heavy meals and many culinary entrepreneurs have ventured into the cake industry. It can be said that the culinary business in the city of Pekanbaru will never die. Many creative industries have sprung up, especially in modern times like today, this proves that the culinary business in the city of Pekanbaru is growing very rapidly. A large number of culinary businesses in the city of Pekanbaru with different types of food being sold, makes business owners must be observant in defending the sustainability of the culinary business they have. All business sectors have the potential to be further developed, but at this time the very prominent business sector, especially in the city of Pekanbaru, is the culinary business. There are many culinary choices available that are served by culinary business entrepreneurs. Such as culinary food, light snacks, and heavy snacks. A large number of culinary businesses in the city of Pekanbaru with different types of food being sold, makes business owners must be observant in defending the sustainability of the culinary business they have. All business sectors have the potential to be further developed, but at this time the very prominent business sector, especially in the city of Pekanbaru, is the culinary business. There are many culinary choices available that are served by culinary business entrepreneurs. Such as culinary food, light snacks, and heavy snacks. A large number of culinary businesses

in the city of Pekanbaru with different types of food being sold, makes business owners must be observant in defending the sustainability of the culinary business they have. All business sectors have the potential to be further developed, but at this time the very prominent business sector, especially in the city of Pekanbaru, is the culinary business. There are many culinary choices available that are served by culinary business entrepreneurs. Such as culinary food, light snacks, and heavy snacks. But at this time the very prominent business sector, especially in the city of Pekanbaru, is the culinary business. There are many culinary choices available that are served by culinary business entrepreneurs. Such as culinary food, light snacks, and heavy snacks. But at this time the very prominent business sector, especially in the city of Pekanbaru, is the culinary business. There are many culinary choices available that are served by culinary business entrepreneurs. Such as culinary food, light snacks, and heavy snacks. But at this time the very prominent business sector, especially in the city of Pekanbaru, is the culinary business. There are many culinary choices available that are served by culinary business entrepreneurs. Such as culinary food, light snacks, and heavy snacks.

According to data obtained by researchers, the number of MSMEs in the city of Pekanbaru is the highest compared to the number of MSMEs in other districts/cities in Riau. The number of micros, small and medium enterprises (MSMEs) in Indonesia is currently around 55 million, while in the city of Pekanbaru, data recorded at the Riau Province Cooperative and MSME Office states that Pekanbaru City has a total of 68,728 MSMEs and this number is the largest in the province. Riau. With the existence of MSMEs, the economic growth of the people in Pekanbaru City who lives in a culinary business shows that the culinary business is very calculated and certainly tempts the public to try to do this business.

Table 1. Number of Cake Small and Medium Industries (IKM) in Pekanbaru City

No	Subdistrict	Number of Industries
1	Sekaki Umbrella	4
2	Sukajadi	7
3	Marpoyan Peace	2
4	Handsome	8
5	Senapelan	4
6	Raya Hill	3
7	Sail	5
8	Fifty	5
9	Tassel	3
10	Pekanbaru City	2
11	Coastal Fringe	3
12	Tenayan Raya	4
Total		50

Cake is a food that is loved by Indonesian people and will never subside, some people even always provide and consume cake at home. At special

moments, cake is still an important food and cannot be left behind. By looking at this phenomenon, it is very clear that the cake business still promises big profits

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and opportunities. With promising profits and opportunities, it cannot be separated from someone who is able to run the business, if he is able to develop it then from that business it will be the main income for the family. Someone who runs this cake business must have knowledge and skills in making delicious and delicious cakes, have the right marketing strategy so that cake production can sell out quickly, can choose the right cakes to sell if necessary to produce various types of cakes, be able to read market tastes so that the cakes produced can sell well by finding information on the types of cakes that many people enjoy doing. So to be able to increase the competitiveness of SMEs that can be done by cake businessmen, among others, is to take cake-making courses. The cake business is also expected to be able to innovate on the various types of cakes it produces. Motivation in doing business also needs to be improved and always be creative in introducing cake products to consumers. So to be able to increase the competitiveness of SMEs that can be done by cake businessmen, among others, is to take cake-making courses. The cake business is also expected to be able to innovate on the various types of cakes it produces. Motivation in doing business also needs to be improved and always be creative in introducing cake products to consumers. So to be able to increase the competitiveness of SMEs that can be done by cake businessmen, among others, is to take cake-making courses. The cake business is also expected to be able to innovate on the various types of cakes it produces. Motivation in doing business also needs to be improved and always be creative in introducing cake products to consumers.

Based on the description above, the authors conducted a study entitled Increasing the Competitiveness of Women's MSMEs (Survey of the Cake Industry in Pekanbaru City).

Formulation of the problem

Based on the background above, the authors formulate the problem as follows:

1. Do Learning, Innovation, Motivation, and Creativity have a simultaneous effect on increasing the competitiveness of women's SMEs (Survey of the cake industry in Pekanbaru City)?
2. Does learning have a partial effect on increasing the competitiveness of women's SMEs (Survey of the cake industry in Pekanbaru City)?
3. Does innovation have a partial effect on increasing the competitiveness of women's SMEs (survey of the cake industry in Pekanbaru city)?
4. Does motivation have a partial effect on increasing the competitiveness of women's SMEs (Survey of the cake industry in Pekanbaru City)?
5. Does Creativity have a partial effect on increasing the competitiveness of women's SMEs (Survey of the cake industry in Pekanbaru City)?

Research Purposes and Objectives

Based on the problem formulation above, the writer formulates the objectives as follows:

1. To determine the effect of Learning, Innovation, Motivation, and Creativity simultaneously on increasing the competitiveness of Women's MSMEs (Survey of the cake industry in Pekanbaru City).
2. To find out the effect of partial learning on increasing the competitiveness of women's SMEs (survey of the cake industry in Pekanbaru city).
3. To find out the effect of innovation partially on increasing the competitiveness of women's SMEs (survey of the cake industry in Pekanbaru city).
4. To find out the effect of motivation partially on increasing the competitiveness of women's SMEs (Survey of the cake industry in Pekanbaru City).
5. To find out the effect of creativity partially on increasing the competitiveness of women's SMEs (survey of the cake industry in Pekanbaru city).

Literature Review

The role of women in MSME management

MSME is one sector that contributes to increasing Indonesia's Gross Domestic Product (GDP). As for the role of women in the management of MSMEs either as business actors or workers. MSME ownership data shows in detail that 44.29% of micro-enterprises are managed by women, as well as 10.28% in the small business sector (BPS, 2005, in Jati, 2009). Meanwhile, the report of the State Minister for Women's Empowerment (October, 2007, in Jati, 2009) states that 60% of the 41 million micro and small entrepreneurs in Indonesia are women. (Widowati, 2012). Women have more potential in carrying out many activities to help their family's economy, especially in productive activities to produce goods.

Increasing the competitiveness of SMEs

At this time the main key in competition is the value of customer satisfaction by providing quality products at competitive prices or at prices that match the quality presented. Competitiveness is an effort that must be made by business/economic actors in order to continue to exist in carrying out their activities (Asmara & Rahayu, 2013). With an increasingly competitive environment in the business world, MSMEs need to increase their competitiveness so that they can survive amidst intense competition in the business world. There are four strategies to increase competitiveness, namely individual technical expertise, business strategy, technology and innovation expertise, and marketing expertise (Asmara & Rahayu, 2013).

Learning

Learning according to Law no. 20 of 2003 concerning the National Education System article 1

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paragraph 20 is the process of interaction of students with educators and learning resources in a learning environment. Learning is assistance provided so that the process of acquiring knowledge can occur, learning is also referred to as overall activities designed to gain new knowledge and creativity. Learning is a behavioral process resulting from knowledge and experience that develops and influences changes in achieving goals.

Innovation

Management experts state that innovation is one of the keys to a company or organization to increase competitiveness and is a source of competitiveness for companies competing in the global economy. Companies that innovate will certainly gain advantages as early movers in the market both at the local, national and global environmental levels. Various indicators show that lagging behind in terms of innovation or other related factors can cause a country to lag behind in economic development and the welfare of its people.

Motivation

Motivation according to Jucius in Gustina et al. (2020) stated that motivation is the activity of giving encouragement to someone or oneself to take a desired action. Motivation is a psychological impulse that arises in a person consciously to carry out an action to achieve the desired goal. Encouragement can be in the form of enthusiasm for work. With high morale someone will be able to do a good job. So it can be

concluded that the notion of motivation is a driving force in the form of an impulse that appears in a person where this encouragement causes a person to act or move in achieving organizational goals.

Creativity

Creativity is an initiative that is owned by a product or process that is of value to a task that is a heuristic or something that is an incomplete guide that will lead us to find something new. Various attempts have been made to understand creativity, creative individuals, creative processes, and creative strategies in business. It can be concluded that creativity is a process of creating new and synergistic combinations of seemingly unrelated entities. Creativity is a complex matter in its assessment system, this gives rise to different views on creating value. The different definitions of creativity put forward by many experts are complementary definitions.

Framework

In this study the authors put forward the research variables to be examined as follows:

1. Independent Variable (Independent)
Learning (X1)
Innovation (X2) Motivation (X3) Creativity (X4)
2. Dependent Variable Competitiveness (Y)

To make it easier to understand this framework, it can be seen from the following figure:

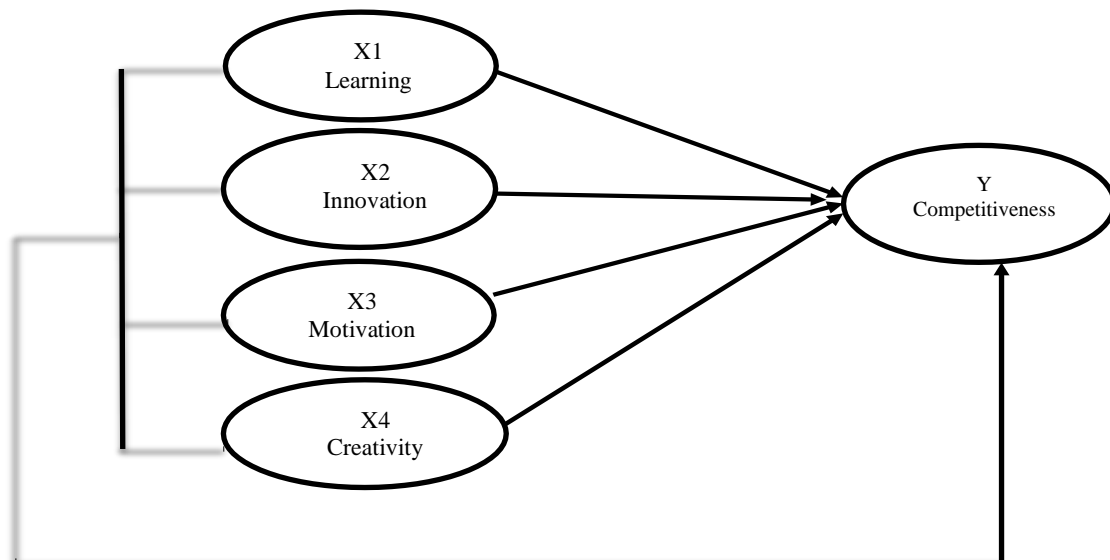


Figure 1 - Thinking Framework

Hypothesis

Based on the framework above, the authors formulate the problem as follows:

1. Allegedly Learning, Innovation, Motivation, and Creativity have a simultaneous effect on increasing the competitiveness of Women's

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- MSMEs (Survey of the cake industry in Pekanbaru City).
- It is suspected that learning has a partial effect on increasing the competitiveness of women's SMEs (survey of the cake industry in Pekanbaru city).
 - It is suspected that innovation has a partial effect on increasing the competitiveness of women's SMEs (survey of the cake industry in Pekanbaru city).
 - It is suspected that motivation has a partial effect on increasing the competitiveness of women's SMEs (survey of the cake industry in Pekanbaru city).
 - It is suspected that creativity has a partial effect on increasing the competitiveness of women's SMEs (survey of the cake industry in Pekanbaru city).

Research Methods

Research sites

This research was conducted in the Cake Food Industry in Pekanbaru City, especially the Women's MSME Industry.

Data Type and Source

According to Umar (2009: 42) there are two types of data used in this study, namely:

- Primary data, namely data obtained directly from the first source either from individuals or individuals such as the results of filling out questionnaires conducted by researchers and interviewing related parties, as well as other data related to research.
- Secondary Data, namely data that has been processed and has been presented and has been documented. Where the data is in the form of other relevant data. (Robbins, 2012).

Population and Sample

The population in this study were Cake Industry Entrepreneurs in Pekanbaru City, totaling 50 people.

Research Instruments Test

- Validity is evidence that the instrument, technique, or process used to measure a concept actually measures the intended concept. The validity test aims to measure the validity of a statement system.
 - If $r_{count} > r_{table}$, it means that the question item is valid
 - If $r_{count} < r_{table}$, it means that the question item is invalid
- Reliability test
Reliability is an index that shows the extent to which a measuring device can be trusted or relied upon. If a measuring device is used twice or more to measure the same symptoms and the results obtained

are relatively consistent, then the measuring device is reliable. The reliability test aims to measure the consistency of one's answers to the statement items in the questionnaire. Now (2006:248).

Classic Assumption Test

- Multi-correlation Test
The multi-correlation test aims to determine whether the relationship between independent variables has multicorrelation problems (multicollinearity symptoms) or not.
The basics of the decision-making process:
 - If the VIF value < 10 , there are no symptoms of multicollinearity among the independent variables.
 - If the VIF value > 10 , there are symptoms of multicollinearity among the independent variables.
- Normality test
The normality test aims at determining whether a data distribution is normal or not. The test criteria are as follows:
 - Significance figures Kolmogorov-Smirnov test Sig. > 0.05 indicates normally distributed data.
 - Significance figures Kolmogorov-Smirnov test Sig. < 0.05 indicates the data is not normally distributed.
- Auto-correlation Test
According to Wijaya in Sarjono Haryadi (2011: 80), the autocorrelation test aims to test whether in the linear regression model there is a correlation between disturbance terms. In the t period and the confounding errors in the previous period ($t - 1$). If there is a correlation, this indicates an autocorrelation problem. Autocorrelation test can be done with Durbin-Watson test, Langrage Multiplier (LM) test, statistical Q test, and Run Test test.

Decision of the existence of autocorrelation:

- When the DW value is between d_U and $4 - d_U$, the correlation coefficient is zero. It means that there is no autocorrelation.
- If the DW value is less than d_L , the correlation coefficient is greater than zero. It means that there is a positive autocorrelation.
- If the DW value is greater than $4 - d_L$, the correlation coefficient is smaller than zero. It means that there is a negative autocorrelation.
- If the DW value lies between $4 - d_U$ and $4 - d_L$, the results are inconclusive.

Hypothesis Test

Coefficient of Determination (R^2) Test

The amount of the coefficient of determination (R^2) on the independent variable. The coefficient of determination (R^2) is said to be strong or weak, that is, if (R^2) approaches the number 1, it means that the

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effect of the independent variables is simultaneously considered strong, and if (R^2) approaches zero (0), the effect the independent variable on the dependent variable simultaneously is weak.

F-test

To test the significance of the influence of increasing the competitiveness of women's SMEs through product excellence and marketing in Pekanbaru City (Survey of the Baking Industry in Pekanbaru City) the F test was used.

The test criteria are:

- If F_{count} is greater than F_{table} ($F_{count} > F_{table}$) this shows that the independent variables together have a significant effect on the dependent variable.
- If F_{count} is smaller than F_{table} ($F_{count} < F_{table}$) these results indicate that the independent variables together have no significant effect on the dependent variable.

t-test

To test the significance of the effect of increasing the competitiveness of female SMEs partially through Product Excellence and Marketing in Pekanbaru City (Survey of the Cake Industry in Pekanbaru City) in Pekanbaru the t test was used.

- If t count is greater than t table ($t_{count} > t_{table}$) this shows that the independent variable has a significant influence on the dependent variable.

- If t count is smaller than t table ($t_{count} < t_{table}$) this shows that the independent variable has no significant effect on the dependent variable.

Furthermore, for data processing results from the questionnaire the author uses the Statistical Product And Service Solution program (SPSS VERSION 17.00), because all the answers given by respondents are qualitative in nature, for this purpose the qualitative answers are given a scale so that they become quantitative data, categories which is based on a Likert scale, where respondents answer statements with an answer value.

Analysis Results And Discussion

Instrument Testing

Validity test

Based on the validity test conducted on the indicators of the research variables, it resulted that all the indicators of the research variables consisting of Learning, Innovation, Motivation and Creativity towards Competitiveness were stated to be valid because $r_{hit} > r_{table}$ and the value of r_{hit} can be seen in the corrected item - total correlation.

If $r_{count} \geq r_{table}$, then the statement items are declared valid. Value of r_{table} for $df_{n-2} = 50-2 = 48 = 0.2787$ (see table r with $df = 48$). And from the table below it is obtained that the value of r_{counts} for all statements > 0.2787 . This means that the measuring instrument used is valid.

Table 2 - Learning Variable Validity Value

Variable	Statement	r count	r table	Decision
Learning (X1)	Learning 1	0.607	0.2787	Valid
	Learning 2	0.638	0.2787	Valid
	Learning 3	0.669	0.2787	Valid
	Learning 4	0.583	0.2787	Valid

Based on the values contained in Table 2, it shows that overall the research indicators on the learning variable (X1) are declared valid, as seen from

the value of r count which is greater than r table, as a condition for an indicator to be declared valid.

Table 3 - Value of Innovation Variable Validity

Variable	Statement	r count	r table	Decision
Innovation (X2)	Innovation 1	0.573	0.2787	Valid
	Innovation 2	0.616	0.2787	Valid
	Innovation 3	0.603	0.2787	Valid

Based on the values contained in Table 3, it shows that overall the research indicators on the

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innovation variable (X2) are declared valid, as seen from the r count value which is greater than r table, as a condition for an indicator to be declared valid.

Table 4 - Value of the Validity of Motivational Variables

Variable	Statement	r count	r table	Decision
Motivation (X3)	Motivation 1	0.855	0.2787	Valid
	Motivation 2	0.855	0.2787	Valid
	Motivation 3	0.577	0.2787	Valid

Based on the values contained in Table 4, it shows that overall the research indicators on the variable Motivation (X3) are declared valid, as seen

from the value of r count which is greater than r table, as a condition for an indicator to be declared valid.

Table 5 - Value of Creativity Variable Validity

Variable	Statement	r count	r table	Decision
Creativity (X4)	Creativity 1	0.457	0.2787	Valid
	Creativity 2	0.548	0.2787	Valid
	Creativity 3	0.618	0.2787	Valid

Based on the values contained in Table 5, it shows that overall the research indicators on the creativity variable (X4) are declared valid, as seen

from the value of r count which is greater than r table, as a condition for an indicator to be declared valid.

Table 6 - Value of the Validity of Competitiveness Variables

Variable	Statement	r count	r table	Decision
Competitiveness (Y)	Competitiveness 1	0.426	0.2787	Valid
	Competitiveness 2	0.586	0.2787	Valid
	Competitiveness 3	0.364	0.2787	Valid
	Competitiveness 4	0.601	0.2787	Valid
	Competitiveness 5	0.538	0.2787	Valid

Based on the values contained in Table 6, it shows that overall the research indicators on the competitiveness variable (Y) are declared valid, as seen from the value of r count which is greater than r table, as a condition for an indicator to be declared valid.

Reliability Test

The results of reliability testing on the indicators of this research variable namely Learning, Innovation, Motivation and Creativity towards Competitiveness show that the indicators are reliable where cronbach's alpha ≥ 0.6 .

Table 7 – Reliability

Variable	Cronbach's Alpha	Critical Value	Conclusion
Learning (X1)	0.798	0.6	Reliable
Innovation (X2)	0.759	0.6	Reliable
Motivation (X3)	0.863	0.6	Reliable
Creativity (X4)	0.707	0.6	Reliable
Competitiveness (Y)	0.735	0.6	Reliable

If the reliability value is less than 0.6 then the measuring instrument used is unreliable. From the table above, the Cronbach's Alpha values for all variables > 0.6 are obtained. This means that the

measuring instrument used is reliable / can be trusted.

Testing Assumptions Classic Normality Testing

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Table 8 - Kolmogorof Smirnov table

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residuals
N		50
Normal	Means	,0000000
Parameters, b	std. Deviation	,22123857
Most Extreme	absolute	,064
Differences	Positive	.058
	Negative	-.064
Test Statistics		,064
asympt. Sig. (2-tailed)		.200c,d

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

Based on the table above, it can be concluded that all data is normally distributed. This is shown by the results of the Kolmogorov-Smirnov test which shows the Asymp Sig (2-tailed) value > 0.05, which is 0.200. So that the model meets the assumptions to be used as a multiple linear regression equation.

Heteroscedasticity Testing.

The impact that will occur if there is a heteroscedasticity condition is that it is difficult to measure the actual standard deviation, it can produce a standard deviation that is too wide or too narrow. If the error rate of the variance continues to increase, then the level of confidence will be narrower, to

detect heteroscedasticity or not, one of which is by looking at *scatterplot*. The basis for decision making according to Ghozali (2005: 107) is:

1. If there is a regular pattern on the chart, such as the dots that form above the regular ones (wavy, widens and then narrows) then it indicates that heteroscedasticity has occurred.
2. If there is no clear pattern, and the points spread above and below the number 0 on the Y axis, then heteroscedasticity does not occur.

The following is a scatterplot image of the structural model to determine whether or not heteroscedasticity occurs in this study:

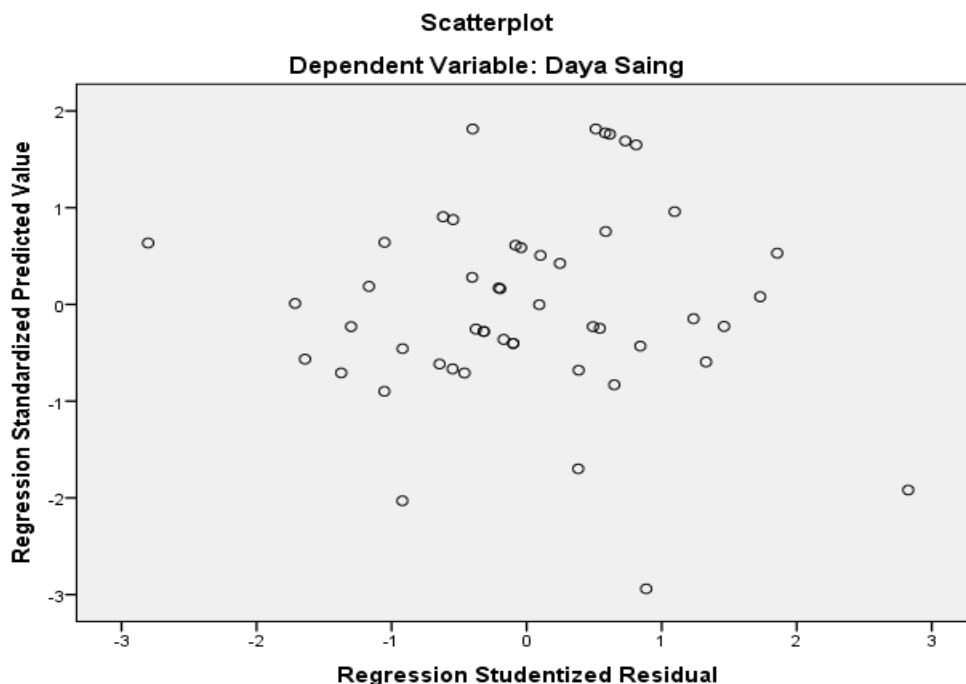


Figure 2 - Scatterplots

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From the Scatterplot image above, it can be seen that the dots do not form a particular pattern and spread randomly above and below the number 0 on the Y axis. Thus it can be interpreted that there is no

heteroscedasticity in the regression model of this study.

Multicollinearity Testing

Table 9 – Multicollinearity

Model	Collinearity Statistics	
	tolerance	VIF
1 (Constant)		
Learning	,720	1,389
Innovation	,627	1,594
Motivation	,170	5,891
Creativity	,167	5,990

a. Dependent Variable: Competitiveness

The multicollinearity test aims to determine whether there is a correlation between the independent variables in the regression model. The results of the study show that there is no correlation between the independent variables, this can be seen from the VIF

< 10. This means that the regression model is free from correlations between variables.

Multiple Linear Regression Equations

Table 10 - Multiple Linear Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	std. Error	Betas		
1 (Constant)	,803	,334		2,403	,020
Learning	-.064	,063	-.088	-1.020	,313
Innovation	,522	,076	,641	6,906	,000
Motivation	,327	,136	,431	2,414	,020
Creativity	,016	,149	,019	,106	,916

a. Dependent Variable: Competitiveness

Based on the table above, the regression equation can be described as follows:

$$Y = 0 + 1X_1 + 2X_2 + 3X_3 + e$$

$$Y = 0.803 - 0.064X_1 + 0.522X_2 + 0.327X_3 + 0.016X_4 + e$$

The meaning of the numbers in the regression equation above is as follows:

a. The constant value (a) is 0.803. This means that if the variables of Learning, Innovation, Motivation and Creativity are assumed to be zero

(0), then Competitiveness will increase by 0.803.

b. The learning variable regression coefficient value is -0.064. This means that if learning is increased by 1 unit, it will reduce competitiveness by -0.064 assuming other variables are constant.

c. The value of the innovation variable regression coefficient is 0.522. This means that if Innovation is increased by 1 unit it will increase Competitiveness by 0.522 assuming other

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- variables are constant.
- d. The regression coefficient value of the motivation variable is 0.327. This means that if motivation is increased by 1 unit, it will be able to increase competitiveness by 0.327 assuming other variables are constant.
- e. The regression coefficient value of the Creativity

variable is 0.016. This means that if Creativity is increased by 1 unit it will be able to increase Competitiveness by 0.016 assuming other variables are constant.

Coefficient of Determination Test (R2)

Table 11. - Determination Coefficient Test

Summary modelb

Model	R	R Square	Adjusted R Square	std. Error of the Estimate	Durbin-Watson
1	.870a	.757	.735	.23086	1,951

- a. Predictors: (Constant), Creativity, Learning, Innovation, Motivation
- b. Dependent Variable: Competitiveness

The test results of the coefficient of determination in this study with a value of 0.735 which means the Variables Learning, Innovation, Motivation and Creativity together can influence the Competitiveness variable by 73.50% and the

remaining 26.5% is influenced by other factors not examined in this study. this research.

F test

Table 12 – ANOVA

ANOVAa

Model	Sum Squares	df	MeanSquare	F	Sig.
1 Regression	7,462	4	1,865	35,000	.000b
residual	2,398	45	.053		
Total	9,860	49			

- a. Dependent Variable: Competitiveness
- b. Predictors: (Constant), Creativity, Learning, Innovation, Motivation

The processing results show that Fcount is 35.000 with a significance of 0.000. Ftable at a significant level of 5% can be obtained by the equation $n - k - 1$; $k = 50 - 4 - 1$; $5 = 45$; $5 = 2.425$ where n is the number of samples, k is the number of independent variables and 1 is the constant. Thus it is known that Fcount (35,000) > Ftable (2,425) with Sig.

(0.000) < 0.05. This means that the Variables Learning, Innovation, Motivation and Creativity together/simultaneously have a significant effect on Competitiveness.

Partial Regression Coefficient Test (T Test)

Table 13 - T test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	std. Error	Betas		
1 (Constant)	.803	.334		2,403	.020

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	GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Learning	-.064	,063	-.088	-1.020	, 313
Innovation	,522	.076	,641	6,906	,000
Motivation	,327	,136	,431	2,414	,020
Creativity	,016	,149	,019	,106	,916

a. Dependent Variable: Competitiveness

It is known that the t table value is at a significance level of 5% (2-tailed) with the following equation:

$$\begin{aligned}
 t \text{ table} &= n - k - 1: \alpha / 2 \\
 &= 50 - 4 - 1: 0.05 / 2 \\
 &= 45 : 0.025 \\
 &= 2.012
 \end{aligned}$$

description: n : number of samples
k : number of independent variables
l : constant

Results and Discussion

Learning, innovation, motivation and creativity simultaneously have a significant effect on increasing the competitiveness of women's SMEs.

Based on simultaneous testing of the four independent variables in this study, namely learning, innovation, motivation and creativity have a significant effect on increasing the competitiveness of women's SMEs. The results of the recapitulation of respondents' answers can be seen in Table 4.3. On average, the competitiveness of women's MSMEs in Pekanbaru City is high, but it cannot be said that they have very high competitiveness. There are still many things that must be considered to be improved to lead to MSMEs that have very high competitiveness.

Looking at the responses given by women business actors who do the cake business in Pekanbaru City, it is identified that the prices set are not the same as those of competitors. Business actors instead price the cakes produced below competitors, they assume that setting lower prices than competitors will be an attraction for consumers. It turns out that the business actor's suspicion is wrong that the consumer actually thinks that the cake offered is not as good as the one whose price is above that (more expensive).

The response given to the statement that food security was made could still be consumed within three days, it turned out that there were still those who answered no and were unsure. Although these answers varied, they clearly showed that they had not received a very good response from all respondents who were women entrepreneurs who run cake businesses in Pekanbaru City. From the answers given, it is analyzed that this business does not yet have high competitiveness in terms of the consumption period of the cakes produced. There are only 14 business actors who dare to admit that the cakes they produce last up to three days. The short consumption period of cakes

makes consumers think long and hard about buying in large quantities. Business actors should be more innovative about the products they are doing business,

Environmentally friendly packaging is also a consideration for most consumers in buying food, because consumers are certainly more health oriented than foodjust taste. Based on the respondents' answers, only 12 business actors confirmed that the cakes they produced were wrapped in environmentally friendly packaging. It turned out that there were still business actors who had not thought at all towards using environmentally friendly packaging because it was expensive and they were afraid the cakes they produced would not sell, because the selling price which will certainly take into account the price of packaging.

When asked about the variety of food produced by business actors, there were still those who answered not much, and some even only focused on one type of cake. The decision to produce only one type of cake actually has pluses and minuses in business. The added value is that business actors can be more focused and continue to be able to convince consumers that the cakes they produce taste better than competitors. A minus value will be received when the business actor is inconsistent in taste, so that consumers will turn to competitors. This is when business actors will be confused because consumers have turned away from their business, while there is no other type of cake business that will be offered. If business actors quickly think strategically, their business will be helped, but if not, it will take a long time for business actors to convince consumers.

Respondents answered with the highest average score on statements related to the food produced in accordance with the trend of consumer tastes. These answers indicate that business actors are always consumer-oriented and follow current trends, such as the use of various toppings on cakes sold, attractive garnishes, dough made softer with flavors that are attractive to consumers.

Looking at the validity value of the competitiveness variable, the highest value is in the amount of food produced. The assumption is that more and more variations of food are produced, of course, it will increasingly encourage high competitiveness. The descriptive results show that the highest value is in fact the trend of consumer tastes. For the variety of food produced in the descriptive analysis is only in the second rank. The difference in the highest scores in

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the descriptive analysis and the results of the validity test, the researcher concluded that the results of the validity test should have been guided by business actors in order to make various variations for the cakes they produce, so that consumers have choices about the food business in the form of cakes offered.

Learning has a significant effect on increasing the competitiveness of women's SMEs.

The results of the statistical test explained that one of the ways to increase the competitiveness of SMEs was supported by learning. For business actors, learning is very important, because learning is basically not only oriented towards increasing abilities but includes broader aspects related to values and behavior in facing business challenges to obtain opportunities with various risks faced. The learning carried out can develop the business acumen of business actors.

Based on the results of the recapitulation of respondents' answers, on average the learning variable has a value of 3.7, which means that there are business actors who are oriented towards learning in business, but some are still not so they do not understand the importance of learning better. Their unwillingness to learn will clearly make the business they are engaged in far behind their competitors. The hope of being able to seize competitive advantage by being able to compete with other businesses is very doubtful.

The value with the highest response for the learning variable is in the statement "followed learning has added value for improving existing products". This means that the business actor really understands the benefits of the learning involved, but it is regrettable that only 8 respondents really feel the high benefit of learning followed. The rest are mediocre and some even hesitate to say that there is added value from the learning.

On the results of the validity test the highest value is also on the same indicator as the descriptive analysis. The synchronization of the highest score obtained between the descriptive analysis and the validity test indicates the importance of learning for business actors. However, not all respondents followed it, even if there were those who did they did not look serious. There are still respondents giving responses that do not agree that learning can add new knowledge, learning is able to provide added value and discover new ways of learning that are followed. Drucker (2014) said that entrepreneurship is a work practice that is based on concepts and theories, not intuition. Entrepreneurship can be studied and mastered in a systematic and planned manner. So if business actors do learning seriously, it is impossible not to acquire the knowledge needed in business. Zimmerer (2018) interpret entrepreneurship as a process of applying creativity and innovation in solving problems and determining opportunities to improve business life.

Innovation has a significant effect on increasing the competitiveness of women's SMEs.

The test results show that innovation has a significant effect on the competitiveness of SMEs. One of the keys to increasing competitiveness is by encouraging the pace of innovation. This theoretical statement is not easy to implement, because innovation is not something simple. Innovating is important but not easy, especially for organizations that have a disease with the same symptoms, namely low competitiveness. Several factors need to be addressed to increase the competitiveness of MSMEs such as; increasing productivity and innovation, ease of doing business, access to capital, market access, infrastructure support, business cycle. Because innovation is one of the factors in increasing competitiveness, it should be noted that internally innovation is influenced by factors originating from individuals, such as control centers, tolerance, values (values), education and experience. Factors originating from the environment include role models, activities and opportunities. Thus it can be said that innovation develops into entrepreneurship through a process that is influenced by the organizational and family environment. In order for MSMEs to be competitive, entrepreneurial values such as; creativity, innovation, courage to take risks, enthusiasm and never give up as well as optimism and responsibility need to be instilled in business actors. The key to success in innovation is having a clear concept, integration of various learning innovations, openness, synergy between all elements. Thus it can be said that innovation develops into entrepreneurship through a process that is influenced by the organizational and family environment. In order for MSMEs to be competitive, entrepreneurial values such as; creativity, innovation, courage to take risks, enthusiasm and never give up as well as optimism and responsibility need to be instilled in business actors. The key to success in innovation is having a clear concept, integration of various learning innovations, openness, synergy between all elements. Thus it can be said that innovation develops into entrepreneurship through a process that is influenced by the organizational and family environment. In order for MSMEs to be competitive, entrepreneurial values such as; creativity, innovation, courage to take risks, enthusiasm and never give up as well as optimism and responsibility need to be instilled in business actors. The key to success in innovation is having a clear concept, integration of various learning innovations, openness, synergy between all elements. Enthusiasm and never giving up as well as optimism and responsibility need to be instilled in business actors. The key to success in innovation is having a clear concept, integration of various learning innovations, openness, synergy between all elements. Enthusiasm and never giving up as well as optimism and responsibility need to be instilled in business actors. The key to success in innovation is having a clear concept, integration of various learning innovations, openness, synergy between all elements. Enthusiasm and never giving up as well as optimism and responsibility need to be instilled in business actors.

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The key to success in innovation is having a clear concept, integration of various learning innovations, openness, synergy between all elements.

Based on the descriptive analysis of the respondents' answers to the indicators asked, on average, it illustrates that the business actors who were sampled in this study seemed to have been innovative in running a business, such as the existence of creations in the cake toppings that were produced, even with various flavors and shapes. . Innovation in packaging and how to market products. However, not all who implement it and those who have tried to innovate turn out to be many who are desperate and start not thinking towards innovation anymore with various obstacles.

Judging from the acquisition of scores per indicator for the innovation variable, the highest score is on the product development indicator with the statement "I always implement ideas for product development". This statement received the highest response from other indicators with a value of 4.2. However, it has not yet reached the highest score in the standard, which is a value of 5. Here it is indicated that there are still respondents who are doubtful about the innovations made because they have not felt significant added value for business actors. In contrast to the validity value, the indicator with the highest score is in the production process with the statement "I often create better existing production processes. This difference is huge interesting to analyze, because in the descriptive results the highest value on the validity value is actually the lowest value in the recapitulation of the respondents' answers descriptively. Observing these differences in results, so that innovation can continue to be implemented, business actors are asked to be more creative in production and doing business.

Motivation has a significant effect on increasing the competitiveness of women's SMEs.

Statistical test results prove that motivation has a significant effect on increasing the competitiveness of SMEs. Descriptively based on the recapitulation of respondents' answers, the average respondent's response to the motivational variable is very high with a value of 4.2. The highest first indicator is answered in the statement "the desire to enter the business world arises from high self-motivation" in line with the highest value of validity also being in the first indicator. Synchronizing the highest score in the descriptive analysis and validity test indicates that the business actor does have motivation that comes from within himself to become a business actor. The main motive is clear economic motive, but based on research by Hendriani et al (2017) explains that motivation alone is not enough to improve business performance, without being strengthened by the entrepreneurial spirit within the business actor.

Analyzing the results of this study, high motivation has not been able to increase competitiveness.

The second highest indicator with the same average acquisition of 0.855 is in the value of the value in the second statement "Being a business actor is my goal" for this statement even though it is on average the highest validity value, but in descriptive analysis it is actually a value Lowest. From the distribution of answers, there were those who responded that they disagreed and doubted the statement. Based on the descriptive value obtained, it can be concluded that being a business actor is not the goal of all business actors who are respondents in this study. In contrast to the results of the validity value which demands that in order to become a business actor one must aspire, to be more motivated and able to face challenges and be able to see business opportunities well.

Creativity has a significant effect on increasing the competitiveness of women's SMEs.

Based on the results of statistical tests, creativity has a significant effect on increasing the competitiveness of SMEs. On average, the respondents' responses were very high with a value of 4.3 but had not yet reached the highest standard value, namely 5. This was of course due to the fact that there were still respondents who doubted their own creativity and some even answered disagree when asked about creative ideas arising from their own thoughts. This means that the business actor admits that he is not creative and gets creative ideas from other people.

The highest indicator in the recapitulation of respondents' answers with a value of 4.5 is in the statement "I always strive for high achievements" but contrary to the acquisition of a validity value, the results look low on this indicator. In the validity test, the highest score is indicator X4.3, where the statement "creative ideas come from the minds of business actors themselves". This difference certainly directs that if business actors want to increase their competitive advantage, they must be creative in doing business.

To be a creative person is actually not difficult. Business actors are not only advised to fantasize, but must be able to find ways to make it happen. When imagining snacks with unique flavors, you should immediately try to make them. There is no need to think about failing, the important thing is there is a will to try. Apart from that, to be creative, business actors can try something ordinary in a way different. Creative people usually like to discuss, exchange opinions or thoughts with others. Besides that, he reads a lot both from books, print and online media. The key is to be creative, business actors must add a lot of knowledge about the business they are engaged in in order to find creative ideas.

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Conclusions And Suggestion

Conclusion

1. Learning, innovation, motivation and creativity simultaneously have a significant effect on increasing the competitiveness of women cake business SMEs in Pekanbaru City. On average, the competitiveness of the cake business in the city of Pekanbaru is still low. Business actors still do not understand pricing and how to make food more durable, besides that the variety of types of food that they do business is still limited.
2. Partially learning has a significant effect on increasing the competitiveness of women's SMEs. Based on the recapitulation of the respondents' answers, it can be concluded that only a few business actors have attended lessons related to their business.
3. Partially, innovation has a significant effect on increasing the competitiveness of women's SMEs. Regarding the indicators asked, the average business actor has tried to innovate, but has not been able to drive an increase in competitiveness.
4. Partially, motivation has a significant effect on increasing the competitiveness of women's SMEs. Looking at the answers given by respondents in Table 4.6, the average motivation to do business is high among business actors. However, it has not been able to increase its business competitiveness.
5. Partially, creativity has a significant effect on increasing the competitiveness of women's SMEs. Creativity is also on average high among these business actors, but sometimes their creative ideas come from other people's thoughts which are difficult to implement.

Suggestion

1. The competitiveness of the cake businessmen can be increased by learning. Especially regarding product pricing according to quality and other supporting elements attached to the product. Learning how to make food more resistant, for example storing it in the right way, paying attention to the types of ingredients used, the correct mixing technique, cleanliness of equipment, the right cooking process. In addition to that, the variety of types of food that are in business must also be considered so that consumers shop loyally and are satisfied because there is a choice of various types of cakes from one manufacturer. The diversity of types of cakes produced by a producer is very helpful for consumers in fulfilling the needs of each important agenda and this is an opportunity for producers.

2. To make it easier for us to learn how to make cakes, we can use YouTube, take classes on managing a cake business which are often made by many businessmen of raw materials and cake equipment, attend special training for cake businesses held by national level cake business experts. You can also learn on your own. by buying cake recipe books. Apart from that, it is also necessary to learn to manage business finances, usually academics often share knowledge of managing business finances in community service programs.
3. To innovate, business actors must know customer needs, conduct tests on new products, develop products according to market desires, implement appropriate marketing strategies and conduct evaluations whose purpose is to find out the advantages and disadvantages of sales that have been made. If there are advantages, then it is necessary to maintain the advantages. the. But if you feel there are still deficiencies, immediately to fix it. Thus the business will continue to run even though business competition is getting tougher, especially in the culinary business of food products such as cakes.
4. Motivation in running a business will come back to the business actors themselves, because no matter how many people from outside ourselves provide motivation so that we are active in doing business, it will still not succeed in making us successful. For this reason, business actors must have high confidence, because belief is the basis of our motivation in starting a strong business. Learn success from inspirational stories, don't procrastinate, focus and be consistent, if business people focus on planned goals and achievements and do business consistently, you can be sure that the business will go according to plan. The success obtained will motivate us to achieve higher results.
5. Entrepreneurs need to have creative ideas, creativity will emerge in a person when the body and mind are relaxed and relaxed, then explore what we think and start imagining, the next step is to start learning and looking for references. This will support creativity. forget to communicate your ideas to other parties, in essence, you have to socialize with lots of people. From the socialization that is carried out, it will inspire us to do something that can be done. When the idea comes, write it down properly and then improvise. There are many examples of creative ideas in the cake business that have brought successful business actors such as; dessert boxes, cinnamon rolls, bitterballen, noodle balls, brownies with various toppings, silky pudding and many other examples.

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References:

- (2009). Central Jakarta Statistics Agency, 2009. Guidelines for 2009 National Labor Force Survey Data Collection. Central Jakarta: Central Statistics Agency.
- Bui, M., & Long, T.Q. (2021). Women's Economic Empowerment in Vietnam: Performance and Constraints of Female-Led Manufacturing SMEs. *Journal of Risk and Financial Management*, 14(6), 255.
- Drucker, P.F. (2014). *Innovation and Entrepreneurship: Practice & Basics*, Jakarta: Erlangga.
- Elfahmi, S.H., & Jatmika, D. (2019). The effect of innovation on smes class up through product competitiveness: (Study of UKM Culinary Rahajeng Catering Pati and Indoburger Rembang). *Media Mahardhika*, 17(3), 481-487.
- Hendrawan, A., Kuswantoro, F., & Suahyawati, H. (2019). Dimensions of Creativity and Development of Micro, Small and Medium Enterprises (MSMEs). *Journal of HUMMANSI (Humanities, Management, Accounting)*, 2(1).
- Hussein, O. (2009). *Research Methods for Business Thesis and Thesis 11th Edition*. Jakarta: PT Raja Grafindo Persada.
- Robbins, S.P., & Coulter, M. (2012). *Management, Eleventh Edition, (United States of America: Pearson Education Limited)*.
- Sekaran, U. (2006). *Business Research Methods*. Jakarta: Salemba Empat.
- (2003). *Law No. 20 of 2003 concerning the National Education System article 1 paragraph 20*.
- Zimmer, W., Scarborough, T.M., & Doug, N.-W. (2008). *Entrepreneurship and Small Business Management*, Jakarta: Salemba Empat.

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BUMD PERFORMANCE OPTIMIZATION IN RAISE IF ORIGIN REVENUE (PAD) ROKAN HILIR DISTRICT

Abstract: The study's goal was to pinpoint the internal and external components of the Rokan Hilir Regency BUMD and develop priority plans for enhancing the BUMD's performance toof the study was to pinpoint the internal and external components of the Rokan Hilir Regency BUMD and develop priority plans for enhancing the BUMD's performance order to raise Rokan Hilir Regency PAD. Analyzing BUMD conditions was done at the research site in Rokan Hilir Regency. By identifying BUMD issues in Rokan Hilir Regency and developing methods to improve BUMD performance to raise Rokan Hilir Regency PAD, this research employed a qualitative methodology. The study's findings demonstrate that BUMD's strengths include its (1) highly important business location; (2) robust capital aspect; (3) supported by technology; and (4) enormous natural resource potential. Weak BUMD management, a disproportionate number of workers, a lack of innovation and product development, and a lack of oversight are among the reasons that contribute to weakness. While the opportunity considerations include the following: (1) the post-Covid-19 economic recovery on a global, national, and regional level; (2) potential commercial alliances with other parties; (3) policy support from the Rokan Hilir Regency Government; and (4) widespread acceptance of BUMD. The threat factors also include (1) shifts in the price of palm oil, which reduces people's purchasing power; (2) leadership changes at regional levels and political pressure from outside BUMD; (3) business rivals supported by qualified human resources and superior technology; and (4) the inability of BUMD human resources to keep up with the rapid pace of technological advancement. In quadrant, I, the primary plan for enhancing BUMD performance is located.

Key words: BUMD, PAD, Strengths, Weaknesses, Opportunities, Threats and Priority Strategy.

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Introduction

Local governments must be autonomous in governing their territory and rely on their regional income to fund regional development. The amount of the budget posture derived from central transfer funds demonstrates that the administration still lacks financial autonomy when it comes to supporting regional development. Because of this, local governments must be able to investigate prospective regional funding sources, including tax revenues, levies, and segregated regional wealth management. According to Luigi et al. (2017), the ability of local governments to grow regional revenues sustainably a sustainable manner by utilizing current sources of income cost-effectively and efficiently a cost-effective and efficient manner to achieve regional income is seen as a sign of the success of achieving regional revenue.

The Republic of Indonesia enacted Law of the Republic of Indonesia Number 1 of 2022 concerning Financial Relations between the Central Government and Regional Governments, which governs the financial rights and obligations between the central government and regional governments, and ensures that they are carried out in a fair, transparent,

accountable, and in line with the law manner. In addition, the creation of this Law was motivated by the desire to enhance howway in which the Financial Relations between the Central Government and Regional Governments have been implemented, which have so far been governed by Law Number 33 of 2004 concerning Financial Balance between the Central Government and Regional Governments and Law Number 28 of 2009 regarding Regional Taxes and Regional Levies.

Tax restructuring is governed by Law of the Republic of Indonesia No. 1 of 2022, which combines five different consumption-based tax types into one tax known as the Certain Service Goods Tax (PBJT). In addition, there is a reduction in the number of service types subject to simplified costs from 32 (thirty-twotwo) types to 18 (eighteen) types.

It is feared that if the regional government does not take PAD seriously, it may result in a decline in regional income, particularly for Rokan Hilir Regency. Optimizing the performance of Regional Owned Enterprises (BUMD) in raising regional income is one of the ways the Rokan Hilir Regency Government can work to increase PAD.

Table 1. Realization of Local Own Revenue for Rokan Hilir Regency in 2017-2021

PAD type	2017	2018	2019	2020
Local tax	37,116,230,874	43,740,931,971	48,840,433,205	42,660,000,000
Regional Retribution	2,689,755,911	3,011,857,392	1,714,832,764	2,212,041,730
Results of Separated Regional Wealth Management	11,115,014,585	11,783,403,762	10,204,179,999	7,388,531,529
Other Legitimate Local Original Revenues	147,423,031,267	49,399,438,147	55,424,151,122	69,877,297,000
PAD	198,344,032,638	108,070,867,121	116,183,597,091	122.137.870.259

Source: BPS Rokan Hilir Regency, 2022

The realization of PAD revenue for the Rokan Hilir Regency is Rp.198,344,032,638, down from Rp.108,070,867,121 in 2018 and up from Rp.122,137,870.259 in 2020. With a contribution of 57.21% of PAD, Other Legitimate Local Revenue represents the main source of PAD for Rokan Hilir Regency in 2020. The Regional Tax has a contribution of 34.93% of PAD and is worth Rp. 42,660,000,000. The Separated Regional Wealth Management's earnings, which made up a portion of the regional income from the return on equity participation in BUMD, came to Rp. 7,388,531,529 with a payment of 6.05% to PAD.

The minimal contribution of BUMD to PAD demonstrates that BUMD's performance in promoting an increase in PAD in Rokan Hilir Regency is still subpar. The Ministry of Home Affairs established a mechanism to create BUMDs, which are business entities whose capital is entirely or primarily owned by the Region. This mechanism aims to ensure that BUMDs always give the principles of Good Corporate Governance top priority when conducting their business so that in the future they will be able to contribute to raising PAD and boosting the local economy.

PD Sarana Pembangunan Rokan Hilir, which sells fuel oil to the general public, and PT. BPR Rokan

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Hilir (Perseroda), which conducts banking, is the two BUMDs now operating in the Rokan Hilir Regency. Table 1 shows the results of independent regional wealth management, which are still quite low, only making up about 6.05% of the Rokan Hilir Regency's overall PAD. This is not in line with how much potential there is in the area.

With a production of 50,643 tons of marine capture fisheries, 2,623 tons of aquatic fisheries, and 53,266 tons of capture fisheries in 2021, the Rokan Hilir Regency has a lot of natural resource potential. Regarding the plantation industry, it will consist of 24,534 hectares of rubber and 194,354 hectares of oil palm in 2021. With a contribution to GRDP of 34.49%, the downstream Rokan Regency also has excellent mining potential in 2021. In addition to the likelihood of numerous potential natural tourist attractions, historical tourism, religious tourism, and other artifacts (BPS Riau Province, 2022).

To support regional development and play a significant part in delivering PAD to Rokan Hilir Regency, it is imperative to maximize the performance of strong BUMDs given the region's enormous potential that has not been managed well.

In order to maximize BUMD performance in order to increase PAD of Rokan Hilir Regency, the research aims to identify internal and external components of BUMD Rokan Hilir Regency.

Literature Review

Regional Owned Enterprises are one of the key economic entities in the implementation of regional autonomy, which aims to enhance community welfare and participate in helping local governments provide sources of financing for the regions. The creation of BUMD, according to Law Number 23 of 2014 Concerning Regional Government, intends to give the broadest benefits for regional economic development through (Widodo, 2021). Lock it BUMD contributes to regional financing through both company profit sharing and tax revenue.

The regional government, which is characterized by all or most of the capital being controlled by the region, owns BUMD. Therefore, it is envisaged that the establishment of BUMD will be able to help the government encourage the level of community welfare and be able to deliver added value to the region in the form of regional profit sharing that can be used as a source of development finance (Samidi, 2021).

According to research by Safira and Yafiz (2022), the contribution of BUMD (in this case profit) to PAD in North Sumatra Province is Rp. Billion Rupiah 5,911.15 or 11.06% of the total PAD, indicating that the significance of BUMD in regional income is still relatively minor. Suwardi and Prasetyo (2018) discovered that the Central Java Province's BUMDs' contribution to dividends is less than 5% of the total dividends paid out by BUMDs.

The low performance of BUMD as a result of BUMD's internal and external issues is the cause of BUMD's limited contribution to regional income. According to research by Sukmana and Firmansyah (2014), BUMD faces two types of issues: internal issues stemming from directors' still-untested competence and organizational tools that aren't complete, and external issues caused by too much legislative or executive intervention that affects BUMD's performance.

Research Methods

The research was done in the Rokan Hilir Regency by doing a thorough analysis of the functioning of the BUMD that would be implemented in 2022. By carefully examining the BUMD issues in Rokan Hilir Regency and developing a BUMD development strategy to support a rise in Rokan Hilir Regency's PAD, this research applied a qualitative methodology. Additionally, secondary data from BPS publications, Rokan Hilir Regency OPD, and scientific paper publications from national and international journals are used to support this research.

In answering research problems and formulating strategies for improving BUMD performance in encouraging an increase in PAD in Rokan Hilir Regency, the SWOT analysis method is used to identify internal aspects that can become a source of strengths or weaknesses in BUMD performance and identify external aspects that can be a source of potential or threats to optimizing BUMD performance. Rokan Hilir Regency in the future. The results of identification of internal and external aspects of BUMD are used as the main consideration in formulating a BUMD development strategy in increasing PAD of Rokan Hilir Regency.

Results and Discussion

Focus Group Discussions (FGDs) led by researchers and BUMD management were used to identify internal and external features of the BUMD of the Rokan Hilir Regency, specifically PD. Spiritual Development Suggestions (SPR) and PD. Rohil's Rural Credit Bank (BPR).

The internal strategic elements, which include the strengths and challenges the BUMD faces in managing the business, can be used to determine the internal conditions of the BUMD in Rokan Hilir Regency. The IFAS (Internal Factors Analysis Summary) table is used to identify internal factors. Finding internal strategic components led to the identification of four strengths and four weaknesses. The priority of the difficulties and strengths possessed by the BUMD is then determined by assigning a rating and weight to these strengths and weaknesses. Table 2 displays the findings of the internal BUMD aspect analysis.

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
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Table 2. Identification of Internal Aspects of Rokan Hilir Regency BUMD

No	Key Internal Factors	Weight	Ratings	Weighted Score
A Strengths				
1	BUMD's business location is quite strategic	0.12	3	0.36
2	The aspect of capital is quite strong	0.13	4	0.52
3	Powered by technology	0.12	4	0.48
4	Great natural resource potential	0.13	3	0.39
B Weaknesses				
5	Weak BUMD management	0.13	2	0.26
6	Disproportionate number of employees	0.12	1	0.12
7	Limited innovation and product development	0.12	2	0.24
8	Lack of supervision	0.13	1	0.13
Total IFE Score		1.00		2.50

Source: Processed Data (2022)

The four internal strength elements of BUMD are as follows: (1) The company's business location is very strategic; (2) The capital aspect is pretty strong; (3) Supported by technology; and (4) There is a significant potential for natural resource development. The four areas of weakness for the BUMD are as follows: (1) Weak BUMD administration; (2) An unwieldy workforce; (3) Limited product development; and (4) A lack of oversight.

By identifying the external strategic components of BUMD, which comprise the company's opportunities and dangers, the outcomes of

recognizing the external features of BUMD in Rokan Hilir Regency may be determined. The EFAS (External Factors Analysis Summary) table is used to identify external elements of BUMD. Four opportunity factors and four threat factors were identified as a result of the identification of external strategic elements. The rating and weight of the opportunity and threat components are then assigned, and a total score is computed to determine the priority of the opportunities and dangers that belong to the BUMD. Table 3 displays the findings of the examination of BUMD's external aspects.

Table 3. Identification of External Aspects of BUMD Rokan Hilir Regency

No	Key External Factors	Weight	Ratings	Weighted Score
A Opportunities				
1	Global, national and regional economic recovery after Covid-19	0.13	3	0.39
2	Potential business partnerships with various parties	0.13	4	0.52
3	Policy support from the Government of Rokan Hilir Regency	0.13	4	0.52
4	Community acceptance of BUMD	0.12	3	0.36
B Threats				
5	Fluctuations in the price of palm oil have weakened people's purchasing power	0.12	1	0.12
6	Regional head leadership transition as well as political pressure from outside BUMD	0.12	2	0.24
7	Business competitors supported by professional human resources and better technology	0.13	1	0.13
8	Rapid technological developments are not matched by the readiness of BUMD human resources	0.12	2	0.24
Total EFE Value		1.00		2.52

Source: Processed Data (2022)

The Rokan Hilir Regency's opportunity factor for BUMD is composed of four opportunity factors: (1) the post-Covid-19 economic recovery on a global,

national, and regional scale; (2) potential business alliances; (3) policy support from the Rokan Hilir Regency Government; and (4) public acceptance of

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BUMD. The four threat factors for BUMD are as follows: (1) Variations in palm oil prices that reduce people's purchasing power; (2) Regional head leadership changes and outside political pressure; (3) Business rivals supported by qualified human

resources and superior technology; and (4) The rapid development of technology is not matched by the readiness of BUMD human resources. Table 4 shows the outcomes of the BUMD optimization technique in raising the PAD of Rokan Hilir Regency.

Table 4. BUMD Performance Optimization Strategy in Increasing PAD Rokan Hilir Regency

INTERNAL FACTORS	Strengths(S)	Weaknesses(W)
		<ol style="list-style-type: none"> 1. BUMD's business location is quite strategic 2. The aspect of capital is quite strong 3. Powered by technology 4. Great natural resource potential
EXTERNAL FACTORS	SO strategy	WO strategy
Opportunities(O)		
<ol style="list-style-type: none"> 1. Global, national and regional economic recovery after Covid-19 2. Potential business partnerships with various parties 3. Policy support from the Government of Rokan Hilir Regency 4. Community acceptance of BUMD 	<ol style="list-style-type: none"> 1. Development of new business units in accordance with regional potential 2. BUMD product innovation and development 3. BUMD institutional reform 4. Build business partnerships with companies 5. Market diversification 	<ol style="list-style-type: none"> 1. HR capacity strengthening 2. Efficiency in the number of human resources according to the workload needs of BUMD 3. Strengthening supervision of BUMD performance
Threats(T)	ST Strategy	WT Strategy
<ol style="list-style-type: none"> 1. Fluctuations in the price of palm oil have weakened people's purchasing power 2. Regional head leadership transition as well as political pressure from outside BUMD 3. Business competitors supported by professional human resources and better technology 4. Rapid technological developments are not matched by the readiness of BUMD human resources 	<ol style="list-style-type: none"> 1. Building coordination with stakeholders especially local government. 2. Strengthening venture capital from local government. 3. Development of BUMD that is more competitive, transparent, accountable and independent 	<ol style="list-style-type: none"> 1. Information technology-based HR training 2. Increasing competitive work culture through clear compensation, promotion and career development. 3. Potential new market search.

Source: Processed Data (2022)

The Rokan Hilir Regency BUMD development strategy is comprised of four strategies: (1) Strength and Opportunity (SO) is used to capture and take advantage of opportunities owned by BUMD by maximizing its internal strengths; (2) Weakness and Opportunity (WO) is used to improve or fix BUMD's weaknesses so they can take advantage of or take existing opportunities; and (3) Strength and Threat (ST) is used to reduce or minimize BUMD threats by utilizing the organization's internal strengths.

The optimal BUMD performance in raising the PAD of Rokan Hilir Regency can be achieved by weighing and grouping internal and external factors (Tables 2 and 3), developing strategies (Table 4), and determining strategic priority positions through the calculation of space matrix coordinate points to determine positions quadrants on SWOT analysis. Table 5 lists the outcomes of determining the space matrix's coordinates.

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Table 5. Space Matrix Coordinate Points

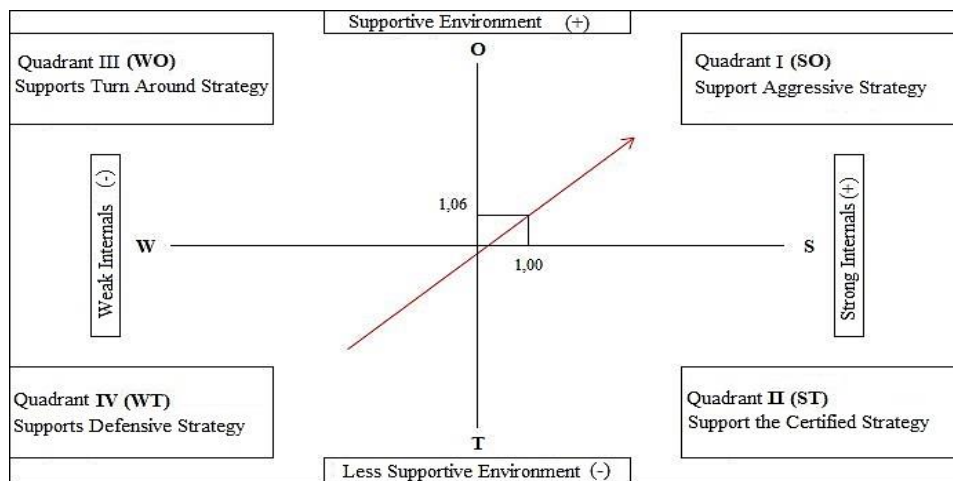
No	Internal Factor	Total Score
1	(+) Strengths	1.75
2	(-) Weaknesses	0.75
IFAS Coordinate Point		1.00

No	External Factors	Total Score
1	(+) Opportunities	1.79
2	(-) Threats	0.73
EFAS Coordinate Point		1.06

Source: Processed Data (2022)

The scores from the IFAS and EFAS analysis results are added up to determine the coordinate points on the space matrix. As a result, it is discovered that

Figure 1 describes the priority diagram for the BUMD optimization technique in boosting PAD for Rokan Hilir Regency.



Source: Processed Data (2022)

Figure 1 - Diagram of the Priority Strategy for Optimizing BUMD Performance in Increasing PAD of Rokan Hilir Regency

In Quadrant I, the method for maximizing BUMD performance in raising PAD for Rokan Hilir Regency is depicted as a priority diagram. This is a very advantageous position where BUMDs for Rokan Hilir Regency can able to maximize their internal strengths to overcome weaknesses and reduce risks in to order to take advantage of current chances. Supporting strategic policies in an inclusive, collaborative, and aggressive manner is the strategic priority in this quadrant (growth-oriented oriented strategy).

The following are the top strategies for maximizing BUMD performance in boosting the PAD of Rokan Hilir Regency: (1) Creating new business units that are in line with regional potential; (2) BUMD product innovation and development; (3) BUMD institutional reform; (4) Forming business

alliances with corporations; and (5) Market diversification.

Development of New Business Units in Accordance with Regional Potentials

The Rokan Hilir Regency is a region with abundant natural resources for fishing, including catch-and-release, marine capture, and freshwater fishing. The fishing industry offers Rokan Hilir Regency BUMD a wealth of business opportunities, from selling fresh fish to canning fish to processing derived food items to producing pharmaceuticals.

The potential for purple taro in the agricultural sector includes a planting area of roughly 450 ha in Sinaboi District, Rokan Hilir Regency. With an average production of 25 to 30 tonnes per ha, purple taro has between 25,000 and 30,000 stems per ha. Currently, Rokan Hilir Regency's purple taro output is

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sold to Malaysia and Singapore (DPMPTSP Riau Province, 2022).

Another possibility is that many people who are dispersed throughout the District grow the pineapple potential in Rokan Hilir Regency. Products made from pineapples include pineapple jam, pineapple syrup, and pineapple dodol. Due to Rokan Hilir Regency's high production capacity and the nearby region of Dumai City's output, which will reach 450,945 quintals in 2021, the pineapple product processing sector still has a bright future for growth. This will help to solve the issue of the scarcity of raw materials (BPS Riau Province, 2022).

Oil palm farms with a 194,357 ha plantation area and a yield of 511,349 tons in 2021 are among the plantations with the most potential in Rokan Hilir Regency. Plant nurseries, palm oil factories, cooking oil, and other palm oil derivative sectors all have potential for business growth (BPS Riau Province, 2022).

Additionally, Rokan Hilir Regency has excellent mining potential, contributing 34.49% of GRDP in 2021. (BPS of Rokan Hilir Regency, 2022). The Rokan Blocks, located in the six districts of Rantau Kopar, Tanah Putih, Tanah Putih Tanjung Melawan, Rimba Melintang, Bangko Pusako, and Kubu, are where the Rokan Hilir Regency's petroleum potential is located.

BUMD Product Innovation and Development

For BUMD, product development and innovation Rokan Hilir Regency must continue because of the rising degree of business competition, which necessitates that BUMDs create and innovate products to order to succeed and survive in the market and ensure the sustainability of the firm in the long run. Rapid product creation and innovation are also necessary due to the quick changes in consumer tastes and needs.

Dewi, Indrayasi, and Tripalusi (2019) demonstrate how innovation is crucial for product development and boosting firm competitiveness through the creation of goods that are distinctive in terms of design, theme, and product caliber in order to pique customers' attention. Businesses who adopt cost innovation successfully will be able to endure in the face of fierce market competition. According to research by Lestari, Budianto, and Setiawan (2020), offering distinctive product designs and a variety of product choices based on needs will promote greater consumer interest in products. This is in line with the idea that innovation has a significant impact on enhancing company performance.

BUMD Institutional Reform

The goal of BUMD institutional reform is to improve internal conditions so that BUMD can maximize opportunities and reduce risks. The only option to raise the caliber and effectiveness of

BUMD—which includes enhancing institutional management and boosting HR capacity—is through institutional reform.

According to Cahyaningrum (2018), many BUMDs still rely on the Regional Expenditure Budget (APBD) to manage their operations. This is primarily because BUMD is managed in an unprofessional manner, which negatively affects the management's ability to generate an operating profit. Because of this, BUMD governance must adhere to the GCG (Good Corporate Governance) standards for BUMD performance to be at its best.

Magalhaes (2021) asserts that establishing good corporate governance (GCG) through three crucial elements—reviving human resources, fostering an entrepreneurial spirit, and corporate culture—is how to improve BUMD's performance. The use of GCG will help the company's financial performance, reduce current risks, be better prepared to take advantage of current possibilities, and gain a competitive advantage. Additionally, for BUMDs to be expected to be able to compete with larger economic sectors, efforts must be made to enhance HR professionalism in managing BUMDs.

Muryanto's (2014) research revealed that there are two models for the GCG implementation in BUMD. Independent self-management is the initial model of GCG implementation. In this situation, the government, which is a shareholder in BUMD, can become involved by enacting local regulations that are in line with the management strategy for BUMD. The second model for GCG implementation takes the shape of an integrated holding company.

In the meantime, Sukmana and Firmansyah (2014) demonstrate that there are two groups of solutions for dealing with BUMD issues: (1) internal solutions, such as increasing the selectivity of hiring directors and creating strong BUMD business plans; and (2) external solutions, such as restricting executives' and legislators' ability to interfere with local government regulations and conducting routine audits.

Building Business Partnerships with Companies

To help BUMD increase market access and strengthen BUMD business continuity, the BUMD collaboration plan must be implemented. According to Yurianto (2021), the partnership strategy is the best one for fostering greater stakeholder collaboration.

Opportunities for partnerships in PD. There are many prospects for collaboration between SPR Rokan Hilir and other businesses, notably the Rokan Block WK. It is vital to work closely in conjunction with PT. Pertamina Hulu Rokan's management because of this. To order to facilitate cooperation with PT. Pertamina Hulu Rokan is also required to work with other businesses on the preparation of civil drilling infrastructure. The CPP Block WK, an oil and gas

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block controlled by the Siak Regency BUMD, PT. Bumi Siak Pusako (BSP), and PT. Pertamina Hulu, which is run through the Joint Operating Agency (BOB), with 50%: and 50% interests, respectively, presents another potential for partnership. On August 8, 2022, however, PT. Bumi Siak Pusako The Damar Area, which is part of CPP Block WK, is located in Rokan Hilir Regency. However, the Damar Area has never been operated since the transition of management from PT. Chevron Pacific Indonesia (CPI) to PT. BSP-PT. Pertamina Hulu in 2002, therefore there will be tremendous prospects for partnership with PT. Bumi Siak Pusako and PD. Rokan Hilir Development Facility in the future.

A collaboration with fintech lending is one of the alternatives for partnership and cooperation that PD. BPR Rokan Hilir might pursue this order to access a larger market potential. Order to carry out this kind of collaboration, a channeling scheme is used, specifically fintech lending using its platform to help BPRs channel credit to borrowers. The BPR serves as a source of lending funding under this arrangement. In addition to reporting loan approvals and delivering funds to supervision, fintech lending plays a role in completing assessments. The BPR assumes credit risk. Meanwhile, BPRs, in conjunction with referral programs, directly contribute to the distribution of credit to borrowers based on data from fintech lending.

Market Diversification

Expanding market share is the goal of the market diversification approach. Additionally, it can lessen BUMD's reliance on specific market niches and business competitive winning techniques. PD. SPR of Rokan Hilir Regency only supplies fuel to automobiles at this period. In the future, Rokan Hilir Regency will need to diversify by providing fuel for industrial purposes.

In addition, the price of palm oil fluctuates, which results in an increase in customer defaults, which is the major issue facing PD. BPR Rokan Hilir Regency. Therefore, it is essential to diversify the market by identifying new market segments with more dependable income, such as independent contractors, government employees, and so forth.

Conclusions And Suggestions

Conclusions

According to the study's findings, the following can be said:

1. The four internal strength elements of BUMD are as follows: (1) The company's business location is highly important; (2) The capital aspect is quite strong; (3) Supported by technology; and (4) There is a significant potential for natural resource development.
2. There are four areas of vulnerability for BUMD: (1) Weak BUMD management; (2) An unwieldy workforce; (3) Limited product development and innovation; and (4) A lack of supervision.
3. The BUMD opportunity factor is composed of four opportunity factors: (1) the global, national, and regional economic recovery following COVID-19; (2) potential business collaborations with different parties; (3) policy support from the Rokan Hilir Regency Government; and (4) public acceptance of BUMD.
4. The threat factor for BUMD is made up of four risk factors, including: (1) fluctuations in palm oil prices that reduce people's purchasing power; (2) leadership changes at regional levels and political pressure from outside BUMD; (3) business rivals who are supported by skilled human resources and better technology; and (4) the inability of BUMD human resources to keep up with the rapid pace of technological advancement.
5. The Rokan Hilir Regency's BUMD development strategy is made up of four strategies: (1) Strength and Opportunity (SO), Weakness and Opportunity (WO), Strength and Threat (ST), and Weakness and Threat (WT) Strategy.
6. The priority approach for maximizing BUMD performance in raising the PAD of Rokan Hilir Regency is depicted in a quadrant I position in the priority strategy diagram. Supporting strategic policies in an inclusive, cooperative, and assertive manner is the top strategy in this quadrant.

Suggestions

The Rokan Hilir Regency Government can implement the following recommendations to promote the optimization of BUMD performance in boosting the local revenue of the Rokan Hilir Regency: (1) Creation of new business units that are in line with regional potential; (2) BUMD product innovation and development; (3) BUMD institutional reform; (4) Establishing business partnerships with companies; and (5) Market diversification.

References:

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- (2022). *BPS Kabupaten Rokan Hilir. Kabupaten Rokan Hilir Dalam Angka*. Retrieved from <https://rohilkab.bps.go.id/publication/2022/02/25/801a6b61617c2bc955d30b/kabupaten-rokan-hilir-dalam-angka-2022.html>
- (2022). *BPS Provinsi Riau. Kabupaten Rokan Hilir Dalam Angka*. Retrieved from <https://riau.bps.go.id/publication/2022/02/25/85c4ce5fd9662f99e34a5071/provinsi-riau-dalam-angka-2022.html>
- Cahyaningrum, D. (2018). The Implication of Regional Owned Enterprises legal Form to Its Management. *Jurnal Negara Hukum*, 9 (12): 59-78. [10.22212/jnh.v9i1.997](https://doi.org/10.22212/jnh.v9i1.997)
- Dewi, A.A.A.W, Luh Indrayani dan Lulup Endah Tripalupi. (2019). Pengaruh Orientasi Pasar Dan Inovasi Produk Terhadap Keunggulan Bersaing Usaha Kerajinan Perak Di Desa Celuk Kecamatan Sukawati Kabupaten Gianyar. *Jurnal Pendidikan Ekonomi*, 11(2), 466-475. DOI: <https://doi.org/10.23887/jjpe.v11i2.21525>
- (2022). *DPMPTSP Provinsi RiauPeta*. Potensi Investasi Provinsi Riau.
- Muryanto, Y.T., & Djuwiyastuti (2014). Model Pengelolaan Badan Usaha Milik Daerah (BUMD) Dalam Rangka Mewujudkan *Good Corporate Governance* (GCG). *Yustisia*, 3(1), 125-133. DOI: <https://doi.org/10.20961/yustisia.v3i1.10136>
- Magalhaes, L. (2021). Strategi Diversifikasi Usaha BUMD bagi Penguatan Daya Saing Daerah (Studi pada BUMD PT. GSM Pengelola Migas di Kabupaten Sampang). *Journal of Regional Economics Indonesia*, 2(2), 27-49 DOI: <https://doi.org/10.26905/jrei.v2i2.7217>
- Nasir, Muhammad, Safar. (2019). Analisis Sumber-Sumber Pendapatan Asli Daerah Setelah Satu Dekade Otonomi Daerah. *Jurnal Dinamika Ekonomi dan Pembangunan*, 2 (1):30-45. DOI: [10.14710/jdep.2.1.30-45](https://doi.org/10.14710/jdep.2.1.30-45)
- Nuryan, I. (2016). *Strategy Development and Implementation of Good Corporate Governance (GCG) on BUMN and BUMD in Indonesia*. *Jurnal Pemikiran dan Penelitian Administrasi Bisnis dan Kewirausahaan*, 1(2), 145-152. DOI: <https://doi.org/10.24198/adbispreneur.v1i2.10237>
- Noviani, L. (2020). Pengaruh Inovasi Produk, Kreativitas Produk, dan Kualitas Produk Terhadap Keunggulan Bersaing (Studi Kasus Pada Kerajinan Tikar Eceng Gondok). *Jurnal Manajemen dan Bisnis (Jumanis)*, 2(1), 2076-2086. DOI: <https://doi.org/10.47080/10.47080/vol1no02/jumanis>
- Lestari, W.A., Apri, B., & Setiawan, I. (2020). Pengaruh Inovasi Dan Kualitas Produk Terhadap Keunggulan Bersaing (Suatu Studi pada Payung Geulis Mandiri Tasikmalaya). *Business Management and Entrepreneurship Journal*, 2(1), 38-48. DOI: <https://jurnal.unigal.ac.id/index.php/bmej/article/view/2451>
- Luigi, L. D., Vecky, A. J., & Patrick (2017). Analisis Pendapatan Asli Daerah Kota Jayapura. *Jurnal Berkala Ilmiah Efisiensi*, 17 (01):22-33. DOI: <https://ejournal.unsrat.ac.id/index.php/jbie/article/view/14580>
- (2021). *Otoritas Jasa Keuangan [OJK]. Panduan Kerja Sama BPR dan Fintech Lending*. Retrieved from <https://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/Buku-Panduan-Kerjasama-Bank-Perkreditasi-Rakyat-28BPR-dengan-Lembaga-Layanan-Pinjam-Meminjam-Berbasis-Teknologi-Informasi-Buku-20-Panduan-Kerjasama-20BPR-20dengan-20Fintech-20P2P-20Lending.pdf>
- Sukmana, W., & Firmansyah, I. (2014). Analisis Problematika Kinerja BUMD Non-Keuangan Di Jawa Barat: Aplikasi Metode Analytic Network Process. *Journal & Proceeding FEB Unsoed*, 4(1), 48-62. DOI: <http://jp.feb.unsoed.ac.id/index.php/sca-1/article/view/657>
- Samidi (2021). *Model Bisnis Dalam Meningkatkan Nilai Perusahaan Badan Usaha Milik Daerah (BUMD)*. Pekalongan: NEM.
- Suwardi, M., & Eko Prasetyo, P. (2018). Efisiensi Teknis Badan Usaha Milik Daerah (BUMD) Bidang Jasa Produksi Provinsi Jawa Tengah. *Jurnal Ekonomi & Studi Pembangunan*, 19(1), 11-20. DOI: <https://doi.org/10.18196/jesp.19.1.4111>
- Safira, R., & Yafiz, M. (2022). Analisis Pengaruh Kontribusi BUMD Terhadap Peningkatan Pendapatan Asli Daerah (PAD) Di Provinsi Sumatera Utara. *Jurnal Cakrawala Ilmiah*, 1(7), 1887-1896. DOI: <https://bajangjournal.com/index.php/JCI/article/view/1703>
- (2022). *Undang-undang Republik Indonesia Nomor 1 Tahun 2022 tentang Hubungan Keuangan Antara Pemerintah Pusat dan Pemerintahan Daerah*. Retrieved from <https://peraturan.bpk.go.id/Home/Details/195696/uu-no-1-tahun-2022>
- (2014). *Undang-undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah*. Available From: <https://peraturan.bpk.go.id/Home/Details/38685/uu-no-23-tahun-2014>
- Widodo, I. S. (2021). Perubahan Bentuk Badan Hukum Usaha Milik Daerah Berdasarkan Peraturan Pemerintah No. 54 Tahun 2017 Dalam

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Upaya Peningkatan Pendapatan Asli Daerah.
Yurispruden: Jurnal Fakultas Hukum Universitas Islam Malang, 4(1), 58-73. DOI: <https://doi.org/10.33474/yur.v4i1.6894>

21. Yurianto (2021). Strategi BUMD Jakarta dalam Mendukung Kebijakan Program Ketahanan Pangan. *Jurnal Agristan*, 3(2), 172-190. DOI: <https://doi.org/10.37058/agristan.v3i2.3748>

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ASSESSMENT OF READING CAPABILITIES OF PEOPLE IN PEKANBARU CITY

Abstract: The American Library Association (ALA) defines a reading habit as the development of a strong desire to read throughout one's life. In Ary Oktarina, where reading activities are integrated into people's daily lives (Perpusnas, 2014), (2018: 24). Interest is a very consistent trend, and the person is interested in a certain topic or thing and is delighted to be involved in that field, according to Winkel in Prasetyono (2008: 51). According to the determination coefficient $R^2 = 0.685$ and adjusted R square of 0.681, this research model's accuracy can, to a degree, explain the effects of the independent variables, namely the reading environment, family environment, school environment, community environment, and personal activities, in a manner that accounts for 68.1% of those effects. The most important factor influencing a person's level of interest in reading is their reading environment, which includes the type of reading, the best time to read, the reading format, their preferred reading location, the subject they prefer to read about, how they acquire books, and the advantages of reading.

Key words: Reading Likeness Level, Reading Environment.

Language: English

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Introduction

The term "industrial revolution 4.0," sometimes known as "RI 4.0," is used to describe a radical shift based on cutting-edge technology. The advent of cyber-physical systems, the Internet of Things (IoT), big data, and numerous IT-based services are hallmarks of this revolution. Everyone needs to have sufficient reading abilities in order to be able to comprehend written information. It will be challenging for someone without good reading abilities to keep up with the advancement of science and technology. The Sitti Fauziah M Journal (2013:2) quotes Baradja (1990:105) as saying that reading is a highly important skill in today's society since it allows people to access information. Learning Indonesian includes reading. Four skills are involved in learning Indonesian: hearing, speaking, reading, and writing. The goals of learning Indonesian are centered on the four components of language proficiency. In other words, learning Indonesian strives to improve your

capacity to use Indonesian in reading, writing, speaking, and listening.

One of the principles of character education created in Indonesia is a love of reading. The phrases "like" and "read" are the inspiration for the character "Like to Read." Reading entails seeing and comprehending the contents of what is written, while according to the Big Indonesian Dictionary, like means like very lot. The American Library Association (ALA) defines the enjoyment of reading (reading habit) as the development of a strong desire to read throughout one's life. Interest is a propensity that is rather steady, and the subject is interested in a particular topic or thing and is delighted to be involved in that field, according to Winkel in Prasetyono (2008: 51). It usually sparks curiosity if there is a joyful sense in the heart. An optimistic outlook will help interest grow more effectively. Suyadi (2013:9) claims that having a passion for reading is a habit that develops policy for oneself without requiring that one set aside

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specific time to read books, journals, magazines, newspapers, and other types of information. Yaumi (2014: 60) claims that the habit of setting aside time to read numerous books that offer him insight is evidence of his love of reading making a policy for him as a result. Yaumi (2014: 60) claims that the habit of setting aside time to read numerous books that offer him insight is evidence of his love of reading. making a policy for him as a result. Yaumi (2014: 60) claims that the habit of setting aside time to read numerous books that offer him insight is evidence of his love of reading.

According to data from the National Statistics Center, 18.81% of people in Riau province, depending on male and female gender, aged 5 years and older read newspapers/magazines (print and electronic media) during the previous week in 2018. The fact that speaking culture predominates over reading culture among the people of Pekanbaru is one of the causes contributing to their low reading habits and preference. Additionally, there is a lack of adequate library empowerment in the community as well as an uneven distribution of library collections and reading spaces among different societal levels.

In this era of information globalization, reading is a vital requirement for behavior shaping. One can increase their knowledge and culture by reading. However, without a passion, readers will not be drawn in. Every person possesses a very crucial quality called passion. As a result, Pekanbaru City's residents' poor reading interest is a major issue that requires substantial preparation. As stated in the Pekanbaru City Medium Term Development Plan document for the years 2017–2022, the government of Pekanbaru City has decided that the Level of Interest in Reading is one of the development indicators from the human aspect. Considering the above background information.

Literature Review

A. Reading From the Perspective of Experts

Reading allows one to learn things that were before unknown. Reading instruction begins at a young age. Reading is a process that readers engage in and employ to understand messages that writers wish to transmit through the use of words and written language, according to Tarigan (2015: 7). Rahim (2008: 2) asserts that reading is fundamentally a complex activity that incorporates a variety of activities, including visual, cognitive, psycholinguistic, and metacognitive processes in addition to reciting text.

Shofaussamawati (2014: 53) argues that reading is crucial to a person's quality of life. Reading a book is a cognitive activity that involves absorbing information and developing analytical, synthesis, and evaluational skills.

Reading is a written language receptive skill. Separate from the development of listening and

speaking skills is the development of reading skills. Mulyati (2007: 112). (2007: 112). Recognizing letters and words, connecting them to their sounds and meanings, and drawing inferences about what is being read are all parts of the integrated activity of reading. Reading, according to Anderson in Ak gift (1991: 22–24), is a technique for deciphering the meaning of a piece of writing. Reading is a difficult skill that calls for the collaboration of several skills. A person must be able to apply his prior knowledge in order to read a text.

B. Types of Reading Activities

Different Reading Exercises According to Akprise (1991:29–31), there are numerous variations on reading activities, including the following:

a) Read silently

Silent reading is defined as reading without speaking or moving your lips.

b) Beautiful reading

Technical reading is, in essence, beautiful reading. But literary works like poetry are the ones being read. This exercise fosters greater appreciation. As a means of expressing their enjoyment of literary works, students are expected to be able to read.

c) Read language

Language rather than content is the focus of language reading exercises. Students so practice word meaning and usage in this activity based on the reading that has been provided.

d) Speed reading

Students are expected to be able to swiftly understand the reading's content through the use of speed reading exercises. This skill is crucial because writing is the primary means by which science and technological information is disseminated. Students must practice quickening their eye movements and enlarging their field of vision when reading in order to read at a speed that is appropriate. It is best to refrain from reading this passage word for word. This indicates that a pupil can read a few words just by looking at them.

e) Reading Library

Since this reading exercise is extracurricular, extracurricular, or even individual, it can be done at any time. In this situation, it's important to think about how to encourage children's interest in reading, both for leisure and for educational purposes. Directed literature reading exercises can significantly aid in fostering a reader's interest and comprehension skills.

C. A passion for reading

Fond refers to being really delighted. Regarding the Big Indonesian Dictionary, interest Interest is defined as "a liking (inclination) for something, a want" by Prasetyono (2008: 51). For something to be liked, something must be generated both internally and outside. This is a crucial foundation for success in

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the workplace since motivation and interest increase when a person is doing something they enjoy. Interest is a very enduring tendency, and the person feels delighted to be involved in a certain field or thing, according to Winkel in Prasetyono (2008: 51). It usually sparks interest if there is a pleasant sense in the heart. An optimistic outlook will help interest grow more effectively. Suyadi (2013:9) claims that having a passion for reading is a habit that develops policy for oneself without requiring that one set aside specific time to read books, journals, magazines, newspapers, and other types of information. Yaumi (2014: 60) claims that the habit of setting aside time to read numerous books that offer him insight is evidence of his love of reading. The researcher draws the conclusion that loving to read is a liking for reading and an inclination of the heart based on the aforementioned remark.

D. Factors affecting

Kids' interest in reading is influenced by a variety of variables. These elements may influence a child's interest in reading. Soeatminah in Meity H. Idris and Izul Ramdani (2015: 26–27) lists the following elements as those that affect children's interest in reading:

a. Internal Factors

1). Talent

A person's innate talent or ability is a genetic trait that parents pass on to their offspring. If both parents are avid readers, it's conceivable that their children will share this interest. If the child enjoys reading, it indicates that he already understands the value of reading books. Additionally, a child's interest in reading is influenced by his or her personality or abilities. If a child is already interested in reading, he or she will want to borrow or buy the book or reading that piques their interest.

2). Gender

Gender differences have an impact on reading interest as well. Men and women may have distinct hobbies and likes according to nature.

3). Level of education

Higher educated individuals will have a different interest in reading than less educated individuals. Different abilities and needs result in diverse hobbies.

4). Health State

A person's interest in reading will be influenced by his state of health. If someone (especially children) who has an interest in reading books, but he is in a state of unwell/ill, then his passion for reading will be disrupted and even interest in reading can be lost. Conversely, if the person or child is in good health then he is very excited to read.

5). State of the Soul

A person's psychological factors also affect his reading interest. If someone (especially children) who has an interest in reading is in a state of restlessness,

sadness, or confused thoughts, most people when in that state, their enthusiasm for reading will decrease or maybe disappear. It's different if he is in a happy or excited state, the person will be very excited to read.

6). Habit

Children who have a habit or hobby of reading certainly have an interest in books or reading, or conversely people who have a great interest in reading because they already have a habit and like to read. The intensity or amount of time needed by someone who likes to read and someone who doesn't like reading will be different. Children who like to read in one day will spend more time reading than children who do not like to read. The characteristics of children who like to read when there is free time will use their free time to read books or literature. In a school environment, children who like to read are different from children who do not have a high interest in reading, if there is free time the child will use his free time for other activities such as playing and so on.

b. External Factors

The diversity of types of books also affects reading interest. Children will feel more interested in reading if the reading has attractive pictures and colors. There are several types of reading books for children. For example, books related to lessons and non-learning books such as story books (fairy tales, fables), magazines and so on. A child will be interested in reading a reading or book if the reading or book attracts the child's attention, according to the child's needs and is beneficial to the child. If there is a book or reading that looks interesting but the contents of the book do not match the interests of the child's needs, of course the book does not or does not interest children in reading.

E. Inhibiting Factors

According to Shofaussamawati (2014:53-54) There are many factors that influence the high interest in reading in children, but there are also many factors that inhibit interest in reading in children. There are several factors that influence the low interest in reading in children:

➤ There is still low reading proficiency of students in schools. The results of research conducted by the Program Team of International Student Assessment (PISA) of the Ministry of National Education's Research and Development Agency show that the reading proficiency of 15-year-old children in Indonesia is very concerning. About 37.6 percent could only read without capturing the meaning and 24.8 percent could only associate the text they read with one knowledge of information.

➤ The learning system in Indonesia has not made children have to read books (the more the better), seek more information or knowledge than what is taught, appreciate scientific works, philosophy, literature, and so on.

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➤ Many types of entertainment, games (games) and television shows that distract children and adults from books. Based on the findings of a study, it shows that children's playing time in Indonesia is spent watching television programs. Compare that to the United States, the number of hours children play is between three and four hours per day. Even in Korea and Vietnam, children play only one hour a day. The rest of the time children spend studying or reading books, so it's no wonder the reading culture is getting higher.

➤ Lots of time-consuming entertainment such as recreational parks, karaoke places, malls, supermarkets, play stations. In Indonesia most of the time is spent watching soap operas, reading is still something that is exclusive. Therefore, there is no need to be surprised if the view in the mall is more crowded than the library. Music events are more popular than discussion events, book reviews or seminars.

➤ Factors related to the level of people's purchasing power is low. This is because people in general have low incomes. The poverty rate has indeed decreased but this reduction has not yet reflected the high interest in reading.

F. Indicator

According to (Sutarno, 2006: 107) To measure the level of people's reading habits, a measuring instrument is needed that can be used to measure the changes that occur. This measuring instrument is referred to as a reading indicator. In simple terms, an indicator can be interpreted as a guide that gives an indication of a situation and is a reflection of that situation. In other words, indicators are auxiliary variables in measuring change. These variables are mainly used when the changes to be assessed cannot be measured directly. A good indicator must meet several requirements, namely:

1. Valid (valid), the indicator must be able to measure something that will actually be measured by the indicator.
2. Objective, for the same thing, indicators must give the same results, even though they are used by different people and at different times.
3. Sensitive, small changes can be detected by the indicator.
4. Specifically, indicators only measure changes in the situation in question. However, it should be realized that there is no standard measure that can really measure the level of people's reading habits.

Indicators can be singular (single indicator), which consists of one indicator, and plural (composite indicators), which are a combination of several indicators. According to the type, indicators can be grouped into 3 (three) groups of indicators, namely:

1. Input indicators, related to supporting the implementation of the program and also determine the

success of the program, such as: the ratio of collections to users.

2. Process indicators describe how the development process is running, such as the average number of library visits.

3. Output/Outcome indicators, which describe how the results (output) of an activity program have been running.

Based on the concept of indicators above, the indicators to measure the level of interest in reading are:

1. Reading Duration

According to the Big Indonesian Dictionary (KBBI) duration is the span of time or the length of time something or an event takes place. The use of the word duration has been widely used in our daily lives, where this word is not a foreign term for most of the general public. Duration is a word that is usually synonymous with the timing of an event or activity. Duration in this research is a person's length of time in reading.

2. Reading Frequency

The frequency of reading books is how often the subject reads books. According to Farida Rahim, (2008: 2) states that one of the characteristics of people who have a strong interest in reading is always trying to get reading material.

3. Number of Books Read

Is the number of books read and completed per three months, this is needed to find out the number of books read.

G. Hypothesis

There are nine hypotheses in this study, namely as follows:

H1: Is the older a person's age the shorter the duration of reading;

H2: Is the older a person's age the lower the frequency of reading;

H3: Is the older a person's age the smaller the sacrifice to provide Reading Materials

H4: Is the higher the education level of a person the longer the duration of reading

H5: Is the higher a person's level of education the higher the frequency of reading;

H6: Is the higher a person's level of education the greater the sacrifice to provide reading material;

H7: Is the higher the level of one's income the longer the duration of reading;

H8: Is the higher a person's income level the higher the frequency of reading;

H9: Is the higher the level of one's income the greater the sacrifice to provide reading material

Research Methods

The research method is a set of rules, activities, and procedures used by researchers. The method is also a theoretical analysis of a way or method. Research is a systematic investigation to increase

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some knowledge, it is also a systematic and organized effort to investigate certain problems that require answers. The nature of research can be understood by studying the various aspects that encourage research to conduct research.

In the analysis of the level of interest in reading the people of Pekanbaru City uses a quantitative descriptive research method, namely data obtained from a sample of the research population using a closed questionnaire is analyzed according to the statistical method used and then interpreted.

Data Types and Sources

The data used in this study are:

1. Primary data, is data taken directly from the object of research, the method used to obtain primary data is by distributing questionnaires.
2. Secondary data, namely data collected by the author from the documents in the agency. This data is in the form of an overview of the institution, for example the history of its establishment, organizational structure, job descriptions and responsibilities.

Population and Sample

According to Sugiyono (2017: 80), the definition of population is as follows:

"Population is a generalized area consisting of; objects/subjects that have certain qualities and characteristics set by researchers to be studied and then drawn conclusions". According to Arikunto Suharsimi (1998:117) The population is the entire object of research. If someone wants to examine an element that exists in the research area, then the research is a population study. According to Hartono (2011:46) Populations with certain characteristics are finite and some are infinite. Research can only be conducted on a limited population.

According to Husaini Usman (2006: 181) Population is all values both calculation and measurement results, both qualitative and quantitative from certain characteristics regarding groups of objects that are complete and clear. The population in the Reading Interest Level Analysis Research is the entire population of Pekanbaru City in 2022, namely the age range of 10-59 years

According to Sugiyono (2017: 81), the sample is as follows: "The sample is part of the number and characteristics possessed by the population. If the population is large, and it is impossible for researchers to study everything in the population, for example due to limited funds, manpower and time, then researchers can use samples taken from that population. According to Roni Andespa (2014: 134) the sample is obtained using the slovin formula cited by namely:

N formula

$n = \frac{N e^2}{1 + N e^2}$

$$1 + N e^2$$

Where :

n = sample size

N = population size

e = percent slack due to sampling error

which is still tolerable or desirable with a 5% error limit.

Then sample size:

$$n = \frac{N e^2}{1 + N e^2}$$

$$n = \frac{809043 (0.05)^2}{1 + 809,043(0.05)^2}$$

$$n = \frac{809043 (0.05)^2}{1 + 809,043(0.05)^2} = \frac{809043}{2023,61}$$

$$n = \frac{809043}{2023,61} = 399,79$$

$$n = 399,79$$

$$n = 400 \text{ respondents}$$

According to Roni Andespa, 2012: 140). The sampling technique was carried out by convenience sampling, namely the technique of determining the sample based on coincidence, members of the population who were met by the researcher and who were willing to be respondents were used as a sample.

Data analysis

Data analysis was carried out using the Partial Least Square (PLS) method using SmartPLS version 3 software. PLS is a method of solving Structural Equation Modeling (SEM) which in this case has advantages compared to other SEM techniques. SEM has a higher degree of flexibility in research that links theory and data, and is capable of carrying out path analysis with latent variables, so it is often used by researchers who focus on social sciences. Partial Least Square (PLS) is a fairly strong analytical method because it is not based on many assumptions. The data also does not have to be normally distributed multivariate (indicators with category, ordinal, interval to ratio scales can be used in the same model), the sample does not have to be large (Gozali, 2012).

Partial Least Square (PLS) besides being able to confirm the theory, but also to explain whether or not there is a relationship between latent variables. Besides PLS being used in research based on predictions, PLS is also suitable for analyzing data. PLS can also be used to explain whether there is a relationship between latent variables. This analytical method is also capable of analyzing constructs formed by reflexive and formative indicators. This cannot be done by other covariance-based SEMs because it will be an unidentified model. The choice of the Partial Least Square (PLS) method is based on the consideration that in this study there are 4 latent variables formed by reflexive indicators and the variables are measured by a reflexive second order factor approach. Reflexive models assume that constructs or latent variables affect indicators,

The approach to analyzing the second order factor is to use a repeated indicators approach or also known as a hierarchical component model. Although

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this approach repeats a number of manifest or indicator variables, this approach has the advantage because this model can be estimated using the standard PLS algorithm (Ghozali, 2012).

Testing of the inner model or structural model is carried out to see the relationship between the constructs, the significance value and the R-square of the research model. The structural model is evaluated using the R-square for the t-test dependent construct and the significance of the structural path parameter coefficients

Research Results And Discussion
Testerian Structural Model (Inner models)

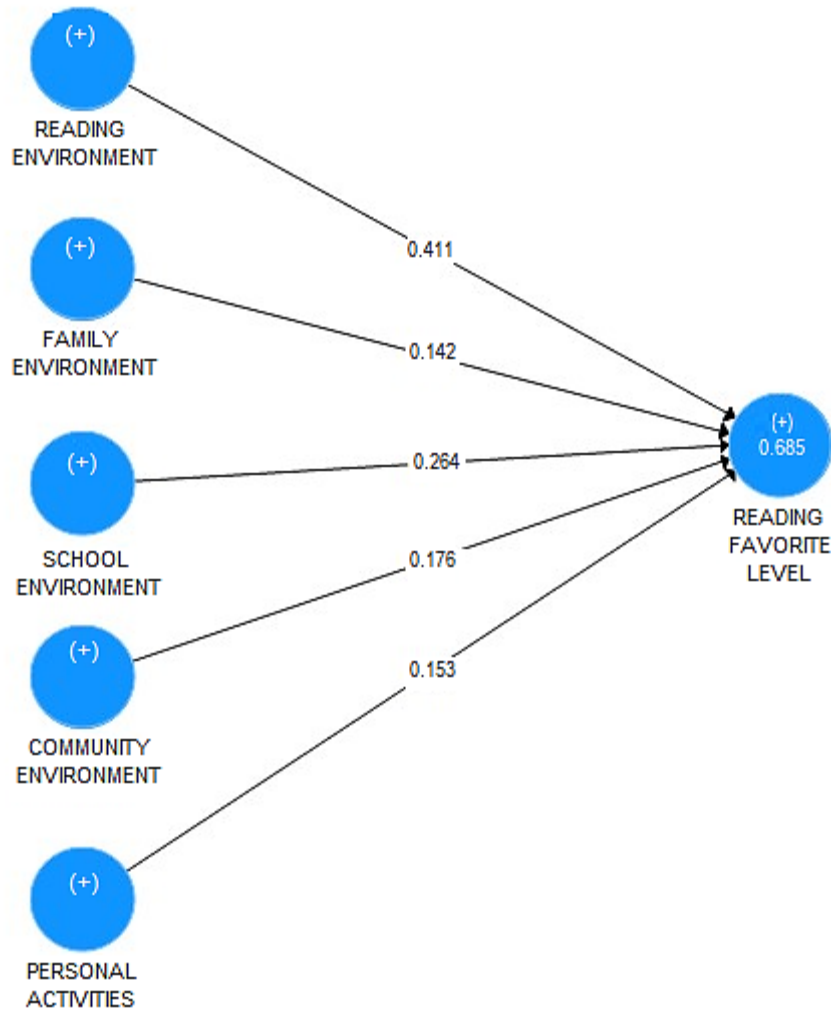


Figure 1 - Model Analysis

Source: Processed Data, 2022

Inne The relationship between constructs, significance value, and R-square value is displayed by the r model.

2. Coefficient of Determination

Berrieskut is a calculation table for R-Square results:

Table 1. Coefficient of Determination of R Square

	R Square	R Square Adjusted
READING FAVORITE LEVEL	0.685	0.681

Source: Processed Data, 2022

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To evaluate the PLS model, start by examining the R Square of each variable. To determine if an independent variable has a meaningful impact on the dependent variable, the change in the R square value, a goodness-of-fit model test, is used. The better and more appropriate the model is for testing hypotheses, the closer to 1 the R square value is. According to the adjusted R square of 0.681 and the coefficient of determination $R^2 = 0.685$, this research model's accuracy or precision can account for 68.1% of the influence of the independent variables, which include the reading environment, family environment, school environment, community environment, and personal activities.

To ascertain the relationship between the latent variables created for this investigation, the structural relationship model was tested. By examining the estimated value of the path coefficient and the critical point value (t-statistic), which is significant at p-value 0.05, one can do structural model and hypothesis testing from the PLS output. The output of the PLS model shows the outcomes of the in-depth data analysis. The following table displays the full findings of the direct effect test:

3. Path Coefficients

Table 2. Path Coefficients

	Original Sample (O)	Sample Means (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
PERSONAL ACTIVITIES -> READING FAVORITE LEVEL	0.153	0.153	0.039	3,905	0.000
FAMILY ENVIRONMENT -> READING FAVORITE LEVEL	0.142	0.141	0.034	4.135	0.000
COMMUNITY ENVIRONMENT -> READING FAITH LEVEL	0.176	0.179	0.032	5,568	0.000
READING ENVIRONMENT -> READING FAVORITE LEVEL	0.411	0.408	0.042	9,895	0.000
SCHOOL ENVIRONMENT -> READING FAITH LEVEL	0.264	0.267	0.043	6.172	0.000

Source: Processed Data, 2022

The direct effect test can be explained as follows using the table above as support:

1. The level of reading interest is significantly and favorably impacted by the reading environment. The estimated t value of 9.895 and the p-value of 0.000 0.05 serve as proof of this. The coefficient has a positive value of 0.411, indicating a favorable relationship between the reading environment and reading interest.
2. The level of reading interest is significantly and favorably impacted by family environment elements. The estimated t value of 4.135 and the p-value of 0.000 0.05 serve as proof of this. The coefficient has a positive value of 0.142, indicating that the level is positively influenced by the family environment.
3. The level of reading interest is significantly and favorably impacted by school ambient elements. The estimated t value of 6.172 and the p-value of 0.000 0.05 serve as proof of this. The correlation has a positive value of 0.264, indicating that the learning environment at school influences students' interest in reading.
4. The level of interest is significantly and favorably impacted by local environmental conditions. The t-value of 5.568 and the p-value of 0.000 0.05 serve as proof of this. The

coefficient has a positive value of 0.176, indicating a positive relationship between reading interest and the local environment.

5. The level of interest is significantly and favorably impacted by aspects related to personal activity. The t-value of 3.905 and the p-value of 0.000 0.05 serve as proof of this. The coefficient has a positive value of 0.153, indicating that the level of reading interest is positively impacted by personal activities.
6. The reading environment is the most important element affecting a person's level of interest, indicating that environmental factors have a significant impact on a person's level of interest in reading.

Discussion

It is impossible to divorce Pekanbaru City from the regional and international system. Pekanbaru City serves a crucial purpose in the growth of Riau in addition to being the provincial capital of that region. As a result, there will be a favorable correlation between Pekanbaru City's difficulties and those of Riau's overall development.

The real-world circumstances of the residents of Pekanbaru City, Riau Province, and the difficulties facing the country cannot be isolated from educational

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growth. The national library system and the national education system are functionally linked, notably in terms of the organization of national education as acculturation and empowerment, including lifelong learning.

This suggests that the national education system and library system work together to realize an enlightened nation's existence as a necessary component of the development of a noble national character and culture. Article 22 paragraph 2 of Law Number 43 of 2007 Concerning Libraries confirms this. This article claims that regional public libraries are maintained by the provincial government and district/city government, whose collections help preserve each region's unique cultural goods and encourage the development of a community that values lifelong learning.

Based on this, district/city regional libraries ought to be able to assist in fostering an informed and independent lifelong learning community through their collection services, if not really take part in it. Both library collections and collections served by mobile library services are kept in the library. In order to accomplish this, each district/city library should be able to finish the number and variety of collections by the anticipated number of residents.

Library Collection Standards are defined as library national standards relating to the minimum criteria for the type of library collection, number of collections, collection development, collection processing, and collection maintenance and preservation in the Regulation of the Head of the National Library of the Republic of Indonesia Number 8 of 2017 concerning National Standards for District/City Libraries. It is said that each public library and special library has a collection of at least 1000 titles, and that the sorts of public library collections include at least fiction, non-fiction, references, periodicals, maps, props, local content, and game tools. 2019 saw 39,892 book titles and 8,267 accessible digital book titles in public library collections.

For the holdings of public libraries, there must be a sufficient ratio of collections to users. The growth of a reading habit, which is fueled by the accessibility of good, interesting, and relevant reading material, is what leads to the formation of a reading culture. This is a clear plan for encouraging a passion for reading and a reading habit.

It is implied in the formulation of this concept that a passion of reading must be fostered from an early age (childhood). Beginning with an introduction to the many types of letters and numbers in preschool education, this can lead to a firm grasp of reading, writing, and counting by the start of the school year in elementary schools. A desire for reading that manifests itself at a young age and occurs frequently will turn into a reading routine.

As a result, reading habits can encourage the development of a reading culture. A child's great curiosity might therefore be piqued by the availability of interesting reading material, both for reading to children and for reading alone. Fostering the development of reading habits and culture depends on several number of factors, such as:

1. Availability of adequate reading materials, especially books and digital reading materials
2. Varied and easy to find reading material
3. Can fulfill the wishes of its readers

It is the collective responsibility of libraries, teachers, parents, and the community to promote children's love of reading. However, due to the workload they bear, librarians and teachers also bear direct responsibility for fostering a love of reading. Children should be provided stimulants to boost their passion for the order to boost their passion for reading so that it comes naturally to the students. It will be ineffective to try to make reading more enjoyable by making kids read as many books as they can.

Similarly, it is wrong to have kids buy books. To encourage the joy of reading in educational institutions, good facilities are required, including room amenities, complete library collections, and digital libraries.

The fact that school activities and lectures moved from being conducted offline to being conducted online has resulted in changes in habits and learning patterns that are now face-to-face. Of course, this has become a new habit for students and students, and parents have taken on the role of teachers at home, explaining the material that is being taught by the teacher via a website.

Conclusion And Suggestion

Conclusion

Based on the results of the research and discussion used by the hypotheses. The results of the analysis can be conveyed as follows:

1. Based on the value of the coefficient of determination $R^2 = 0.685$ and adjusted R square of 0.681, it means that the accuracy or precision of this research model can explain the influence of the independent variables, namely the reading environment, family environment, school environment, community environment and personal activities of 68.1%.
2. The environment in which a person reads greatly influences the greatest influence on their level of interest. This means that environmental factors such as the type of reading, the best time to read, the format of reading, favorite reading locations, reading topics, how to obtain reading materials, and the advantages of reading all have an impact on how interested a person is in reading.

Suggestion

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From the conclusions above, the suggestions that are expected to be able to increase the love of reading for the people of Pekanbaru City are:

1. By giving awards to sub-districts that support the Pekanbaru City Library and Archive Service Program, of course, this will increase the attention of sub-districts and sub-districts in supporting the Love of Reading Program.
2. Socialization efforts to increase the public's reading interest must be carried out with a more effective program evaluation
3. Holding events in the library, such as holding

4. Book Reviews, Scientific Work Contests, Writers' Training, Reading Mother's and Librarians' Training
4. Integration of Collaboration and Data Between Agencies and Institutions This is a collaborative collaboration in building a passion for reading among the people in Pekanbaru City.
5. Conduct Routine Visits to several schools and public libraries.
6. Socialization Regarding the Pekanbaru Application and the latest digital books.

References:

1. Artati, Y., Budi (2009). *Terampil Membaca*. Klaten: Intan Pariwara.
2. Arikunto, S. (2002). *Metodologi Penelitian Suatu Pendekatan Proposal*. Jakarta: PT. Rineka Cipta.
3. Andespa, R. (2012). *Metodologi Riset Bisnis*. Pekanbaru, Al Huda Press.
4. Andespa, R. (2014). *Metodologi Riset. Bisnis*, Pekanbaru: Al-Huda Press.
5. Akhadiah, Sabarti, dkk. (1991). *Bahasa Indonesia I*. Jakarta: Depdikbud.
6. Bahasa, T. P. K. P. (2005). *Kamus Besar Bahasa Indonesia*. Jakarta: Balai Pustaka.
7. Basuki, S. (1992). *Pengantar Ilmu Pengetahuan*. Jakarta: Gramedia.
8. Browaeys, M.-J., & Price, R. (2011). *Understanding Cross-Cultural Management 2nd Edition*. London: Prentice Hall. (Buku).
9. (2012). *Badan Pusat Statistik Nasional*.
10. (2020). *BPS Kota Pekanbaru*.
11. Dalman (2014). *Keterampilan Membaca*. Jakarta: Rajawali Pers.
12. Djamarah, S. B. (2011). *Psikologi Belajar*. Jakarta: Rineka Cipta.
13. Hartono, J. (2011). *Metodologi Penelitian Bisnis: Salah Kaprah dan. Pengalaman-pengalaman*. BPFE.
14. Harras, Kholid, A., & Lilis, S. (1997). *Membaca I*. Jakarta: Depdikbud.
15. Hurlock, E. B. (1978). *Perkembangan Anak*. Jakarta: Erlangga.
16. Husaini, U. (2006). *Manajemen, Teori, Praktik, dan Riset Pendidikan*. Jakarta: Bumi Aksara.
17. Henry, G.T. (2008). *Membaca Sebagai Suatu Keterampilan Berbahasa*. Bandung: Angkasa.
18. Harsiati, T., & Priyatni, E. T. (2018). Karakteristik tes literasi membaca pada programme for international student assessment (pisa). *Bibliotika: Jurnal Kajian Perpustakaan dan Informasi*, 1(2), 1–11.
19. Fauziah, S.M. (2013). *Berbicara Sebagai Suatu Keterampilan Berbahasa*, Institut Agama Islam Negeri Kendari.
20. Idris K., dkk. (2002). *Pedoman Pembinaan Minat Baca*, Jakarta: Perpustakaan Nasional RI.
21. Iwan, S. (2013). Hubungan Antara Minat Baca Dengan Prestasi Belajar, *Dompot Dhufa*, Vol.3 No.02, November.
22. Ilham, N.T. (2016). Minat Baca Pada Siswa Kelas VI Sekolah Dasar Negeri Delegan Prambanan Sleman Yogyakarta, *E-Jurnal Prodi Teknologi Pendidikan*, Vol. V No. 6 tahun.
23. Kemp, J. E. (1977). *Instructional Design Belmont*, California: David S. Lake Publishers.
24. (2008). *NCERT, 2008. Reading Corner*. New Delhi: Department of Elementary Education.
25. Mangestuti, A., dkk (2014). *Peningkatan Minat Baca Melalui Pengembangan Perpustakaan Interaktif di SMPN 5 Sampang di Pulau Mandangin, Kabupaten Sampang Madura, Laporan Akhir Pengabdian Masyarakat*, Surabaya: Universitas Airlangga.
26. Margono (2004). *Metodologi Penelitian Pendidikan*. Jakarta :Rineka Cipta.
27. Moleong, L. (2005). *Metodologi Penelitian Kualitatif*. Bandung: PT Remaja. Rosdakarya.
28. Mohammad, F.A. (2004). *Membuat Anak Gila Membaca*, Bandung: PT Mizan Pustaka.
29. Arif Khoiruddin, M., et.al. (2016). Menumbuhkan Minat Baca Sejak Dini di Taman Baca Masyarakat, *Journal An-nafs*, Vol. 1 No.2 Desember.
30. Idris, M.H., & Ramdani, I. (2015). *Menumbuhkan Minat Membaca pada Anak Usia Dini*, Jakarta: PT Luxima Metro Media.

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31. Surya, M. (2014). *Psikologi Guru Konsep dan Aplikasinya*. Bandung: Alfabeta.
32. Muhibbin, S. (2011). *Psikologi Pendidikan*. Bandung: PT. Remaja Rosdakarya.
33. Ibrahim (2002). *Peningkatan Minat Baca*. Jakarta : Erlangga.
34. Mulyati, Y. (2007). *Keterampilan Berbahasa Indonesia SD*. Jakarta: Universitas Terbuka.
35. Nurhadi, I. (1988). *Pembinaan Minat, Kebiasaan dan Budaya Baca*. Jakarta: Perpustakaan Nasional RI.
36. Nurhadi (1995). *Tata Bahasa Pendidikan*. Semarang: IKIP Semarang Press.
37. Nurhadi (1987). *Membaca Cepat dan Efektif*. Bandung: Sinar Baru.
38. Oktarina, ary, (2018). *Pendidikan Karakter Gemar Membaca Melalui Program Literasi Di Sd N Golo Yogyakarta.*, Fakultas Ilmu Pendidikan Universitas Negeri Yogyakarta.
39. (n.d.). *Peraturan Pemerintah Republik Indonesia Nomor 13 Tahun 2019 Tentang Laporan dan Evaluasi Penyelenggaraan Pemerintah daerah*.
40. (n.d.). *Peraturan Menteri Dalam Negeri Republik Indonesia Nomor 18 Tahun 2020 Tentang Peraturan Pelaksanaan Peraturan Pemerintah No 13 Tahun 2019 Tentang Laporan dan Evaluasi Penyelenggaraan Pemerintah daerah*.
41. Prasetyo, Dwi S. (2008). *Rahasia Mengajarkan Gemar Membaca Pada Anak Sejak Dini*. Yogyakarta: Think Jogjakarta.
42. Ratnasari, P. (2011). *Asyiknya Membaca*. Jakarta: Prestasi Pustaka Anak.
43. Rahim, F. (2008). *Pengajaran Membaca di Sekolah Dasar* (2nd ed.). Jakarta: Bumi Aksara.
44. Rahim, F. (2011). *Pengajaran Membaca di Sekolah Dasar*. Jakarta: Bumi Aksara.
45. Slameto (2010). *Belajar dan Faktor yang mempengaruhinya*. Jakarta: Rineka.
46. Somadayo, S. (2011). *Strategi dan Teknik Pembelajaran Membaca*. Yogyakarta: Graha Ilmu.
47. Djamarah, S. B. (2005). *Materi Pokok Pembinaan Minat Baca*, Jakarta: Universitas Terbuka Press.
48. Rijal, S. (2005). *Majalah*. Edukasi.N0.03.2005.
49. Sutarno, N.S. (2006). *Perpustakaan dan Masyarakat*. Jakarta: Sagung Seto.
50. Sugiyono (2010). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta.
51. Sugiyono (2012). *Metode Penelitian Kuantitatif Kualitatif*. Alfabeta. Bandung
52. Sugiyono (2014). *Metode Penelitian Pendidikan Pendekatan Kuantitatif,. Kualitatif, dan R&D*. Bandung: Alfabeta.
53. Sugiyono (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung : Alfabeta, CV.
54. Suharsimi, Arikunto (2010). *Prosedur Penelitian Suatu Pendekatan Praktek, Edisi Revisi : Rineka Cipta, Jakarta*.
55. Suharsimi, Arikunto (1998). *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: PT. Rineka Cipta.
56. Suyadi (2013). *Strategi Pembelajaran Pendidikan Karakter*. Bandung: Remaja Rosdakarya.
57. Soedarso (1988). *Sistem Membaca Cepat dan Efektif*. Jakarta: Balai Pustaka.
58. Tarigan, & Guntur, H.(1994). *Menyimak Sebagai Suatu Keterampilan. Berbahasa*. Bandung: Angkasa.
59. Tarigan (2008). *Membaca Sebagai Suatu Keterampilan Berbahasa*. Bandung: Angkasa.
60. Tarigan (2015). *Berbicara Sebagai Suatu Keterampilan Berbahasa*. Bandung: Angkasa.
61. Tarigan (1990). *Mengembangkan Minat dan Kebiasaan Membaca Pada Anak*. Bandung: Angkasa.
62. Yaumi, M. (2014). *Pendidikan Karakter Landasan Pilar dan Implementasi*. Jakarta: Prenada Media Group.
63. Budi Artati, Y. (2009). *Terampil Membaca*. Klaten: PT Intan Pariwara.
64. Jahja, Y. (2011). *Psikologi Perkembangan*, Jakarta: Kencana Prenada Media Group.
65. Yuliani, I. (2012). *Hubungan Minat Baca Buku IPS dengan Prestasi Belajar IPS Siswa Kelas V SD Se- Gugus 3 Kecamatan Pleret Kabupaten Bantul Yogyakarta Tahun Ajaran 2011/ 2012*. UNY.
66. Zalyana (2000). *Psikologi Pembelajaran Bahasa Arab*. Pekanbaru: Al-Mujtahadah Press.
67. (n.d.). Retrieved from <https://www.bps.go.id/statictable/2019/10/17/2077/proporsi-penduduk-berumur-5-tahun-ke-atas-yang-membaca-surat-kabar-majalah-media-cetak-maupun-elektronik-selama-seminggu-terakhir-menurut-provinsi-tipe-daerah-dan-jenis-kelamin-2018.html>

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Article



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THE INFLUENCE OF SCHOOL IMAGE, SCHOOL PROMOTION, AND QUALITY OF EDUCATION SERVICES ON THE DECISION TO CHOOSE PARENTS THROUGH RELIGIOSITY OF INTEGRATED ISLAMIC FIRST MIDDLE SCHOOL OF ABDURRAB AND IMAM SYAFII 2 KOTA PEKANBARU

Abstract: The purpose of this study was to determine the image of the school at SMP IT Imam Syafii 2 Pekanbaru City, school promotion at SMP IT Abdurrab Pekanbaru City, the quality of education services at SMP IT Abdurrab and Imam Syafii 2 Pekanbaru City, on the decision to choose an Integrated Islamic Junior High School through the religiosity of student parents. The research method uses quantitative methods. The population in this study were parents of SMP IT Abdurrab and Imam Syafii 2 Pekanbaru City students. The sample set at SMP IT Abdurrab is 75 and SMP IT Imam Syafii 2 Pekanbaru City is 85. The data collection method uses questionnaires and literature studies. The data analysis method used is Structural Equation Modeling and processed using WarpPLS 7.0 for Windows. The data analysis: Convergent Validity, Discriminant Validity, Reliability Indicator Reliability Test and Internal Consistency Reliability, Determination Coefficient Test, Fit Model and Quality Indexes, and Significance Test (t-Test). The results showed that school image had a significant effect on the religiosity of 0.439, school promotion had no significant effect on the religiosity of 0.123, quality of education services had a significant effect on the religiosity of 0.187, school image had a significant effect on the decision to choose by 0.278, school promotion has a significant effect on the decision of choosing by 0.181, the quality of educational services has a significant effect on decisions to choose a school of 0.285, religiosity has a significant effect on the decision to choose by 0.157, the image of the school has no significant effect on the decision to choose through religiosity of 0.069, school promotion has no significant effect on the decision to choose through religiosity is 0.019, and the quality of educational services has no significant effect on the decision to choose through religiosity of 0.029. Then be able to add variations to the research variables to see which variables are influential and which are not.

Key words: School Image, School Promotion, Education Service Quality, Religiosity, Parents Choosing Decision.

Language: English

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Introduction Background

Approaching the 21st century, there have been quite interesting changes regarding the trend of education in Indonesia. This is marked by the birth of Integrated Islamic Schools. In the late 1980s, Integrated Islamic Schools began to emerge. It was started by campus preaching activists who are members of the Campus Da'wah Institute (LDK) of the Bandung Institute of Technology (ITB), the University of Indonesia (UI), and several other well-known universities who are members of the Jamaah Tarbiyah community who have concerns about the condition of education in Indonesia. It is believed that the task of preparing young Muslim generations who are committed to da'wah is believed to be more efficient through education. In this context,

In the history of the development of the world of education in Indonesia, after the reformation in 1998, a new phenomenon emerged, namely the emergence of schools that used the term "Integrated Islam" in the form of IT TK (Integrated Islamic Kindergarten), IT SD (Integrated Islamic Elementary School), IT Middle School (Integrated Islamic Junior High School) and IT High School (Integrated Islamic Senior High School). This phenomenon is interesting, because twenty years ago, sending their children to Islamic schools was not the top priority for Muslim parents. But now, the Integrated Islamic School (SIT) has become a favorite in many places in Indonesia, starting from the Playgroup or Kindergarten level (KB

IT/TK IT), elementary education (SD IT), secondary (SMP IT), to above (SMA IT) (Rudianto, 2018).

And now, the Integrated Islamic School (SIT) has become a favorite in many places in Indonesia, starting from the Playgroup or Kindergarten level (KB IT/TK IT), elementary education (SD IT), secondary (SMP IT), to above (IT high school). The birth of the Integrated Islamic education system is still relatively young for a school. Integrated Islamic schools emerged in order to answer the problems that hit the learning process as part of education and teaching at that time, namely the existence of dualism in the education system, namely the modern education system which tended to be secular, and the religious system which tended to be traditional and difficult to develop (Rudianto, 2018).

Then, the establishment of the Integrated Islamic Schools was responded positively by the Muslim community. So many IT schools were established. To maintain quality and collaboration between IT schools, JSIT or the Integrated Islamic School Network was formed. The Integrated Islamic School Network (JSIT) was formed. Apart from being a forum for communication and collaboration between Integrated Islamic Schools, JSIT aims to maintain the quality of Integrated Islamic Schools. JSIT consists of Integrated Islamic Schools starting from kindergarten to high school (jsit-indonesia.com).

In Riau Province itself, especially in Pekanbaru City, many Integrated Islamic Schools have been established. The following is an attachment to the list of Integrated Islamic Schools in Pekanbaru City, Riau.

Table 1. Table of Integrated Islamic Schools in Pekanbaru City List of Integrated Islamic Schools in Pekanbaru City

No	Decree of Establishment	School name	Address	Ward	Subdistrict
1	01-08-2003	SMP IT Al-Ittihad	Jl. Tipe VI Komplek Masjid Al-Ittihad Tambusai	Lembah Damai	Rumbai Pesisir
12	13-06-2005	SMP IT Dar Al-Maarif	Jl.KH.Ahmad Dahlan No.98 A	Kampung Melayu	Sukajadi
23	21-06-2007	SMP IT Future Islamic School	Jl. Tuanku Tambusai Ujung	LabuhBaruBarat	Payung Sekaki
4	16-07-2007	SMP IT Al-Fityah	Jl. Swakarya Ujung RT 03 RW 04	Tuah Karya	Tampan
75	12-09-2008	SMP IT Al-Izhar School	Jl. HR. Subrantas Km 15	Tuah Karya	Tampan
16	01-07-2009	SMP IT Al-Hisa	Jl. Bukit Batu Lintas Timur	Sail	Tenayan Raya
17	01-01-2010	SMP IT Al-Ikhlas	Jl. Selamat	Tangkerang Timur	Tenayan Raya

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68	04-01-2010	SMP IT Abdurrab	Jl. Merak Sakti	Simpang Baru	Tampar
99	04-11-2010	SMP IT Az-Zuhra Islamic School	Jl. Ketitiran Panam	Simpang Baru	Tampar
210	05-12-2011	SMP IT Insan Utama	Jl. Handayani II No.88	Maharatu	Marpoyan Damai
111	15-03-2012	SMP IT Madani	Jl. Bangau Sakti, Gg. Pipit	Simpang Baru	Tampar
112	08-10-2013	SMP IT Aziziyyah	Jl. Cipta Karya	Tuah Karya	Tampar
213	21-10-2013	SMP IT Abdurrab Pekanbaru	Jl. Bakti	Sidomulyo Timur	Marpoyan Damai
114	10-11-2014	SMP IT Al-Hafit	Jl. Badak No. 10 Hang Buah Ujung	Sail	Tenayan Raya
215	09-12-2014	SMP IT Imam Syafii 2	Jl. Soekarno-Hatta	Perhentian Marpoyan	Marpoyan Damai
316	24-12-2014	SMP IT Imam An-Nawawi Pekanbaru	Jl. Marsan Sejahtera	Sidomulyo Barat	Tampar
117	11-03-2015	SMP IT Badrul Islam	Jl. Naga Sakti	Simpang Baru	Tampar
118	06-05-2015	SMP IT Al-Kindi Pekanbaru	Jl. Bukit Barisan II No.48	Tangkerang Timur	Tenayan Raya
519	14-01-2016	SMP IT Raudhatul Rahmah	Jl. Pelita No.100	Sidomulyo Barat	Tampar
420	01-03-2016	SMP IT Insan Utama 2	Jl. Karya/Ikhlas No.224	Tuah Karya	Tampar
121	15-12-2016	SMP IT Bunayya Pekanbaru	Jl. Putra Panca Sel. Mintan	Simpang Tiga	Bukit Raya
222	29-03-2017	SMP IT Al-Birru Pekanbaru	Jl. Pembina IV	Lembah Damai	Rumbai Pesisir
223	15-12-2017	SMP IT Arsyad Islamic School	Jl. Imam Munandar No.321	Tangkerang Timur	Tenayan Raya
224	22-12-2017	SMP IT Al-Manar	Jl. Duyung Gg. Al-Manar No.11	Tangkerang Barat	Marpoyan Damai
25	31-10-2018	SMP IT Masmur 2 School	Jl. Soekarno-Hatta No.14	Maharatu	Marpoyan Damai
826	23-05-2019	SMP IT Al-Andalus	Jl. Karyawan No.6	Sidomulyo Barat	Tampar
227	04-10-2019	SMP IT Al-Fikri Islamic Green School	Jl. Kereta Api Ujung	Tangkerang Tengah	Marpoyan Damai
128	18-11-2019	SMP IT Rasyid Al-Faiz	Jl. Ikan Kelabau	Muara Fajar	Rumbai

Source: <https://reference.data.kemdikbud.go.id> and <https://dapo.dikdasmen.kemdikbud.go.id/>

The researcher wants to raise the theme of Integrated Islamic Junior High School because the growth rate of IT junior high schools in Pekanbaru City has increased significantly. The above illustrates that the enthusiasm of parents in sending their children to SMP IT is very high. In accordance with the explanation above, the researcher wants to try to examine more deeply the process of parental behavior in sending their children to Integrated Islamic-based Junior High Schools. Researchers in this case took two IT junior high schools in Pekanbaru City, namely Imam Syafii 2 IT Middle School and Abdurrab IT Middle School.

SMP IT Imam Syafii 2 Pekanbaru is under the auspices of the Imam Syafii Cendikia Riau

Foundation which was established in 2015. This school consists of Integrated Islamic-based Kindergarten, Elementary, Middle and High School levels, and all levels have been accredited by the National Accreditation Board and received an A rating (Very good). IT Imam Syafii 2 Middle School is located at Jalan Soekarno-Hatta, Perhentian Marpoyan Village, Marpoyan Damai District and this IT Middle School has pocketed the Establishment Decree from the Ministry of Education and Culture issued on December 9 2014. The following table presents the number of students at SMP IT Imam Syafii 2 Pekanbaru.

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GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Table 2. Table of SMP IT Imam Syafii 2 Pekanbaru

School name	Number of Students						Year Period
	Grade 7 students		Grade 8 students		Grade 9 students		
	L	P	L	P	L	P	
SMP IT Imam Syafii 2	29	51	0	4	0	0	2015
	39	34	28	50	0	5	2016
	106	47	41	35	28	53	2017
	107	49	108	49	40	34	2018
	115	56	105	48	108	49	2019
	128	54	109	54	100	44	2020
	110	45	120	49	107	55	2021

Source: Pekanbaru City Education Office

From the data table above, the reason the researcher chose SMP IT Imam Syafii 2 is because this school has experienced an increase in the number of students. As can be seen from the table above, SMP IT Imam Syafii 2 has experienced an increase in students from 2015-2020. The highest increase occurred in 2020 where new students who entered SMP IT totaled 115 students and 54 female students.

JUNIOR HIGH SCHOOL IT Abdurrah is under the Abdurrah Foundation which is engaged in Islamic education. Abdurrah IT Middle School offers integrated Islamic education and fosters student character through leadership activity and boarding programs.

This IT Middle School is located in the Delima sub-district, Tampan sub-district and is located at Jalan Lobak, Panam. This IT Middle School has obtained an Establishment Decree from the Ministry of Education and Culture which was issued on October 21, 2013. However, in 2018, Abdurrah IT Middle School has moved to a new school building which is located at Jl. Bakti, Sidomulyo Timur sub-district, Marpoayan Damai sub-district, Pekanbaru City. The following table presents the number of students JUNIOR HIGH SCHOOL IT Abdurrah Pekanbaru.

Table 3. Table of SMP IT Abdurrah Pekanbaru

School name	Number of Students						Year Period
	Grade 7 students		Grade 8 students		Grade 9 students		
	L	P	L	P	L	P	
Abdurrah Pekanbaru IT Middle School	13	13	6	12	7	11	2015
	20	33	12	14	6	12	2016
	30	29	21	30	12	14	2017
	84	54	27	33	19	30	2018
	96	43	45	70	31	28	2019
	22	20	96	43	45	70	2020
	39	33	22	20	96	43	2021

Source: Pekanbaru City Education Office

From the data table above it is illustrated that the number of IT Abdurrah Middle School students has increased significantly, except in 2020 when the world is experiencing the Covid-19 Pandemic. From the data

on the number of IT SMP students, researchers tried to examine several factors that might influence parents' decisions in choosing educational services for their children, namely School Promotion, Quality of

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Educational Services, Against Religiosity in Choosing Decisions. The purpose of this research is to get a broader perspective regarding parents' preferences in choosing IT SMP for their children at SMP IT Imam Syafii 2 and at SMP IT Abdurrah.

Formulation of the problem

Based on the background, the formulation of the problem can be formulated as follows:

1. What is the effect of school image on religiosity in Integrated Islamic Junior High Schools in Pekanbaru City?
2. What is the effect of school promotion on religiosity in Integrated Islamic Junior High Schools in Pekanbaru City?
3. What is the effect of the quality of education services on religiosity in Integrated Islamic Junior High Schools in Pekanbaru City?
4. What is the influence of the school's image on the decision to choose an Integrated Islamic Junior High School in Pekanbaru City?
5. What is the effect of school promotion on the decision to choose an Integrated Islamic Junior High School in Pekanbaru City?
6. What is the effect of the quality of education services on the decision to choose an Integrated Islamic Junior High School in Pekanbaru City?
7. What is the effect of religiosity on the decision to choose an Integrated Islamic Junior High School in Pekanbaru City?
8. What is the effect of school image on the decision to choose through religiosity in the Integrated Islamic Junior High School in Pekanbaru City?
9. What is the effect of school promotion on the decision to choose through religiosity at the Integrated Islamic Junior High School in Pekanbaru City?
10. What is the effect of the quality of education services on the decision to choose through religiosity at the Integrated Islamic Junior High School in Pekanbaru City?

Research purposes

In accordance with the background and formulation of the problem, the objectives of this study are:

1. To determine the effect of school image on religiosity in Integrated Islamic Junior High Schools in Pekanbaru City.
2. To determine the effect of school promotion on religiosity in Integrated Islamic Junior High Schools in Pekanbaru City.
3. To determine the effect of the quality of education services on religiosity in Integrated Islamic Junior High Schools in Pekanbaru City.
4. To find out the effect of school image on the decision to choose the Integrated Islamic Junior High School in Pekanbaru City.

5. To find out the effect of school promotion on the decision to choose an Integrated Islamic Junior High School in Pekanbaru City.
6. To determine the effect of the quality of education services on the decision to choose at the Integrated Islamic Junior High School in Pekanbaru City.
7. To determine the effect of religiosity on the decision to choose at the Integrated Islamic Junior High School in Pekanbaru City.
8. To find out the effect of school image on the decision to choose through religiosity at the Integrated Islamic Junior High School in Pekanbaru City.
9. To find out the effect of school promotion on the decision to choose through religiosity at the Integrated Islamic Junior High School in Pekanbaru City.
10. To find out the effect of the quality of education services on the decision to choose through religiosity at the Integrated Islamic Junior High School in Pekanbaru City.

Literatur Review

Theoretical Framework

The definition of brand image according to Keller (1993) is the perception of the brand which is reflected in the brand association that is related to the attributes, benefits and attitudes towards the brand as a whole. In the school context, perceptions of school image are consumers' impressions of schools that are subjective and different for each individual.

Meanwhile, according to Kotler and Keller (2007) a brand is a product or service that adds dimensions in a certain way to differentiate it from other products or services designed to satisfy the same needs.

According to Wijaya (2012) promotion is a form of marketing communication, which is a marketing activity to disseminate information, influence, invite, and/or remind the target market about the organization and its products so that they are willing to accept, buy, and be loyal to the products offered by the organization concerned. Promotional activities not only function as a communication tool between companies and consumers, but also to influence consumers in using services according to their wants and needs.

According to Gusdiandika, et al (2012) promotion is communication carried out by marketers to inform, persuade and remind potential buyers about products or services to influence buyer opinions and obtain responses from buyers.

According to Priya, et al (2019). Promotion is an activity that aims to influence consumers so that they can recognize the products offered by the company to them and then they become happy and buy the product.

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Quality according to ISO 9000 in David Wijaya is "The degree achieved by inherent characteristics to meet the specified requirements. In this case, requirements are stated needs or expectations and are usually implied or required.

Perceived quality is the customer's perception related to the customer's personal assessment of product superiority (Zeithaml, 1988; Aaker, 1991). Quality ratings by consumers are often different because everyone has different perceptions in response to quality. Service quality is an assessment of each customer whether the service provided meets the expectations set (Czepiel, 1990), so that a service is called quality if it matches customer expectations (Donnelly, 1996). This indicates that quality is perceived as service performance perceived by customers.

On the other hand Tjiptono (2012) explains that service is doing something for other people. As a service, services generally reflect intangible products or specific industrial sectors, such as education, health, telecommunications, transportation, insurance, banking, hospitality, construction, trade, recreation, and so on. Service is everything that is done by certain parties (individuals or groups) to other parties (individuals or groups), for example customer service.

In everyday life we often make decisions. According to the most common understanding, a decision is a selection of two or more alternative choices. In other words, a consumer must have a choice between making a purchase or not making a purchase (Schiffman and Kanuk 2008).

Rational decision making is used in solving problems in consumer behavior. In making purchasing decisions, consumer activities that are both mental and physical will go through several stages in purchasing products including need recognition, information search, evaluation of alternatives, the buying process and post-purchase behavior (Misna Febriana Wahidah 2018).

1) *Problem recognition*(Confession of a Problem)

The buying process begins when the buyer recognizes a problem or need to be triggered by internal or external stimuli. With one internal stimulus a person's normal needs.

2) Information search

Interested consumers may or may not seek more information. If the consumer's drive is strong and a satisfying product is imminent, he or she may buy it

later. If not, the consumer can store the need in memory or perform a search for information related to the need.

3) Evaluation of alternatives

Evaluation of alternatives is how consumers process information to arrive at brand choices.

4) *Purchase decision*(Buying decision)

Generally, consumer purchasing decisions will buy the most preferred brand, but two factors can come between purchase intention and purchase decision.

5) *Postpurchase behavior*(Post Purchase Behavior)

After purchase, consumers may experience dissonance from seeing certain disquieting features or hearing good things about other brands and will be wary of information that supports their decision.

According to Anshori in Ghufron & Risnawati (2010) religion refers to formal aspects related to rules and obligations, while religiosity refers to religious aspects that have been internalized by someone in the heart. Ghufron & Risnawati further emphasized that religiosity is the level of individual attachment to their religion. If the individual has lived and internalized his religious teachings, then the religious teachings will influence all his actions and outlook on life. Religiosity is an institutionalized symbol, belief system, value system, and behavioral system, all of which are centered on issues that are internalized as the most meaningful (Glock and Stark, 1965 in Riptiono, 2018).

Religion or religiosity is something that is very important in human life. Religiosity or religiosity is manifested in various aspects of life. Religious activity does not only occur when a person performs ritual behavior (worship), but also when carrying out other activities driven by supernatural powers. Not only related to activities that are visible and visible to the eye, but also activities that are invisible and occur in one's heart. Religious attitude is a complex integration between religious knowledge, feelings and religious actions in a person. Religiosity can be seen from religious activities in daily life which are carried out routinely and consistently (Astogini, 2011). Religious teachings influence attitudes, motivations, perceptions,

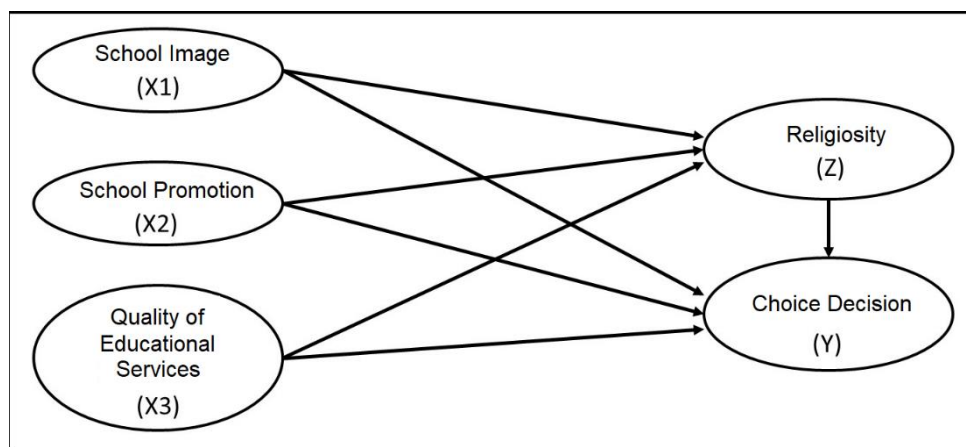
Research Model

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Picture 1.

Hypothesis

Based on the framework above, it can be drawn a temporary formulation or conjecture which is taken as a hypothesis as follows:

- H.1 It is suspected that there is an influence of school image on religiosity in the Integrated Islamic Junior High School in Pekanbaru City.
- H.2 It is suspected that there is an influence of school promotion on religiosity in Integrated Islamic Junior High Schools in Pekanbaru City.
- H.3 It is suspected that there is an influence of the quality of education services on religiosity in the Integrated Islamic Junior High School in Pekanbaru City.
- H.4 It is suspected that there is an influence on the school's image on the decision to choose the Integrated Islamic Junior High School in Pekanbaru City.
- H.5 It is suspected that there is an influence of school promotions on the decision to choose an Integrated Islamic Junior High School in Pekanbaru City.
- H.6 It is suspected that there is an influence on the quality of education services on the decision to choose an Integrated Islamic Junior High School in Pekanbaru City.
- H.7 It is suspected that there is an influence of religiosity on the decision to choose at the Integrated Islamic Junior High School in Pekanbaru City.
- H.8 It is suspected that there is an influence of the school's image on the decision to choose through religiosity at the Integrated Islamic Junior High School in Pekanbaru City.
- H.9 It is suspected that there is an influence of school promotion on the decision to choose through religiosity at the Integrated Islamic Junior High School in Pekanbaru City.
- H.10 It is suspected that there is an influence of the quality of education services on the decision to choose through religiosity at the Integrated Islamic Junior High School in Pekanbaru City.

Research Methods

Types and Research Methods

The research approach used is a quantitative approach. According to Sugiyono (2016) quantitative research is a method based on the philosophy of positivism that is used in certain populations and samples, the philosophy of positivism views phenomena as classifiable, observable, concrete, regular, and causal phenomena.

Primary data sources according to Sugiyono (2016) are data sources that directly provide data to data collectors. Primary data is information collected by researchers directly from the source. The primary data used in this study is data on the number of students and Integrated Islamic Junior High Schools (IT SMPs) that researchers obtained from the Pekanbaru City Education Office, Riau.

According to Sugiyono (2016) what is meant by secondary data is a source that does not directly provide data to data collectors. For example through other people or through documents. Sources of data were obtained from books, journals, data or information from previous studies related to this research.

The location of this research was at the Imam Syafii II Integrated Islamic Junior High School which is located at Jalan Soekarno-Hatta, Perhentian Marpoyan Village, Marpoyan Damai District, Pekanbaru City and Abdurrah Integrated Islamic Middle School which is located at Jl. Bakti, Sidomulyo Timur sub-district, Marpoyan Damai sub-district, Pekanbaru City.

According to Sugiyono (2016) The population is a generalization area consisting of; objects/subjects that have certain quantities and characteristics determined by the researcher to be studied and then conclusions drawn. Based on the definition of the population above, the population in this study will be the Integrated Islamic Junior High School of Imam Syafii II and Abdurrah (Imam Syafii II and Abdurrah IT Middle School) Pekanbaru City.

According to Sugiyono (2016) The sample is part of the number and characteristics possessed by

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the population. In this study, the authors used a probability sampling technique where the sample of this study were parents who sent their children to Integrated Islamic Junior High Schools of Imam Syafii II and Abdurrah (Imam Syafii II and Abdurrah IT Middle Schools) Pekanbaru City.

Based on data on the number of students studying at SMP IT Imam Syafii 2 Pekanbaru City in 2021 obtained from the Administration of SMP IT Imam Syafii 2 Pekanbaru City totaling 486 students with a distribution of 155 students Class VII (seven), 169 students in Class VIII (eight) and 162 students in Class IX (nine). Furthermore, based on data on the number of students studying at SMP IT Abdurrah Kota Pekanbaru in 2021 obtained from the Administration of SMP IT Abdurrah Kota Pekanbaru totaling 253 students with a division of 72 students Class VII (seven), 42 students Class VIII (eight) and 139 students from Class IX (nine). Then by using the Slovin formula, it can be drawn how many samples will be used as research respondents, with the following formula:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = Sample size

N = population size

e = Allowance for inaccuracy due to picking errors acceptable samples. For this study using a standard error of 10%.

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{486}{1 + 486(10\%)^2}$$

$$n = \frac{486}{5,86}$$

$$n = 82,93$$

$$n = 83$$

So it can be concluded that in this research the number of respondents from SMP IT Imam Syafii 2 Pekanbaru City used was 84 respondents.

Then to determine the sample originating from SMP IT Abdurrah Pekanbaru City are as follows:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = Sample size

N = population size

e = Allowance for inaccuracy due to picking errors acceptable samples. For this study using a standard error of 10%.

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{253}{1 + 253(10\%)^2}$$

$$n = \frac{253}{3,53}$$

$$n = 71,67$$

So it can be concluded that in this research the number of respondents used was 71.67 which was rounded up to 74 respondents.

Data collection technique

1. Questionnaire

According to Sugiyono (2016) Questionnaires are data collection techniques in the form of questions/statements given to respondents directly or sent by post, or the internet. This questionnaire was distributed using offline and online methods. Offline, namely by distributing hard copy questionnaires directly to respondents. While online, namely by spreading indirectly through the Google Form media.

2. Literature review

Literature study is a method of finding information from books and other sources relevant to the issues discussed in this study. This information search can be sourced from journals, books, and references related to research materials.

Measurement Scale

The measurement scale is a process in which a number or symbol is placed on the characteristics or properties of a stimulation according to predetermined rules or procedures (Ghazali, 2013). The measurement scale used in this study is the Likert scale.

In this study using a scale of 1-5 with the aim of moving respondents in giving ratings in the category of strongly disagree to strongly agree. Respondents who will be selected in this study are familiar with the numerical assessment of number 1 as the category strongly disagree (low) and 5 as the category strongly agree (highest). The rating scale up to 5 is used by respondents in terms of how good or bad something is. The following is a table of rating ranges on a Likert scale.

Table 4. Likert Scale

NO	STATEMENT	TA	A	DK	D	SD
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Information :

1. 1 = Strongly Disagree

2. 2 = Disagree

3. 3 = Don't know

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- 4. 4 = Agree
- 5. 5 = Totally Agree

Operational Concept Definition

Table 5. Operational Concept Definition

Variable	Variable Concept	Indicator	Scale
School Image (X1)	A brand is a product or service that adds dimensions in a way that differentiates it from other products or services designed to satisfy the same needs Kotler and Keller (2007). It can be concluded that brand image is an association/perception that arises in the minds of consumers when remembering a particular brand. Such associations can be conceptualized by type, support, strength, and uniqueness. These types of associations include attributes, benefits and attitudes (Shimp, 2003 in <i>Suryani, 2018</i>).	<ol style="list-style-type: none"> 1. school reputation 2. School popularity 3. School credibility 4. Professional guard <ol style="list-style-type: none"> 1. prestigious 2. Trust 3. Convenience 4. Influence Family, friends, and colleagues <ol style="list-style-type: none"> 1. Quality service 2. Adequate facilities and infrastructure 3. Competent graduates <i>(Suryani, 2018)</i> .	Ordinal
School Promotion (X1)	According to Wijaya (2012) promotion is a form of marketing communication, which is a marketing activity to disseminate information, influence, persuade, and/or remind the target market about the organization and its products so that they are willing to accept, buy, and be loyal to the products offered by the organization concerned. (Khasanah, Fitriyatul (2020)).	<ol style="list-style-type: none"> 1. <i>Sales Promotions</i> 2. Live Marketing 3. <i>Word of Mouth (WOM)</i> <i>(Sari (2018))</i>	Ordinal
Quality of Education Services (X2)	Quality as a whole characteristic of goods and services that affect the ability to meet consumer needs and desires (Kotler, 2013). Thus it can be concluded that quality is a dynamic condition related to the nature of goods and services that meet or exceed customer expectations.	<ol style="list-style-type: none"> 1. Physical facilities, equipment, employees, and means of communication. 2. Ability to perform promised services accurately and satisfactorily. 3. The desire of staff and employees to help customers and provide responsive service. 4. Knowledge, ability, courtesy and trustworthiness of the staff, free from danger, risk and doubt. 5. Ease of doing relationships, good communication, personal attention, and understanding the needs of customers. <i>(Tjiptono, 2017)</i>	Ordinal
Religiosity (Z)	Religiosity is an institutionalized symbol, belief system, value system,	<ol style="list-style-type: none"> 1. Believe in Allah SWT. 2. Surrender to Allah SWT. 	Ordinal

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	and behavior system, all of which are centered on issues that are internalized as the most meaningful. (Riptiono, 2018)	<ol style="list-style-type: none"> 3. Believe in Angels, Apostles and Scriptures 4. Do something sincerely 5. Believe in God's fate <ol style="list-style-type: none"> 1. Always perform the five prayers in an orderly manner 2. Reciting Al-Qur'an 3. Do fasting and sunnah prayers according to the teachings of the apostle 4. Carrying out religious activities such as listening to religious lectures, doing da'wah, charity activities, giving alms and playing a role in religious activities <ol style="list-style-type: none"> 1. Be patient in facing trials 2. The feeling of always being grateful to Allah SWT. 3. Consider failure experienced as a disaster that has a silver lining (tawakkal) 4. Fear of breaking the rules and feeling the presence of God <ol style="list-style-type: none"> 1. Knowledge of religion by reading the holy book (Al-Qur'an) 2. Deepen religion by reading the holy book 3. Read religious books <ol style="list-style-type: none"> 1. Helpful behavior 2. Be honest and forgiving 3. Keep the mandate 4. Responsible for all actions taken and maintain the cleanliness of the environment (<i>Glock and Stark in Ancok (2008)</i>) 	
Voting Decision (Y)	Purchasing decision is the stage of the decision process where the actual consumer make product purchases. Consumers as the main actors in the buying process have always been the concern of producers. (<i>Kotler and Armstrong (2012)</i>)	<ol style="list-style-type: none"> 1. Introduction of Needs 2. Information Search 3. Alternative Evaluation 4. Purchase decision 5. Post-Purchase Behavior (<i>Kotler and Armstrong (2012)</i>) 	Ordinal

Independent variables according to Sugiyono (2016) are variables that influence or cause changes or the emergence of the dependent (bound) variable. In this study, the independent variables were school image (X1), school promotion (X2), and quality of education services (X3).

The dependent variable or dependent variable is the variable that is affected or becomes the result because of the independent variables (Sugiyono, 2016). The dependent variable in this study is the decision to choose (Y).

According to Tuckman in Sugiyono's book (2015) states "An intervening variable is that factor that theoretically affects the observed phenomenon but cannot be seen, measured or manipulated." Intervening variables are variables that theoretically influence the relationship between the independent and dependent variables into an indirect relationship and cannot be observed and measured. The intervening variable in this study is religiosity (Z).

Data analysis technique

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The data analysis method used in this research is Structural Equation Modeling or Structural Equation Model using WarpPLS software. Structural Equation Modeling (SEM) is a combination of two separate statistical methods, namely factor analysis developed in psychology and psychometrics and simultaneous equation models developed in econometrics (Ghozali, 2011).

SEM can be described as an analysis that combines factor analysis approaches, structural models, and path analysis.

In accordance with the hypothesis that has been formulated, in this study statistical data analysis was measured by SEM-PLS using the WarpPLS (Partial Least Square) program starting from model measurement (outer model), model structure (inner model) and hypothesis testing.

1. Model Measurement (Data Quality Test)

Evaluation of the measurement model (outer model) is carried out to assess the reliability and validity of the indicators forming the latent construct (Ghozali & Latan, 2014:91). The measurement model (outer model) is used to test the common method bias, construct validity and instrument reliability (Latan & Ghozali, 2012:77; Sholihin & Ratmono, 2013:141), along with the explanation:

– Intended validity testing to test whether items/indicators representing latent constructs are valid or not in the sense that they can explain latent constructs to be measured. To test the validity in this study using construct validity which is divided into two, namely convergent and discriminant (Ghozali & Latan, 2014: 91). Convergent validity aims to test the correlation between items/indicators to measure constructs. In other words, convergent validity wants to confirm construct measurements (Ghozali & Latan, 2014:91). The convergent validity test of the reflexive indicator with the PLS program can be seen from the loading indicator or loading factor and the average variance extracted (AVE) which must be greater than 0.70 for confirmatory research and a loading factor value between 0.60-0.70 is still acceptable for exploratory research. While discriminant validity aims to test the items/indicators of the two constructs that are should not be highly correlated (Ghozali & Latan, 2014:91) where if the correlation of the construct with the measurement items is greater than the size of the other constructs, it will show that the latent construct predicts the size of the block better than the size of other blocks (Ghozali, 2014:40). Another way can also be seen from the value of the squared AVE must be greater than the correlation between latent constructs (Ghozali & Latan, 2014:95).

Reliability testing shows the accuracy, consistency and accuracy of a measuring instrument in making measurements (Hartono, 2008 in Abdillah & Jogiyanto, 2015: 196). There are 2 (two) criteria in measuring or evaluating reliability namely *reliability*

indicators and internal consistency reliability. Indicator reliability is the magnitude of the variance of the indicators/items to explain latent constructs. The parameter used to test the reliability of the criterion indicator reliability is Cronbach's alpha. The rule of thumb is cronbach's alpha > 0.70 for confirmatory research and cronbach's alpha > 0.60 is acceptable for exploratory research (Ghozali & Latan, 2014:93-95). Meanwhile, internal consistency reliability describes the estimation of reliability based on the average correlation between items in a test. The parameter used to test the reliability of the internal consistency reliability criteria is composite reliability. The rule of thumb is composite reliability > 0.70 for confirmatory research and composite reliability 0.60-0,

2. Structural Model Evaluation

The structural model (inner model) is a structural model for predicting the causality relationship between latent variables (Latan & Ghozali, 2012:77). PLS-SEM is only able to estimate recursive models, namely structural equation models that have only one causality relationship, while non-recursive models-*recrusivemust* use a covariance-based SEM program (Latan & Ghozali, 2012:151).

– Coefficient of Determination

The coefficient of determination uses R-squared or adjusted R² which shows what percentage of the endogenous construct/criterion variation can be explained by the construct that is hypothesized to influence it (exogenous/predictor). R-squared only exists for endogenous variables (Sholihin & Ratmono, 2013:62). R-square or adjusted R-square values ≤0.70 (strong model), ≤0.45 (moderate model) and ≤0.25 (weak model). The higher the R-squared indicates a good model, which means that the model predictors are better at explaining variance (Sholihin & Ratmono, 2013:62; Ghozali & Latan, 2014:98). It should be noted that the maximum limit for this value is 0.70 in the PLS context. If the value is greater than this limit, it is possible that the model will experience a collinearity problem (Kock & Lynn, 2012: 562 in Ghozali & Latan, 2014: 98).

– Fit models and Quality Indexes

To evaluate the fit model, several indicators of fit can be determined, namely:

- *Average path coefficient* (APC), average R-squared (ARS), average adjusted R-squared (AARS) which measures the average path coefficient, R-square and adjusted R-square values generated in the model. The P-value cut-off value for APC, ARS and AARS which is recommended as an indication of model fit is the P-value (≤0.05) with a significant level used is 5% (Kock, 2013: 48 in Ghozali & Latan, 2014: 101-102; Sholihin & Ratmono, 2013: 61).

- *Average variance inflation factor* (AVIF) and average full collinearity variance inflation factor (AFVIF) are two measures of model fit used to test the

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 OAJI (USA) = 0.350

collinearity problem in the PLS fit model. AVIF and AFVIF values will increase if one latent variable for the model is added to it which will also add full collinearity or often called multicollinearity (vertical and lateral). Ideally the recommended values for both measures should be ≤ 3.3 assuming that most of the constructs/variables in the model are measured by two or more indicators (Kock, 2013:48 in Ghozali & Latan, 2014:102). AVIF and AFVIF as indicators of multicollinearity must be smaller than 5 (Sholihin & Ratmono, 2013:61).

- For overall fit index or quality indices can use the goodness of fit criteria developed by Tenenhaus et al., (2004: 740), which can be seen from the value of Tenenhaus GoF. Where if GoF small (GoF=0.10), GoF medium (GoF=0.25) and GoF large (GoF=0.36) (Latan & Ghozali, 2012: 88).

- Symson's paradox ratio*(SPR), which is an index measure that indicates a causality problem, so it is suggested to reverse the hypothesis (Pearl, 2009:174 in Ghozali & Latan, 2014:104). Ideally, this index should be equal to 1, which means that there is no Simpson's paradox problem in a model or an acceptable SPR value of ≥ 0.70 , which means 70% or more of the paths in the model are free of Simpson's paradox.

- R-squared contribution ratio*(RSCR) is an index to measure the expansion in which a model is free from a negative R-squared contribution. Ideally, this RSCR index should be equal to 1 which means that there is no negative R-squared contribution in a model or an acceptable RSCR value that is ≥ 0.90 which means that 90% or more of the paths in the model are not related to the R-squared contribution negative.

- Statistical suppression ratio*(SSR) is an index that measures the extent to which a model is free from statistical suppression effect problems. This suppression problem arises when a path coefficient has a large value compared to the correlation relationship with the path that connects the two variables. Similar to Simpson's paradox, statistical suppression may indicate a causality problem (Spirtes et al., 1993 in Ghozali & Latan, 2014: 105). The acceptable SSR value is ≥ 0.70 which means 70% or more of the path in the model is free from statistical suppression.

Nonlinear bivariate causality direction ratio(NLBCDR) is an index to measure the extent to

which bivariate non-linear coefficients of the relationship are supported for the hypothesis of a causal relationship in the model. An acceptable NLBCDR value is ≥ 0.70 which means that 70% or more of the paths related in the model support the reverse hypothesis of a weak causality relationship.

3. Hypothesis test

After carrying out various evaluations, both the outer model and the inner model, we then carry out hypothesis testing. Hypothesis testing is used to explain the direction of the relationship between the independent variable and the dependent variable. This test was carried out by means of SEM technical analysis. SEM techniques can simultaneously test complex structural models, so that the results of path analysis can be known in a single regression analysis. The results of the correlation between constructs are measured by looking at the path coefficients and their level of significance which is then compared with the research hypothesis. A hypothesis can be accepted or rejected statistically, the level of significance can be calculated. The significance level used in this study is 5%. If the significant level chosen is 5% then the significance level or confidence level is 0.05 to reject a hypothesis. In this study there is a 5% probability of making a wrong decision and a 95% probability of making a correct decision. If the p-value ≥ 0.05 , then H_0 is accepted and H_a is rejected. However, if the p-value < 0.05 , then H_0 is rejected and H_a is accepted.

Result and Discussion

Convergent Validity

Convergent validity aims to test the correlation between items/indicators to measure constructs. In other words, convergent validity wants to confirm construct measurements. Testing the validity of the reflexive convergent indicator with the WarpPLS 7.0 program can be seen from the loading factor and average variance extracted (AVE). Testing the convergent validity of reflexive indicators with the PLS program can be seen from the indicator loading or loading factor must be greater than 0.70 for confirmatory research and a loading factor value between 0.60-0.70 is still acceptable for exploratory research (Ghozali & Latan, 2014:91). While the value of the average variance extracted (AVE) obtained in excess of 0.5 means that all indicators of each construct are valid (Ghazali & Latan, 2015: 155).

Table 6. Convergent Validity

Variable	Indicator	loading	Decision
School Image	CS1	0.422	Invalid
	CS2	0.405	Invalid
	CS3	0.628	Valid
	CS4	0.781	Valid
	CS5	0.844	Valid

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 JIF = 1.500 SJIF (Morocco) = 7.184 OAJI (USA) = 0.350

Variable	Indicator	loading	Decision
	CS6	0.815	Valid
	CS7	0.704	Valid
	CS8	0.417	Invalid
	CS9	0.740	Valid
	CS10	0.832	Valid
	CS11	0.424	Invalid
School Promotion	PS1	0.961	Valid
	PS2	0.379	Invalid
	PS3	0.954	Valid
Quality of Education Services	KLP1	0.765	Valid
	KLP2	0.609	Valid
	KLP3	0.874	Valid
	KLP4	0.812	Valid
Religiosity	R1	0.720	Valid
	R2	0.649	Valid
	R3	0.578	Invalid
	R4	0.675	Valid
	R5	0.635	Valid
	R6	0.714	Valid
	R7	0.744	Valid
	R8	0.566	Invalid
	R9	0.477	Invalid
	R10	0.736	Valid
	R11	0.769	Valid
	R12	0.749	Valid
	R13	0.708	Valid
	R14	0.641	Valid
	R15	0.764	Valid
	R16	0.573	Invalid
	R17	0.798	Valid
	R18	0.784	Valid
	R19	0.740	Valid
	R20	0.645	Valid
The Decision to Choose a School	KM1	0.881	Valid
	KM2	0.860	Valid
	KM3	0.256	Invalid
	KM4	0.817	Valid
	KM5	0.824	Valid

Source: WarpPLS 7.0 Data Processing Results (2021)

From the results above it can be seen that there is a loading indicator value or a construct loading factor that is less than 0.6 which means that the

indicator is not valid. For this reason, a modification of the model was carried out by removing these indicators, and the following results were obtained:

Table 7.

Variable	Indicator	loading	Decision	AVE
School Image	CS3	0.710	Valid	0.617
	CS4	0.773	Valid	
	CS5	0.878	Valid	
	CS6	0.830	Valid	
	CS7	0.673	Valid	
	CS9	0.780	Valid	
	CS10	0.832	Valid	

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GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

Variable	Indicator	loading	Decision	AVE
School Promotion	PS1	0.975	Valid	0.950
	PS3	0.975	Valid	
Quality of Education Services	KLP1	0.765	Valid	0.595
	KLP2	0.609	Valid	
	KLP3	0.874	Valid	
	KLP4	0.812	Valid	
Religiosity	R1	0.711	Valid	0.525
	R2	0.659	Valid	
	R4	0.658	Valid	
	R5	0.637	Valid	
	R6	0.714	Valid	
	R7	0.734	Valid	
	R10	0.728	Valid	
	R11	0.765	Valid	
	R12	0.751	Valid	
	R13	0.73	Valid	
	R14	0.656	Valid	
	R15	0.773	Valid	
	R17	0.820	Valid	
	R18	0.808	Valid	
R19	0.761	Valid		
R20	0.651	Valid		
The Decision to Choose a School	KM1	0.890	Valid	0.721
	KM2	0.855	Valid	
	KM4	0.823	Valid	
	KM5	0.826	Valid	

Source: WarpPLS 7.0 Data Processing Results (2021)

After modifying the model, the loading indicator value or loading factor construct for each variable is above 0.6. Then also obtained an average variance extracted (AVE) value above 0.50 which means that all the reflective indicators above have a correlation with the construct variable. This explains that all indicators in the variable construct meet the convergent validity requirements.

Discriminant Validity

Discriminant validity aims to test the items/indicators of the two constructs that are should not be highly correlated (Ghozali & Latan, 2014:91). *discriminant validity* from the measurement model with reflective indicators assessed based on

cross loading measurements with constructs and square roots (square roots) average variance extracted (AVE).

In the measurement of discriminant cross loading validity. If the correlation between the construct and the measurement item is greater than the size of the other constructs, it will indicate that the latent construct predicts the size of the block better than the size of the other blocks. To see the results of the discriminant validity test by comparing the correlation values of fellow indicators in one construct with other variables, it can be seen by looking at the following cross loading values:

Table 8. Discrimination Validity

Indicator	School Image	School Promotion	Quality of Education Services	Religiosity	The Decision to Choose a School
CS3	0.710	0.434	-0.157	0.240	-0.030
CS4	0.773	-0.095	0.007	-0.014	0.094
CS5	0.878	-0.045	-0.040	-0.017	0.113
CS6	0.830	-0.089	-0.003	-0.036	-0.035
CS7	0.673	-0.232	0.139	-0.164	-0.014
CS9	0.780	0.154	0.154	0.029	-0.143

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Indicator	School Image	School Promotion	Quality of Education Services	Religiosity	The Decision to Choose a School
CS10	0.832	-0.102	-0.084	-0.032	0.000
PS1	0.055	0.975	-0.006	-0.025	-0.013
PS3	-0.055	0.975	0.006	0.025	0.013
KLP1	-0.088	0.000	0.765	0.059	-0.137
KLP2	0.170	0.015	0.609	0.015	0.304
KLP3	-0.055	-0.029	0.874	0.036	0.049
KLP4	0.014	0.021	0.812	-0.105	-0.152
R1	-0.222	-0.081	0.122	0.711	-0.132
R2	0.021	-0.220	0.078	0.659	0.035
R4	-0.072	-0.177	0.012	0.658	-0.072
R5	-0.117	-0.151	0.166	0.637	-0.023
R6	-0.115	-0.083	0.019	0.714	-0.116
R7	-0.212	-0.044	0.021	0.734	-0.138
R10	0.201	0.043	-0.101	0.728	-0.068
R11	-0.120	0.048	-0.048	0.765	0.030
R12	0.158	-0.126	-0.035	0.751	0.064
R13	-0.058	0.146	-0.105	0.730	0.213
R14	-0.217	0.262	-0.117	0.656	0.189
R15	-0.003	0.074	0.045	0.773	0.071
R17	0.176	-0.035	-0.033	0.820	0.065
R18	0.182	0.050	0.091	0.808	-0.093
R19	0.253	0.096	-0.016	0.761	-0.074
R20	0.051	0.175	-0.094	0.651	0.059
KM1	-0.062	0.010	-0.041	0.053	0.890
KM2	0.055	0.055	0.088	-0.078	0.855
KM4	-0.069	-0.028	-0.021	-0.002	0.823
KM5	0.078	-0.039	-0.026	0.026	0.826

Source: WarpPLS 7.0 Data Processing Results (2021)

Based on the results above canseenthat the correlation value of all indicators from each construct has a high correlation with the construct variable. This explains that all indicators in each construct variable meet the discriminant validity requirements.

While discriminant validity is based on the Average Variance Extracted (AVE) Square Roots method, vgood discriminant validity is shown from the square root of AVE greater than the correlation

between latent constructs in the model, meaning that the value of the square root of AVE > than the correlationbetween latent construct. Results discriminant validity test withsquare roots (square roots) average variance extracted (AVE) comparecorrelation valuediagonal column and bracketed, must be higher than the correlation between latent variables in the same column (above or below).

Table 9.

Variable	School Image	School Promotion	Quality of Education Services	Religiosity	The Decision to Choose a School
School Image	0.785	0.127	0.338	0.445	0.478

Impact Factor:

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GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
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School Promotion	0.127	0.975	0.285	0.207	0.358
Quality of Education Services	0.338	0.285	0.771	0.303	0.462
Religiosity	0.445	0.207	0.303	0.724	0.384
The Decision to Choose a School	0.478	0.358	0.462	0.384	0.849

Source: WarpPLS 7.0 Data Processing Results (2021)

In daitas results can be seenmarksquare rooton the AVE along the diagonal line the greater the correlation between one construct and another so it can be concluded that the construct has a good level of validity.

Reliability indicators that ismagnitudevriance of indicators/items to explain latent constructs. The results of the reliability test with the reliability indicator criteria can be seen in the Cronbach's alpha table.

Reliability Test Indicator Reliability

Table 10. Cronbrach’s Alpha Table

	School Image	School Promotion	Quality of Education Services	Religiosity	The Decision to Choose a School
Cronbach's Alpha Coefficients	0.895	0.948	0.766	0.939	0.871

Source: WarpPLS 7.0 Data Processing Results (2021)

In the table above you can see all the values of cronbach's alphas the research construct variable is located above 0.70. This explains that all construct variables meet the reliability requirements.

Internal consistency reliability describes an estimate of reliability based on the average correlation between items in a test. The results of the reliability test with internal consistency reliability criteria can be seen in the composite reliability table.

Internal Consistency Reliability Test

Table 11. Composite Reliability

	School Image	School Promotion	Quality of Education Services	Religiosity	The Decision to Choose a School
Composite Reliability Coefficients	0.918	0.975	0.852	0.946	0.912

Source: WarpPLS 7.0 Data Processing Results (2021)

In Table 4.15 it can be seen that all values of composite reliability construct variables research variables above 0.70. This explains that all construct variables meet the reliability requirements.

The coefficient of determination uses R-squared which shows what percentage of the endogenous construct/criterion variation can be explained by the construct that is hypothesized to influence it (exogenous/predictor). R-squared exists only for endogenous variables.

Determination Coefficient Test

Table 12. R-squared

Structure Models	Religiosity	The Decision to Choose a School
R-squared coefficients	0.309	0.401
Adjusted R-squared coefficients	0.296	0.386

Source: WarpPLS 7.0 Data Processing Results (2021)

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From the table above it can be obtained that the R Square value of the religiosity variable is 0.309. This means that 30.9% of the religiosity variable is influenced by school image, school promotion and quality of education services. Then the Adjusted R Square value for the decision variable to choose a school is 0.386. This means that 38.6% of the variable

the decision to choose a school is influenced by school image, school promotion, quality of education services and religiosity.

Fit models and Quality Indexes

To evaluate the model fit and quality index, the following indicators can be determined:

Table 13.

<p>Average path coefficient (APC)=0.236, P<0.001 Average R-squared (ARS)=0.355, P<0.001 Average adjusted R-squared (AARS)=0.341, P<0.001 Average block VIF (AVIF)=1.194, acceptable if <= 5, ideally <= 3.3 Average full collinearity VIF (AFVIF)=1.398, acceptable if <= 5, ideally <= 3.3 Tenenhaus GoF (GoF)=0.492, small >= 0.1, medium >= 0.25, large >= 0.36 Sympson's paradox ratio (SPR)=1.000, acceptable if >= 0.7, ideally = 1 R-squared contribution ratio (RSCR)=1,000, acceptable if >= 0.9, ideally = 1 Statistical suppression ratio (SSR)=1.000, acceptable if >= 0.7 Nonlinear bivariate causality direction ratio (NLBCDR)=1.000, acceptable if >= 0.7</p>
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Source: WarpPLS 7.0 Data Processing Results (2021)

In the table 13 above it can be seen that the average path coefficient (APC) is 0.236 with a p-value <0.001, the average R-squared (ARS) is 0.355 with a p-value <0.001, the average adjusted R-squared (AARS) is 0.341 with a p-value < 0.001, this means that the research model has a good fit.

Then obtained the value of the average variance inflation factor (AVIF) of 1.194 and the average full collinearity variance inflation factor (AFVIF) of 1.398 <3.3, which means that there is no multicollinearity problem between indicators and between exogenous variables. Furthermore, the tenenhaus goodness of fit value was 0.492 > 0.36 which indicated that the predictive power of the model was large or the fit model was very good.

To evaluate the quality indexes, the Symson's paradox ratio (SPR) index is 1.000 > 0.70 (ideal), the R-squared contribution ratio (RSCR) is 1,000 > 0.90 (ideal), the statistical suppression ratio (SSR) is 1,000 > 0.70 (ideal) and the nonlinear bivariate causality direction ratio (NLBCDR) value is 1.000 > 0.70 which means that the indices have no causality problem in the model.

Hypothesis testing

This test is carried out using the t test (t-test) on each path of influence between variables. A variable is declared influential if it gets a p value <0.05. From the tests performed, the following results were obtained:

Table 14. t test

Influence	Path Coefficients	P values	Decision
School Image → Religiosity	0.439	<0.001	Significant
School Promotion → Religiosity	0.123	0.058	Not significant
Quality of Education Services → Religiosity	0.187	0.008	Significant
School Image → Decision to Choose a School	0.278	<0.001	Significant
School Promotion → School Selection Decision	0.181	0.010	Significant
Quality of Education Services → Decision to Choose a School	0.285	<0.001	Significant
Religiosity → The Decision to Choose a School	0.157	0.021	Significant
School Image → Religiosity → Decision to Choose a School	0.069	0.107	Not significant
School Promotion → Religiosity → Decision to Choose a School	0.019	0.365	Not significant
Quality of Education Services → Religiosity → Decision to Choose a School	0.029	0.300	Not significant

Source: Data Processing Results (2021)

Impact Factor:

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Conclusion

1. School Image → Religiosity

Obtainedmark *path coefficients* of 0.439, which means that for every 1 unit increase in school image, it will increase religiosity by 0.439 and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* < 0.001 which means that the image of the schoolsignificant effect on religiosity.

2. School Promotion → Religiosity

Obtainedmark *path coefficients* of 0.123, which means that for every increase in school promotion by 1 unit, it will increase religiosity by 0.123 and vice versa assuming other variables are constant. Then obtainedmar *k.p.svalue* 0.058 > 0.05 which means that there is no school promotionsignificant effect on religiosity.

3. Quality of Education Services → Religiosity

Obtainedmark *path coefficients* equal to 0.187, which means that for every increase in the quality of education services by 1 unit, it will increase religiosity by 0.187 and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* 0.008 < 0.05 which means that the quality of education servicessignificant effect on religiosity.

4. School Image → Decision to Choose a School

Obtainedmark *path coefficients* of 0.278, which means that for every 1 unit increase in school image, it will increase the decision to choose a school by 0.278 and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* < 0.001 which means that the image of the schoolsignificant effect on the decision to choose a school.

5. School Promotion → School Selection Decision

Obtainedmark *path coefficients* of 0.181, which means that for every increase in school promotion by 1 unit, it will increase the decision to choose a school by 0.181 and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* 0.010 < 0.05 which means that school promotionsignificant effect on the decision to choose a school.

6. Quality of Education Services → Decision to Choose a School

Obtainedmark *path coefficients* equal to 0.285, which means that for every increase in the quality of

education services by 1 unit, it will increase the decision to choose a school by 0.285 and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* < 0.001 which means that the quality of education servicessignificant effect on the decision to choose a school.

7. Religiosity → The Decision to Choose a School

Obtainedmark *path coefficients* of 0.157 which means every increasereligiosityby 1 unit, it will increase the decision to choose a school by 0.157 and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* 0.021 < 0.05 which means thatreligiositysignificant effect on the decision to choose a school.

8. School Image → Religiosity → Decision to Choose a School

Obtainedmark *path coefficients* of 0.069, which means that for every 1 unit increase in school image, it will increase the decision to choose a school by 0.069 which is mediated by religiosity and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* 0.107 > 0.05 which means that religiosity does not mediate the influence of school imageon the decision to choose a school.

9. School Promotion → Religiosity → Decision to Choose a School

Obtainedmark *path coefficients* of 0.019, which means that for every increase in school promotion by 1 unit, it will increase the decision to choose a school by 0.019 which is mediated by religiosity and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* 0.365 > 0.05 which means that religiosity does not mediate the influence of school promotionson the decision to choose a school.

10. Quality of Education Services → Religiosity → Decision to Choose a School

Obtainedmark *path coefficients* of 0.029 which means every increasequality of educational servicesby 1 unit, it will increase the decision to choose a school by 0.029 which is mediated by religiosity and vice versa assuming other variables are constant. Then obtainedmark *p.svalue* 0.300 > 0.05 which means that religiosity does not mediate influencequality of educational serviceson the decision to choose a school.

References:

- Hartati, & Novika, A. (2018). *The Effect of the Image of the Bunayya Integrated Islamic Elementary School (Sdit) and Facilities on the Satisfaction of Parents of Students of the Al-Munawwarah Murad Islamic Education Foundation Medan*. Management Study Program, Faculty of Economics & Business, University of Medan Area. Medan.
- Rudianto (2018). *The Effect of Service Quality, Perceived Prices, and Facilities on Parents' Interests in Sending Their Children to Integrated Islamic Junior High Schools (Smpit) in*

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PIF (India) = 1.940
IBI (India) = 4.260
OAJI (USA) = 0.350

- Ponorogo Regency. Postgraduate at State Islamic Institute (IAIN) Ponorogo. Ponorogo.
3. Sapphire, A. (2019). *The Effect of Price, Promotion and Religiosity on Community Decisions in Choosing an Islamic Bank with an Interest as an Intervening Variable. Islamic Banking Study Program (SI) Faculty of Islamic Economics and Business Salatiga State Islamic Institute (IAIN). Salatiga.*
 4. Abdullah, W., & Jogiyanto (2015). *Partial Least Square (PLS) Alternative Structural Equation Modeling (SEM) in Business Research*. Ed. 1. Yogyakarta: ANDI.
 5. Agusty, Z., et al. (2020). The Influence of Marketing Mix on Brand Image, Motivation and Students Decision to Choose Graduate Studies of IPB University. *Journal of Consumer Sciences* Vol. 05 No. 02 2020.
 6. Ahidin, U. (2019). Analysis of Parents' Decisions for Choosing Educational Institutions through the Quality of Educational Services (Empirical Study of Islamic Kindergartens in Cinere Village, Depok City). *Journal of Competitive Marketing*, Vol. 02 No. 02 2019.
 7. Chandra, T., et al. (2018). The influence of service quality, university image on student satisfaction and student loyalty. *Benchmarking: An International Journal* 2018.
 8. Chen, C.-T. (2016). The Investigation on Brand Image of University Education and Students' Word-of-Mouth Behavior. *Higher Education Studies*, Vol. 06, No. 4 2016.
 9. Darwin, et al. (2015). Effect of Price, Location and Quality of Education on Parents' Decisions in Choosing Educational Services. *Journal of Management and Banking*, Vol.2 No.2 June 2015.
 10. Erinawati, F., et al. (2021). The Effect of Service Quality, Price, Promotion on Decisions. *Scientific Journal of Management and Entrepreneurship* Vol. 01 No. 02 2021.
 11. Fredy, et al. (2019). Analysis of Parental and Student Satisfaction with the Quality of Basic Education Services. *Musamus Journal of Primary Education*, Vol. 02 No. 01 2019.
 12. Ghozali, I., & Hengky, L. (2014). *Partial Least Squares: Concepts, Techniques and Applications Using SmartPLS 3.0 (2nd edition)*. Semarang: Diponegoro University.
 13. Ghozali, I., & Hengky, L. (2012). *Partial Least Square "Concepts, Techniques and Applications" SmartPLS 2.0 M3*. Semarang: Diponegoro University Publishing Agency.
 14. Hadi, N., et al. (2015). Analysis of Factors Influencing Parents' Decisions on Choosing Integrated Islamic Kindergarten Education Institutions (TK IT) Nurul Fikri Sukodono Sidoarjo. *Journal of Commerce Education (JPTN)* Vol. 03 No. 03 2015.
 15. Hasan, A., et al. (2020). The Influence of School Image and Quality of Teaching Staff on Students' Decisions in Choosing the Yamaha Indonesia Music School in Makassar City. *Journal of Brands*, Vol. 02 No. 01 2020.
 16. Khair, M. A., et al. (2020). The Effect of Social Factors and Brand Image on The Decision of Parents in Choosing Education Services Educated by The Parent's Attitude. *Management and Economic Journal*, Vol. 04 No. 02 2020.
 17. Christian, N. (2016). Factors Influencing Parents' Decisions to Choose SD Kasatriyan Surakarta. *Journal of Management Maranatha* Vol. 16 No. 01 2016.
 18. Mahnunah, F.Kh., et al. (2019). The Relationship Between Promotion and School Image With Students' Decisions Choosing State Aliyah Madrasas in Gresik Regency. *Journal of Education Management Inspiration*, Vol. 07 No. 01 2019.
 19. Munarsih, et al. (2020). The Effect of Promotion on the Decision to Choose a School for Parents of SDIT Bina Cendekia Depok Students. *Journal of Effective Economics*, Vol. 02 No. 03 2020.
 20. Nurwahyudi, A., et al. (2018). The Role of Religiosity in Moderating Individual Decisions in Choosing an Integrated Islamic Elementary School in Karanganyar. *CAPITAL: Journal of Economics and Management*, Vol.01 No.02 March 2018.
 21. Rosmaniar, A. (2019). The Effect of Service Marketing Mix on Students' Decisions to Choose Private Vocational High Schools in Surabaya. *PERFORMANCE* Vol. 16 No. 01 2019.
 22. Sari, W. M., et al. (2016). The Influence of School Image on the Decision to Choose a School in Christian Vocational School 1 Surakarta Students. *Journal of Business and Economic Education*, Vol. 01 No. 02 2016.
 23. Septiani, F. (2019). The Influence of Promotions and Facilities on Parents' Decisions in Determining Children's Education at MIT Al-Qalam Depok. *CREATIVE: Scientific Journal of Management Study Program, Pamulang University*, Vol. 07 No. 02 2019.
 24. Suryani, A. N. (2018). The Effect of Brand Image and Education Costs on Student Decisions in Choosing a Management Study Program at STIE Rahmadiyah Sekayu (Case Study of Management Study Program Students Batch 2013/2014). *Competent Management Journal* Vol. 01 No. 01 2018.
 25. Sholihin, M., & Dwi, R. (2013). *SEM-PLS analysis with WarpPLS 3.0*. Yogyakarta: ANDI Publisher.
 26. (n.d.). *Integrated Islamic School Network (JSIT)*, Retrieved from <https://jsit-indonesia.com/>

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27. (n.d.). *Web of Abdurrab IT Middle School*, Retrieved from <https://www.abdurrabislamicsschool.sch.id/>
28. (n.d.). *Website of IT Imam Syafii II Middle School*, Retrieved from <https://imamsyafii2pku.org/>
29. (2015). *Pekanbaru City Education Office. 2015. Junior High School Data and Number of Students in Pekanbaru City*. Pekanbaru. 2 p.
30. (2016). *Pekanbaru City Education Office. 2016. Junior High School Data and Number of Students in Pekanbaru City*. Pekanbaru. 2 p.
31. (2017). *Pekanbaru City Education Office. 2017. Junior High School Data and Number of Students in Pekanbaru City*. Pekanbaru. 2 p.
32. (2018). *Pekanbaru City Education Office. 2018. Junior High School Data and Number of Students in Pekanbaru City*. Pekanbaru. 2 p.
33. (2019). *Pekanbaru City Education Office. 2019. Junior High School Data and Number of Students in Pekanbaru City*. Pekanbaru. 2 p.
34. (2020). *Pekanbaru City Education Office. 2020. Junior High School Data and Number of Students in Pekanbaru City*. Pekanbaru. 2 p.

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PHYSICAL DEVELOPMENT LEVEL OF CHILDRENS OF SCHOOL #1 (GRADES 1-11) LOCATED IN ANDIJAN CITY, ANDIJAN REGION, REPUBLIC OF UZBEKISTAN

Abstract: In this study, it was found that the body weight index of childrens of school #1 located in the city of Andijan, Uzbekistan, increases in boys and girls in grades 1-11, in boys, the body weight index does not differ significantly in the age range of 12-14 years, and in the age of 15-16 years, there is a difference in the description of "jumping". It was noted that girls' height was higher than that of boys at the age of 9-10, and that it was significantly lower than that of boys at the age of 17. It was found that girls have a significantly higher chest circumference than boys at the age of 11-17. According to the Kettle II index, body weight deficit in boys is observed at the age of 12-17 years, it is at the maximum value (20-60%) at the age of 12-14 years, excess body weight is observed at the maximum (30%) at the age of 11 years. It was found that body weight deficit is 16.36%, excess body weight is 7.27% in boys compared to the total number of respondents (n=110). In girls, the body weight deficit was observed in the age range of 9-17 years, and the maximum was noted at 14-16 years (60-70%). It was found that excess body weight in girls is 15% on average (maximum 30%) at the age of 8-14 years. It was found that body weight deficit is 24.55% of the total number of respondents (n=110), and excess body weight is 8.18% in girls. Compared to the general respondents (n=220), it was found that the deficit of body weight in children is 32.73%, and excess body weight is 7.73%. According to the Rorer index, the level of physical development of childrens is in the "normative" description, and the value of the Pine index indicates that the level of physical development of childrens in boys generally corresponds to the "dolichomorphic" self-type, while girls at the age of 17 generally belong to the "mesomorphic" self-type. In the researches, according to the Brugsch index, it was observed that the size of the chest of childrens in the general condition is close to the "normative" value, and there are no clearly expressed "deviations from the norm". It was noted that according to the value of the Verwek index, the level of physical development in boys and girls at the age of 7-16 years is generally described as "mesomorphism" (normative development), and at 17 years old it is described as "average brachymorphism" (behind the norm). The obtained results can serve as a scientific basis for the development of regional anthropo-physiological standards, as well as for the development of practical measures based on the strategy of an individual approach, taking into account the physiological indicators of the organism in the optimization of the level of physical development of childrens during school education.

Key words: children, indicators of physical development, Kettle II index, Rorer index, Pine index, Verwek index, Burgsh index.

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Introduction

Monitoring the process of physical development during ontogeny is important in assessing the health status of the human body, especially in school-age children and adolescents, preventing pathological conditions with different probabilities, and taking measures for their normal physiological and intellectual development [1, p. 71-77; 2, p. 20-22].

Also, the analysis of physical development indicators in children and adolescents is considered relevant from the point of view of biotic and abiotic factors of the external environment of the human body, regional monitoring, development of regional anthropometric standards [3, p. 26-33; 4, p. 24-26; 5, p. 65-68; 6, p. 39; 7, p. 645-649; 8, p. 33-43; 9].

Based on the above data, the **purpose of this study** is to analyze the level of physical development of childrens of school #1 (grades 1-11) located in Andijan, Andijan Region, Republic of Uzbekistan.

2. MATERIAL AND METHODS

2.1. Object and study conditions

In the research, the level of physical development of children of school #1 (grades 1-11) located in the city of Andijan, Andijan region of the Republic of Uzbekistan was analyzed. Physical development indicators of a total of 220 children ($n=220$) (10 boys and 10 girls from each class) from 1st to 11th grades were studied in the experiments.

2.2. Research methods

In the studies, the body weight (kg), height (cm), chest circumference (cm) of children were measured using standard methods [10, p. 10-336; 11, p. 7-14; 12, p. 59-61; 13, p. 455-458; 14, p. 30; 15, p. 3-24; 16, p. 85-89; 17, p. 27].

In the analysis of experimental results, indices based on body weight and height index (Kettle index II; Rorer index) and indices based on chest circumference and body weight index (Pine index, Brugsh index, Vervek index) are used [1, p. 71-77; 2, p. 20-22.; 6, p. 39; 18, p. 10-152; 19, p. 208-228].

$$\text{Kettle II index} = BW/H \text{ (kg/m}^2\text{)} \quad (2.1)$$

BW – is body weight (kg); H – represents the height (m).

Kettle II index (kg/m²) studies have confirmed that it has a place as an objective indicator in assessing the state of physical development of children (grades 7-11) [2, p. 20-22; 20, p. 7-24; 21, p. 5-32; 22, p. 10-52].

In the studies, the indicators of physical development of children were calculated based on the Kettle II index (kg/m²) value compared to the standard

normative values for assessing the level of physical development in the age range of 7-17 years accepted by the World Health Organization [2, p. 20-22].

$$\text{Rorer index} = BW/H^3 \text{ (kg/m}^3\text{)} \quad (2.2)$$

BW – is body weight (kg); H – represents the height (m).

Rorer's index the relative density of the body (kg/m³), expressing the coefficient of obesity, the value of this index in children and adolescents is 10.7-13.7 kg/m³, the level of physical development is "normal" (average), <10.7 "below the norm" and >13.7 kg/m³ in the case of "above the norm", in cases of excess body weight ("obesity") >14 kg/m³ is noted [2, p. 20-22; 6, p. 39; 23, p. 9-12; 24, p. 190-193; 25].

$$\text{Pine index} = H - (BW + C) \text{ (c.u.)} \quad (2.3)$$

BW – is body weight (kg); H – height length (m); C – is chest circumference (cm).

Pine index constitution (somatotype), i.e. allowing to describe groups of proportionality level of components of the body of children and adolescents, value <20 cases "brachymorph"; 21-25 "mesomorph"; >26 "dolichomorph" is evaluated as a self-type, and the smaller the value, the more "ripe" the body is [2, p. 20-22; 26, p. 24-31].

$$\text{Brugsch index} = (C \times 100) / H \text{ (\%)} \quad (2.4)$$

H – height length (m); C – is chest circumference (cm).

$$\text{Vervek index} = H / (2BW + C) \text{ (c.u.)} \quad (2.5)$$

BW – is body weight (kg); H – height length (m); C – is chest circumference (cm).

Verwek's index children and adolescents are brachymorphic according to the level of physical development (body is wide and legs/arms are relatively short); dolichomorph (narrow body and relatively long arms/legs) allows to divide into somatotype groups [2, p. 20-22].

2.4. Data analysis

The results were statistically processed by a special software package OriginPro v. 8.5 SR1 (EULA, USA) and "Microsoft Excel 2007" (Microsoft, USA). The results of experiments processed mathematically-statistically using standard biometric methods [13, p. 455-458; 27, p. 20-367; 28, p. 125-459; 29, p. 5-312].

The results are given in the $M \pm m$ form of the values of the experiments carried out in n replicates, M is the arithmetic average value and m is the standard error value. In addition, the results of the experiments, a statistically significant level of values between the groups were calculated using the Student's t -test and were evaluated as statistically reliable at p values <0.05, $p < 0.01$ [30, p. 675-678].

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3. RESULT AND DISCUSSION

Thus, the value of the body weight indicator (kg) increases in boys and girls in grades 1-11, including 23.03±0.17 kg in 1st grade boys, 64.64±0.28 in 11th grade boys 0.19 kg, 1st grade in girls the average was 23.04±0.12 kg and 54.91±0.18 in the 11th grade 0.18 kg. In this case, it was found that there is no significant difference in body weight in boys between the ages of 12-14 years (5-9 grades), and there is a difference in the description of "jumping" at the age of 15-16 years (at the age of 15, the average body weight is 42.82±0.16 kg, at the age of 16 59.07±0.20 kg).

Average values of body weight, height, chest circumference in children (grades 1-11) generally correspond to the values recorded in studies conducted on the scale of the CIS [31, p. 22-28].

It was also noted that girls' height was higher than that of boys at 9-10 years old (1.33±0.01-1.43±0.02 cm), and significantly lower than that of boys at 17 years old. That the chest circumference in girls at the age of 11-17 compared to boys is noticeably higher (65.84±0.19-87.18±0.23 cm) (Table 1).

Thus, in the analysis of body weight in children and adolescents in scientific researches, the Kettle II index (BMI, *Body mass index*) developed by Adolf Kettle is used, in which the value of this indicator is <18.5 "body weight deficit", in 18.5-25 cases "Normal", in 25-30 cases "excess body weight", in >30 cases "obesity" [32, p. 120-281; 33, p. 102-110; 34, p. 47-199; 35, p. 54-178; 36; 37].

Kettle II (kg/m²) index, the state of body weight deficit (thinness) in boys is observed in the age range of 12-17 years, and this state is observed at the maximum value at the age of 12-14 years (20-60%), excess body weight (obesity) was found to be observed maximum (30%) in the 11-year-old contingent. It was found that the indicator of body weight deficit (thinness) in boys is 16.36% of the total number of respondents (n=110), and excess body weight (obesity) is 7.27%.

In girls, the state of body weight deficit (thinness) was observed in the age range of 9-17 years, and the maximum value was recorded in the age range of 14-16 years (60-70%). Overweight (obesity) in girls was found to be on average 15% (maximum 30%) in the age range of 8-14 years. It was found that the indicator of body weight deficit (thinness) in girls is 24.55% of the total number of respondents (n=110), and excess body weight (obesity) is 8.18%.

Also, compared to the total respondents (n=220), it was noted that the indicator of body weight deficit (thinness) in children is 32.73%, and excess body weight (obesity) is 7.73% (Table 2).

Thus, the value of Rorer's index is equal to the average minimum of 10.40±0.06, maximum of 13.68±0.14 in boys, the average minimum of 10.69±0.08, maximum of 12.89±0.11 in girls. the level of development was assessed in the "normative" description (Table 3).

Average value of the Pine index is 27.66±0.35 for boys, the maximum is 43.67±0.18, the average for girls is 20.39±0.22, the maximum is 48.49±0.19.

A conclusion was made that it corresponds to the "dolichomorph" samotype. Also, in the 17-year-old age group, the average value of the Pine index was equal to 20.39±0.22, and that this group generally belongs to the "mesomorph" samotype (Table 3).

Usually, during the physiological age of the human body, the average value of the Brugsch index is 50-55%, and values above this range allow us to conclude that the width of the chest or vice versa [38, p. 349; 39, p. 26-29; 40, p. 59-61; 41, p. 12-135].

Thus, the average value of the Brugsch index is 65-68% in children <1 year old, 64-60% in 2-3 years old, 63-52% in 4-7 years old, and 55-50% in children and adolescents older than 7 years old. A decrease in the value allows to draw a conclusion about "chest narrowing", and vice versa, "chest expansion" [41, p. 12-135].

In the studies, Brugsch's index was recorded as minimum 43.85±0.39, maximum 49.38±0.33 in boys, minimum 44.58±0.33, maximum 53.69±0.42 in girls. The analysis of the obtained results indicates that in the contingent of schoolchildren who participated in the experiments, the chest size is close to the "normative" value, and there are no clearly expressed "deviations from the norm".

In the studies, the average value of the Vervek index in boys was 0.83±0.02, the maximum was 1.20±0.02, in girls, the minimum was 0.83±0.01, and the maximum 0.03±1.18.

Using the Vervek index, children and adolescents can be analyzed on the basis of the physical development level based on the proportions of the trunk, arms and legs, that is, brachymorph according to the level of physical development (the body is wide and the legs/arms are relatively short); can be divided into dolichomorphic (narrow body and relatively long arms/legs) somatotype groups [2; p. 20-22; 19, 2008; p. 208-228; 41; p. 12-135; 42, p. 60-63].

In this case, the value of this index is >1.35 "dolichomorphism" (the body is relatively narrow, legs and arms are relatively long), 1.35-1.25 "average dolichomorphism", 1.25-0.85 "mesomorphism" (normal development), <0.85 "moderate brachymorphism" (behind the norm) and <0.75 "pronounced brachymorphism" (smallness, wide body, relatively short legs and arms) [41, 12-135; 43, p. 9-12; 44].

Based on the obtained results, the level of physical development in boys and girls at the age of 7-16 years according to the values of the Vervek index can be assessed as "mesomorphism" (normative development) in the general case, and "average brachymorphism" (behind the norm) in the general case in the 17-year age range (Table 3).

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Table 1. Analysis of the main physical development indicators (body weight, height length, chest circumference) of childrens of school #1 (grades 1-11) located in Andijan city of Andijan region of the Republic of Uzbekistan ($M\pm m$)

#	Physical development indicators	Physiological age groups (Grades)										
		Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11
Boys (n=110)												
1	Body weight (kg)	23,03±0,17	28,48±0,14	26,16±0,23	31,96±0,15	40,40±0,18	40,36±0,26	41,41±0,24	42,82±0,16	59,07±0,20	58,08±0,25	64,64±0,19
2	Height length (m)	1,23±0,01	1,32±0,01	1,28±0,01	1,36±0,02	1,46±0,03	1,46±0,01	1,52±0,02	1,60±0,02	1,73±0,03	1,73±0,03	1,77±0,02
3	Chest circumference (sm)	57,16±0,26	60,73±0,23	63,24±0,37	63,42±0,18	71,95±0,28	72,07±0,32	70,05±0,40	75,53±0,21	76,48±0,18	78,04±0,35	86,28±0,34
Girls (n=110)												
4	Body weight (kg)	23,04±0,12	25,62±0,15	29,59±0,13	30,81±0,14	31,39±0,19	38,34±0,22	51,74±0,13	45,78±0,17	45,34±0,21	48,14±0,16	54,91±0,18
5	Height length (m)	1,22±0,01	1,26±0,01	1,33±0,01	1,43±0,02	1,39±0,01	1,49±0,03	1,586±0,04	1,60±0,01	1,60±0,01	1,60±0,02	1,62±0,01
6	Chest circumference (sm)	57,45±0,20	58,33±0,24	64,82±0,28	63,88±0,35	65,84±0,19	70,81±0,27	80,46±0,23	78,09±0,31	80,24±0,34	77,82±0,29	87,18±0,23

Table 2. The level of physical development according to the analysis of the index Kettle II (kg/m²) childrens of school #1 (grades 1-11) located in Andijan city of Andijan region of the Republic of Uzbekistan ($M\pm m$)

#	Grades (years)	Physical development status assessment groups									
		Body weight deficit (thinness)		Regulatory (-)		Regulatory		Regulatory (+)		Excess body weight (obesity)	
		People (%)	Standard	People (%)	Standard	People (%)	Standard	People (%)	Standard	People (%)	Standard
Boys (n=110)											
1.	1 (7)		≤13	3 (30)	13.1-14.9	6 (60)	15.0-17.0	1 (10)	17.1-18.9		≥19
2.	2 (8)		≤13	3 (30)	13.1-14.9	4 (40)	15.0-17.0	2 (20)	17.1-18.9	1 (10)	≥19
3.	3 (9)		≤14	8 (80)	14.1-15.9	1 (10)	16.0-18.0	1 (10)	18.1-19.9		≥20
4.	4 (10)		≤14	2 (20)	14.1-15.9	5 (50)	16.0-18.0	3 (30)	18.1-19.9		≥20
5.	5 (11)		≤15	3 (30)	15.1-16.9	4 (40)	17.0-19.0		19.1-20.9	3 (30)	≥21
6.	6 (12)	2 (20)	≤16	3 (30)	16.1-17.9	2 (20)	18.0-20.0	1 (10)	20.1-21.9	2 (20)	≥22
7.	7 (13)	3 (30)	≤17	5 (50)	17.1-18.9	1 (10)	19.0-21.0	1 (10)	21.1-22.9		≥23
8.	8 (14)	6 (60)	≤17	3 (30)	17.1-18.9	1 (10)	19.0-21.0		21.1-22.9		≥23
9.	9 (15)	1 (10)	≤17	3 (30)	17.1-18.9	4 (40)	19.0-21.0	1 (10)	21.1-22.9	1 (10)	≥23
10.	10 (16)	4 (40)	≤18	1 (10)	18.1-19.9	4 (40)	20.0-22.0	1 (10)	22.1-23.9		≥24
11.	11 (17)	2 (20)	≤19	4 (40)	19.1-20.9	3 (30)	21.0-23.0		23.1-24.9	1 (10)	≥25
Girls (n=110)											
12.	1 (7)		13≤	5 (50)	13.1-14.9	5 (50)	15.0-17.0		17.1-18.9		≥19
13.	2 (8)		13≤	4 (40)	13.1-14.9	3 (30)	15.0-17.0		17.1-18.9	3 (30)	≥19
14.	3 (9)	2 (20)	14≤	3 (30)	14.1-15.9	4 (40)	16.0-18.0		18.1-19.9	1 (10)	≥20
15.	4 (10)	4 (40)	14≤	3 (30)	14.1-15.9	3 (30)	16.0-18.0		18.1-19.9		≥20
16.	5 (11)	3 (30)	15≤	6 (60)	15.1-16.9		17.0-19.0		19.1-20.9	1 (10)	≥21
17.	6 (12)	4 (40)	16≤	3 (30)	16.1-17.9	2 (20)	18.0-20.0		20.1-21.9	1 (10)	≥22
18.	7 (13)	1 (10)	17≤	1 (10)	17.1-18.9	5 (50)	19.0-21.0	1 (10)	21.1-22.9	2 (20)	≥23
19.	8 (14)	6 (60)	17≤	3 (30)	17.1-18.9		19.0-21.0		21.1-22.9	1 (10)	≥23
20.	9 (15)	6 (60)	18≤	4 (40)	18.1-19.9		20.0-22.0		22.1-23.9		≥24
21.	10 (16)	7 (70)	19≤	2 (20)	19.1-20.9		21.0-23.0	1 (10)	23.1-24.9		≥25
22.	11 (17)	3 (30)	20≤	5 (50)	20.1-21.9	1 (10)	22.0-24.0	1 (10)	24.1-25.9		≥26

Note: In the age range 7-17, adopted by the WHO, standard regulatory values were used to assess the level of physical development.

Table 3. Analysis of index values of physical development indicators (body weight, height length, chest circumference) of childrens of school #1 (grades 1-11) located in Andijan city of Andijan region of the Republic of Uzbekistan ($M\pm m$)

#	Physical development indices	Physiological age groups (Grades)										
		Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11
Boys (n=110)												
1	Kettle index II (kg/m ²)	15,02±0,12	16,20±0,16	15,72±0,13	17,12±0,12	18,74±0,15	19,39±0,14	17,71±0,11	16,64±0,16	19,45±0,18	19,19±0,17	20,45±0,15
2	Rorer index (kg/m ²)	12,15±0,10	12,24±0,13	12,22±0,09	12,56±0,10	12,79±0,08	13,68±0,14	11,63±0,07	10,40±0,06	11,19±0,10	11,05±0,08	11,51±0,09
3	Pine index (c.u.)	43,67±0,18	43,12±0,42	39,34±0,37	41,04±0,40	34,50±0,19	33,74±0,21	41,19±0,30	41,98±0,39	38,33±0,23	37,82±0,37	27,66±0,35
4	Brush index (%)	46,09±0,46	45,55±0,37	48,88±0,28	46,46±0,34	48,99±0,23	49,38±0,33	45,89±0,44	47,14±0,32	43,85±0,39	44,85±0,40	48,51±0,42
5	Vervek index (c.u.)	1,20±0,02	1,13±0,03	1,12±0,03	1,08±0,02	0,98±0,01	0,96±0,01	1,01±0,03	0,99±0,01	0,91±0,02	0,90±0,02	0,83±0,02
Girls (n=110)												
6	Kettle index II (kg/m ²)	15,48±0,10	16,08±0,13	16,36±0,16	15,11±0,11	16,08±0,18	17,21±0,19	20,58±0,10	17,56±0,14	17,54±0,14	18,66±0,16	20,84±0,13
7	Rorer index (kg/m ²)	12,71±0,08	12,78±0,11	12,20±0,09	10,69±0,08	11,54±0,13	11,58±0,14	12,99±0,11	10,89±0,10	10,92±0,08	11,66±0,12	12,89±0,11
8	Pine index (c.u.)	41,36±0,32	42,28±0,27	39,21±0,35	48,49±0,19	42,01±0,25	40,06±0,27	26,46±0,31	37,02±0,36	35,16±0,25	34,76±0,23	20,39±0,22
9	Brush index (%)	47,13±0,26	46,24±0,29	48,44±0,19	44,58±0,33	47,22±0,23	47,44±0,20	50,73±0,21	48,47±0,30	49,96±0,32	48,48±0,38	53,69±0,42
10	Vervek index (c.u.)	1,18±0,03	1,17±0,04	1,09±0,02	1,15±0,03	1,09±0,03	1,02±0,02	0,87±0,01	0,96±0,01	0,94±0,01	0,93±0,01	0,83±0,01

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Conclusion

Thus, when analyzing the level of physical development in children and adolescents in anthropometric/physiometric studies, indices based on body weight, height index (Kettle index II; Rorer index), chest circumference, and indices based on body weight index (Pine index, Brugsch index, Verwek index) has been proven to allow making objective conclusions [1, p. 71-77; 2, 20-22; 6, p. 39; 18, p. 10-152; 19, p. 208-228; 43, p. 66-69; 45, p. 9-12; 46, p. 76-79].

In research, the body weight (kg) of children of school #1 (grades 1-11) located in the city of Andijan, Andijan region of the Republic of Uzbekistan, increases in the 1-11th grades, the body weight indicator does not differ significantly in the age range of 12-14 years in boys, in 15-16 years it was found that there is a difference in the description of "jumping". It was noted that girls' height was higher than that of boys at the age of 9-10, and that it was significantly lower than that of boys at the age of 17. It was found that girls have a significantly higher chest circumference than boys at the age of 11-17.

According to the Kettle II index, body weight deficit (thinness) in boys is observed in the age range of 12-17 years, it was found that this condition is at its maximum value (20-60%) at the age of 12-14 years, excess body weight (obesity) is observed at the maximum age of 11 years (30%). Body weight deficiency (thinness) was found to be 16.36% of the total number of respondents ($n=110$), and excess body weight (obesity) was 7.27% in boys. Body weight deficit in girls was observed in the age range of 9-17 years, and the maximum value was recorded in the age range of 14-16 years (60-70%). It was found that excess body weight in girls is 15% on average (maximum 30%) in the age range of 8-14 years. It was found that body weight deficit is 24.55% of the total

number of respondents ($n=110$) and excess body weight is 8.18% in girls. Compared to the general respondents ($n=220$), it was noted that the deficit of body weight in schoolchildren is 32.73%, and excess body weight is 7.73%.

According to Rorer's index value, the level of physical development of schoolchildren in the general condition was evaluated in the "normative" description.

Value of the Pine index corresponds to the "dolichomorphic" self-type of physical development in boys, and the "mesomorphic" self-type of girls in the 17-year-old age group.

In the researches, according to the Brugsch index, it was observed that the size of the chest of schoolchildren in the general condition is close to the "normative" value, and there are no clearly expressed "deviations from the norm".

That the level of physical development in boys and also girls at the age of 7-16 years according to the value of the Verwek index is generally described as "mesomorphism" (normative development), and in the age range of 17 years, it is generally described as "average brachymorphism" (behind the norm).

The obtained results can serve as a scientific basis for the development of regional anthropo-physiological standards, as well as for the development of practical measures based on the strategy of an individual approach, taking into account the physiological indicators of the organism in the optimization of the level of physical development of children during school education.

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References:

1. Savvateeva, V.G., Kuzmina, L.A., & Sharov, S.V. (2003). Fizicheskoe razvitiye detey rannego vozrasta g. Irkutsk. *Siberian medical journal*. 40(5). 71-77. (Russian).
2. Kirilova, I.A. (2014). Otsenka urovnya fizicheskogo razvitiya detey doshkolnogo vozrasta g. Irkutsk s ispolzovaniem indexov. *Bulletin VSNTs SO RAMN*. 6(100). 20-22. (Russian).
3. Krikun, E.N., Martirosov, E.G., & Nikityuk, D.B. (2008). Anthropometric monitoring pokazateley fizicheskogo razvitiya novorohdennykh detey. *Nauchnye vedomosti belgorodskogo gosudarstvennogo universiteta*. 6. 26-33. (Russian).
4. Yampolskaya, Y.A. (1996). Populyatsionnyi monitoring fizicheskogo razvitiya detskogo naseleniya. *Hygiene i sanitaria*. 1. 24-26. (Russian).
5. Yampolskaya, Y.A. (2001). Fizicheskoe razvitiye shkolnikov Moskvy v poslednie desyatiletia. *Rossiyskiy pediatricheskiy journal*. 4. 65-68. (Russian).
6. Busel, L.A., & Tsirkin, V.I. (2006). Indices of physical development of children of 3-7 years of age, criteria for the influence of environmental

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- factors. *Sovremennyye naukoemkie tekhnologii*. 4. 39.
7. Omarova, M.N., Orakbay, L.J., Jarkinov, E.J., Katchibaeva, A.S., Kalimoldin, M.M., & Sharasulova, L.S. (2015). Fizicheskoe razvitiye detey kak vedushchiy kriteriy kompleksnoy otsenki sostoyaniya zdorov'ya (Obzor literatury). *Mejdunarodnyy zurnal prikladnyy i fundamentalnyy issledovaniy*. 12-14. 645-649. (Russian).
 8. Gurbo, T.L. (2018). Fizicheskoe razvitiye shkolnikov Belarusi v nachale XXI veka: Regionalnyy aspekt izmenchivosti. Skoblina N.A., Milushkina O.Yu. i dr. "Fizicheskoe razvitiye detey: fundamentalnyye i prikladnyye aspekty". Moscow ("Soyuz Hygienistov"). 33-43. (Russian).
 9. Brug, J., Van Stralen, M.M., Te Velde, S.J., Chinapaw, M.J., De Bour-Deaudhuij, I. et al. (2012). Differences in weight status and energy-balance related behaviors among schoolchildren across Europe: The ENERGY-project. *PLoS One*. 2012; 7(4). doi: 10.1371/journal.pone.0034742.
 10. Erenkov, V.A. (1984). *Klinicheskoye issledovaniye rebenka*. (pp.10-336). (Russian). Kiev: Izd-vo "Zdorove".
 11. Glazunova, S.N. (2007). Vozrastnyye osobennosti morfofunksionalnogo razvitiya i psychoemotsionalnogo sostoyaniya tubinfitsirovannykh detey i podrostkov. *Avtoreferat of Doctoral Thesis* (03.00.13-Physiology). Tyumen, 7-14. (Russian).
 12. Muratova, I.V. (2009). Otsenka fizicheskogo razvitiya i fizicheskoy podgotovlennosti uchashchikhsya mladshikh klassov obshchego obrazovatelnykh shkol Respubliki Mordovia. *Vestnik sportivnoy nauki*. 1. 59-61. (Russian).
 13. Safronov, A.A., & Arislanov, I.T. (2013). Dinamika fizicheskogo razvitiya i fizicheskoy podgotovlennosti uchashchikhsya 5-6 klassov. *Molodoy uchenyy*. 7. 455-458.
 14. Pilkevich, N.B. (2013). Antropometricheskie pokazately fizicheskogo razvitiya u detey s defectami zreniya v vozraste 7-10 let. *Liki Ukraini Plyus*. 2(15). 28-30. (Russian).
 15. Bogova, E.A. (2014). Klinicheskie, geneticheskie i hormonalno-metabolicheskie osobennosti objireniya pri syndrome Pradera-Willi. *Avtoreferat of Doctoral Thesis*. (pp.3-24). Moscow, (Russian).
 16. Butko, M.A. (2015). Pedagogical technology of regulating the motor activity of children of young school age in the educational environment. *Dissertatsiya*. Kaliningrad, 220. (Russian).
 17. Burakova, E.N. (2016). Dinamika izmeneniy antropometricheskikh pokazateley u detey Samarskogo regiona v postnatalnom periode ontogeneza. *Dissertatsiya*. Samara, 3-19. (Russian).
 18. Olontseva, G.N. (2007). Kompleksnaya diagnostika fizicheskogo razvitiya rebenka (Uchebnoye posobie). Irkutsk. Izd-vo Irkut. Mr. ped. un-ta, 10-152. (Russian).
 19. Klimenko, E.A. (2008). Methodology otsenki fizicheskogo razvitiya detey i podrostkov. Materialy po dopolnitelnomu ekologicheskomu obrazovaniyu uchashchixsya (Sbornik Statey). Vyp. IV (Pod ed. M.N.Simonovoy, S.K.Alekseeva). Kaluga (Izd-vo KGU im. K.E.Tsiolkovskiy), 208-228. (Russian).
 20. Melnik, V.A., Kozlovskiy, A.A., & Kozakevich, N.V. (2013). Method otsenki harmonichnosti fizicheskogo razvitiya detey i podrostkov, prozhivayushchix v kupnykh promyshlennyykh gorodax. *UO Gomelskiy gos. Med. univers.* Gomel, 2013. 7-24. (Russian).
 21. Vasileva, E.I. (2013). Fizicheskoe razvitiye detey (Uchebno-metodicheskoye posobie dlya inostrannykh studentov). *GBOU VPO IGMU Minzdrava Rossii*. Irkutsk (IGMU), 5-32. (Russian).
 22. Manueva, R.S. (2018). Fizicheskoye razvitiye detey i podrostkov. Shown. Methody otsenki (Uchebnoye posobie). *FGBOU VO IGMU Minzdrava Rossii*. Irkutsk (IGMU), 10-52. (Russian).
 23. Skoblina, N.A., Kuchma, V.R., Milushkina, O.Y., & Bokareva, N.A. (2013). Sovremennyye tendentsii fizicheskogo razvitiya detey i podrostkov. *Zdorove naseleniye i sreda obitaniya*. 8. 9-12. (Russian).
 24. Kelina, N.Y., Kulikova, O.A., Chichkin, S.N., & Mamelina, T.Y. (2014). Sovremennoye sostoyaniye izucheniya otsenki rovnyaya zdorov'ya. *XXI vek: itogi proshlogo i problemy nastoyashchego plyus*. 1(17). 190-193. (Russian).
 25. Belyakova, N.A., & Maslov, A.N. (2005). Sposob otsenki fizicheskogo razvitiya u detey i podrostkov izmereniye fizicheskikh razmerov, naprimer, razmerov tela v tselom ili ego chastey. (Patent RU 2271146 A6I15/107). Vladel'ts patenta: GOU VPO Tverskaya GMA Roszdrava, 2005 g. [Electronic resource]. (Russian). Retrieved 02.11.2022 from https://yandex.ru/patents/doc/RU2271146C1_20060310
 26. Nifontova, O.L., & Konkova, K.S. (2018). Fizicheskoye razvitiye uchashchikhsya srednego skolnogo vozrasta, prozhivayushchih na territorii Khanty-Mansiyskogo autonomnogo okruga – Yugry. *Ekologiya cheloveka*. 10. 24-31.
 27. Plokhinsky, N.A. (1970). *Biometrics*. (pp.20-367). Moscow. Izd-vo MGU. (Russian).

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28. Glantz, S. (1999). *Medical and biological statistics*. (pp.250-459). (Russian). Moscow. Izd-vo "Praktika".
29. Rebrova, O.Y. (2002). Statistichesky analiz meditsinskix dannyx. Primenenie paketa prikladnyx programm STATISTIKA. (pp.5-312). (Russian). Moscow: Izd-vo "Media Sphere".
30. Efimova, N.V., Mylnikova, I.V., & Ivanov, A.G. (2015). Otsenka fizicheskoy podgotovlennosti uchashchikhsya Irkutskoy oblasti (po dannym monitoringa). *Fundamentalnye issledovaniya*. 7(4). 675-678. (Russian).
31. Uraimova, A.A., & Kasymov, O.T. (2020). Otsenka fizicheskogo razvitiya uchashchihhsya shkol selskoi mestnosti s raznoy formoy organizatsii obshchestvennogo pitaniya. *Mejdunarodnyi zhurnal prikladnykh i fundamentalnykh issledovaniy*. 3. 22-28. (Russian).
32. Dubrovsky, V.I. (2006). Therapeutic physical culture and medical control. (pp.120-281). Moscow: OOO "Medical Information Agency", (Russian).
33. Anisimova, N.V., Savina, L.N., & Makoveeva, O.S. (2013). Kriterii zdorovya shkolnika: Pokaseteli fizicheskogo, psichicheskogo i sotsialnogo blagopoluchiya. *Izvestiya vysshikh uchebnykh zadaniy*. Povolzhsky region. 1(1). 102-110. (Russian).
34. Kozlov, S.S. (2017). Rekreacionno-ozdorovitelnaya physicheskaya kultura genshchin-uchiteley pervogo perioda zrelogo vozrasta. *Dissertatsiya*., (pp.47-199). (Russian). St. Petersburg.
35. Lobozova, O.V. (2018). Optimization of psychophysiological adaptatsii studentov-pervokursnikov differentsirovannym primeneniem nemedikamentoznyx treniruyushchix metodov. *Dissertatsiya*., (pp.54-178). (Russian). St. Petersburg.
36. (2004). WHO Expert Consultation. Appropriate body-mass index for populations and its implications for policy and intervention strategies. *The Lancet*. 157-163.
37. Solovev, V.N. (2005). Physicheskoe zdorove kak integralnyi pokazatel uvronya adaptatsii organism studentov k uchebnomu processu. *Sovremennye problemy nauki i obrazovaniya*. 2. [Electronic resource]. (Russian). Retrieved 24.11.2022 from <https://science-education.ru/ru/article/view?id=1506>
38. Graevskaya, N.D., & Dolmatova, T.I. (2004). *Sportivnaya meditsina (Course lecture and practical work)*. (p.349). Moscow. Izd-vo "Sovetsky sport", (Russian).
39. Antonova, A.A., Chentsova, S.N., & Serdyukov, V.G. (2012). Sravnitel'naya charakteristika fizicheskogo razvitiya detey. *Astrakhan. Med. Journal*. 4. 26-29. (Russian).
40. Nazmutdinova, V.I., Zhuravleva-Yartseva, A.A., & Prokopev, N.Y. (2014). Nekotorye pokaseteli indexnoi otsenki fichicheskogo razvitiya detey doshkolnogo vozrasta Nizhnetavdinskogo rayon Tyumenskoi oblasti. *Molodoy uchyonyi (Ejemesyachnyi nauchnyi journal)*. 20(79). 59-61. (Russian).
41. Kirilova, I.A. (2017). Otsenka fizicheskogo razvitiya kak poplyatsionnoy kharakteristiki detskogo naseleniya Irkutskoy oblasti. *Dissertatsiya*. (pp.12-135). (Russian). Irkutsk.
42. Gritsinskaya, V.L, Salchak, N.Y., Sanchat, N.O., & Omzar, O.S. (2013). Kompleksnaya otsenka fizicheskogo razvitiya detey Respubliki Tyva. *Bulletin Vostochno-Sibirskogo nauchnogo tsentra Sibirskogo otdeleniya Rossiyskoy akademii meditsinskikh nauk*. 3-2(91). 60-63. (Russian).
43. Borodina, G.N., Mershalova, A.A., Subbotin, E.A., Trebushinina, T.G., & Fedina I.Y. (2021). Otsenka fizicheskogo razvitiya yunoshey-prizyvnikov Altayskogo kraja. *Vestnik VolgGMU*. 1(77). 66-69. (Russian).
44. Samiev, A.S. Mavlyanova, Z.F. Characteristics of fizicheskikh parametrov detey s tserebralnym paralichom. *Scientific Journal «Scientific Progress»*. 1(6). 325-332. [Electronic resource]. (Russian). Retrieved 26.11.2022 from www.scientificprogress.uz
45. Gurtovaya, M.N., & Prokopev, N.Y. (2013). Indeks Verveka-Vorontsova kak pokazatel fizicheskogo razvitiya malchikov perioda vtorogo detstva, stradayushchix allergicheskim rinitom. *Vestnik magistratury*. 4(19). 9-12.
46. Mavlyanova, Z.F. (2020). Evaluation of the level of physical development of patients with cerebral palsy using the index method. *Problemy biologii i meditsiny*. 2(118). 76-79. (Russian).

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Article



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“KHIYORI KHULF” OR “KHIYORI VASF” IN ISLAMIC FINANCE

Abstract: *Iftikhoriddin Bukhari stated the following about the issue of discretion in trade agreements in the “Book of Trade” and “Options in Trade” sections of “Khulosatul Fatawa”: The issue of discretion in the trade agreement arises due to the right to property and the change of property. Regarding the optionality of the contract, it is stated in the “Corrupt Trade Chapter” of the book “Jomeul Kabir” that the contract is optional in the authentic trade, so it is fixed in the corrupt trade.*

Key words: *fatawa, ixtiyar, xiyar, xulf, wasf, nawazil, jurisprudence, saman, madhhab.*

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Introduction

The question of discretion in a trade agreement arises because of ownership and change of ownership. Regarding the discretion of the contract, in the “Chapter of Corrupt Trade” of the book “Jomeul Kabir”, it is said that the discretion of the contract is fixed in the corrupt trade as well as in the authentic trade.

The book “Nawazil” says: If a person buys an item from another and the buyer takes possession of the item, and then the seller says to him, 'You have the choice within three days,' the buyer has the choice to take the item or not within that period. If the seller tells the buyer "You are willing", the buyer will be willing until the end of the transaction.

There are eight main types of cucumber in the market, which are divided into two parts: The first is a fixed rate. If they are not stipulated in the contract, they are fixed by themselves. That is, the parties to the agreement are entitled to these benefits as soon as they conclude the agreement. They are:

1. Khiyori royat;
2. Khyorul guilt;
3. Khiyarul Khulf or attribute;
4. Khyorul magbun;
5. Khiyori taghrir or tadtis.

The second is the fees that are fixed by means of stipulation in the transaction. That is, the parties to the agreement will have these rights if they stipulate. But they will not have it if they do not stipulate the agreement from the beginning. They are as follows: 1. Cucumber condition, 2. Cash cucumber, 3. Choice of appointment.

Khiyori xulf or wasf is a right established when a person buys an item with certain qualities and it does not have the said qualities. In this case, the buyer cancels the transaction if he wants, and if he wants, he takes the goods at the agreed price. For example, if a person buys a cow that is said to be a milk cow, but it is known that it does not give much milk, then the buyer will be prejudiced. Also, if a person buys a stone described as a red ruby at night, and it appears to be a yellow ruby during the day, the buyer is also voluntary [1, p.78].

The book “Nawazil” says: "If a person buys an item from another person and the buyer takes possession of the item, then the seller tells him: "You have a choice within three days", then the buyer has the option to receive or not receive the item during this period. If the seller says to the buyer, "You are voluntary", the buyer will be voluntary until the end of the transaction meeting.

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The imams of the four madhabs agreed that this type of khiyar is fixed. Also, the jurists stipulated the following conditions for this charity to be fixed:

1. Incentive quality of goods must be stipulated in the contract. According to the Union of Citizens, an explicit stipulation of the title in the contract establishes the khirar in a strict manner.

2. The promoted qualification should be for valid purposes. If it is not intended for legitimate purposes, this will be void and, as a result, the sales contract will be bound without the said qualifications. That is, the quality used in the product in accordance with Sharia should be stipulated [2, p.53]. If the seller stipulates the quality used for sin and the seller does not comply with that condition, the buyer does not have good faith.

3. This attribute should not be used for fun, but for a legitimate purpose. For example, buying a long-flying pigeon, a swimming ram, or a fighting cock is all about fun and games. Therefore, they are not permissible. But the purchase of a trained dog or a fast walking dog is considered an exception. Because there is no danger in them [3, p.885].

4. There should be no ambiguity in the conditional attribute. For example, when you buy a sheep or a goat, you have to make a condition that they give you so many liters of milk a day. Because in this case, it will be unknown how much milk she will give in the future. But if it is necessary for the goat to give milk, this attribute is permissible. Also, there is uncertainty when buying watermelon-melon or other fruits that they should be sweet. But it is permissible to stipulate that it should be the fruit of such and such a country [4, p.315]. For example, like the date of Medina, the pomegranate of Taif or the orange of Egypt.

In addition, it is permissible for the seller of fruits to agree to the buyer tasting them. But it will not be good. Maybe he will consider buying after experimenting and trying.

If a person bought a cow with the condition that it would be a cow, according to an apparent narration, this condition would not be permissible in the eyes of the Hanafis. Imam Kosani, may God have mercy on him, explains the evil of this judgment and says: "What is stipulated in this image makes existence and non-existence possible. There is no way to know it for sure. Because the cow's belly is big or moving for another reason [5, p.210].

But the requirement of this tavjih is that if the presence of a fetus in the cow's stomach can be determined by means of modern devices, then such conditions will be permissible. In a narration narrated from Hasan ibn Ziyad, may God have mercy on him, Abu Hanifa, may God have mercy on him, said that this condition is permissible. Also, Ibni Humam, may God have mercy on him, mentions in the book "Fathul Qadir" that such conditions are permissible in the eyes of Imam Shafi'i, may God have mercy on him.

Accordingly, if a person sells a cow as a cow and later it turns out not to be a cow, the buyer has the right to return the cow [6, p.6].

As for the requirement of good quality, if the buyer does not find the specified qualities in the product, he has the right to return it to the seller and receive all the agreed money. But if the return of the goods is justified for certain reasons, for example, the destruction of the goods, the presence of a fault or excess in the presence of the buyer, or the goods leaving the property of the buyer, in these cases, the buyer has the right to demand the difference in value between the goods that have those qualities and those that do not. This qawl is an apparent narration in the eyes of the Hanafis, and Ibni Humam, may God have mercy on him, supported it [7, p.1062].

If the buyer agrees to keep the goods even if they do not have the specified qualities, he will not get back anything from the price. Because none of the qualities of the product can be compared to straw. All the jurists agreed on this. Citizens expressed different opinions on whether the meter in items sold by the meter is their quantity or wafs [8, p.71].

According to the Hanafis, the unit of meter in metered things is considered a quality. For example, if a person buys ten zeros of material for ten dirhams or one hundred zeros of land for ten dinars, and the price of each zero is not stated separately, for example, one zero material costs one dirham, ten zeros of land cost one dinar, and then they pay less than the stated amount. otherwise, the buyer is discretionary. If he wants, he will take the goods at the agreed price or cancel the deal. But if he says that each zira of material is worth one dirham, and every ten zira of land is worth one dinar, then the seller owes a minimum of the amount that is less. In the case of an overprinted photo, the buyer must return the excess to the seller.

The Hanafis paid attention to the issue of Taghrir in two ways: First, if the seller deceives the buyer in the sale of murabahah in stating the cost of the goods, for example, he says, "I bought it for a hundred thousand," but in reality it is known that he bought it for ninety thousand, then the buyer is voluntary in the eyes of Imam Abu Hanifa, may God have mercy on him. If he wants, he will take the goods at the agreed price or cancel the deal if he wants. In the opinion of Imam Abu Yusuf and other popular scholars, the buyer's charity is not valid. But the seller will reduce the price by the amount he betrayed.

Second, the seller deceives the buyer in stating the market value of the goods. As a result, the buyer buys a large amount at a high price. However, if the goods are falsely stated, and these qualities are not found in the goods, then the quality of the buyer will be determined.

If the seller tells a lie about the price of the goods to the buyer in the musawam sale, according to the Hanafis [9, p.62], Malikis and Shafi'is, the buyer will not be considered as a buyer. And the Hanbalis say

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that the khyar is fixed even in Musawama trade. For example, if a seller tells a buyer: "I will give you this product for this much" and the buyer trusts him and buys the product, then it turns out that he lied, the bay is authentic, but the buyer is voluntary. According to Ibni Qudoma, may God have mercy on him, in this case there is the meaning of impurity (artificial increase in price).

Tadlis is used by jurists in two different meanings: The first is to hide an existing fault in the product. In this way, the buyer's good will is considered a fault, and the terms of the good will will apply to him. Second, the seller tries to improve the quality of the product, but it turns out that those qualities are not present in the product. For this reason, the verdict of guilty will apply to him.

References:

1. (2004). *Iftikhoruddin Bukhari. In conclusion, fatawa.* - Devband: Maktabatul Ashrafiya, – J. 3. 478 p.
2. Usmani, M. T, (2020). *Fiqhul buyu' ala madhabil arba'a.* (p.268). Damascus: Darul Qalam.
3. Samatkhonovich, G. S. (2021). Comments on fakhrol islam al-pazdavi's" usul". *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(12), 883-887.
<https://www.indianjournals.com/ijor.aspx?target=ijor:aca&volume=11&issue=12&article=143>
4. Ganiyev, A. (2020). Taxation policy and land reforms in colonial malaya. *The Light of Islam*, 2020(4), 56-62.
https://www.researchgate.net/publication/348072022_TAXATION_POLICY_AND_LAND_REFORMS_IN_COLONIAL_MALAYA
5. (2020). *Dr. Salah Muhammad Abul Haj. Badiul furu fi ahkamul buyu.* (p.510). Oman: Markazu Anwarul Ulama.
6. Oybekovich, G. A. (2022). *The role of central asian scholars in islamic civilization.*
[https://www.researchgate.net/profile/Avazbek-Ganiyev/publication/366466411_THE_ROLE_OF_CENTRAL_ASIAN_SCHOLARS_IN_ISLAMIC_CIVILIZATION_Tarih_va_civilizacia_The_Light_of_Islam_3-son_2022_jil_GANIYEV_AVAZBEK_OYBEKOVICH.pdf](https://www.researchgate.net/profile/Avazbek-Ganiyev/publication/366466411_THE_ROLE_OF_CENTRAL_ASIAN_SCHOLARS_IN_ISLAMIC_CIVILIZATION_Tarih_va_civilizacia_The_Light_of_Islam_3-son_2022_jil_GANIYEV_AVAZBEK_OYBEKOVICH/pdf)
7. Gaybullaev, S. (2022). Historiography of the study of Fakhrol-Islam Pazdavi's scientific legacy. *ISJTheoretical & Applied Science*, 12 (116), 1060-1063.
https://www.researchgate.net/publication/366817747_HISTORIOGRAPHY_OF_THE_STUDY_OF_FAKHRUL-ISLAM_PAZDAVI'S_SCIENTIFIC_LEGACY
8. Gaybullayev, S. S. (2021). The beginning and development of the science "USUL AL-FIQH" in mawarannah. *The Light of Islam*, 2021(2), 68-75.
https://www.researchgate.net/publication/357034214_THE_BEGINNING_AND_DEVELOPMENT_OF_THE_SCIENCE_USUL_AL-FIQH_IN_MAWARANNAHR
9. Ganiyev, A. (2021). Islamic studies institutions in the sultanate of brunei-darussalam. *Theoretical & applied science* (12), 560-563.
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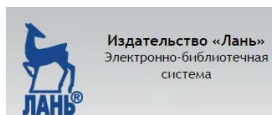
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