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Instrument of Understanding Level Test of Newton's Law Concept: Case Study Flying Fox Ride in *Bukik Chinangkiek* Edupark, West Sumatera, Indonesia

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Abstract

Misconception is a misinterpretation of a concept that incompatible with scientists conception. Misconception can be caused by experiences when interacting with natural environment. One of physics concept that is often encountered in everyday life and still a misconception for students is Newton's law concept. Natural learning can help students understand scientific concepts. Using surrounding environment in learning is to make it a learning resource or known as educational park. Physics e-book of *Bukik Chinangkiek* Edupark, describes the application of Newton's law concept on flying fox rides very well. But, this book only contains an evaluation of student's knowledge, not accompanied by an evaluation to find out the understanding level of student's concept. The evaluation of student's concept understanding is necessary to detect and distinguish the understanding level of student's concepts, between understand the concept, understand the concept but not sure, misconceptions, and not understand the concepts. Teacher will more easily determine the countermeasures for each student by knowing the understanding level of student's concepts. Edupark-based test instruments are required to determine the understanding level of student's concepts in Newton's law based on flying fox ride in *Bukik Chinangkiek* Edupark. This is Research and Development (R&D) type of research using Plomp model that consist of three stages; 1) preliminary research; 2) prototyping phase; 3) assessment phase. This research was conducted until prototyping phase. This instrument developed in multiple choice test form with open reasoning accompanied by modified Certainty of Response Index (CRI). This research data were processed by descriptive and statistical analysis. The test instrument has been tested for the validity of content and empirically produces 14 valid items. The instrument is declared reliable $r_{count} > r_{table}$ with an index 0.79. The results of understanding level of student's Newton's law concepts analysis showed 17.83% of students are in understand the concept category, 3.33% of students are in understand the concept but not sure category, 45.33% of stundents are in misconceptions category, and 33.50% of students are in not understand the concept category.

Keywords Understanding Level of Concept, Newton's Law, Edupark

INTRODUCTION

The essence of learning physics is the student's process of creating conditions and opportunities to construct knowledge, process skills, scientific attitudes and take place in interactions with the environment and other people. In addition, Physics values student's prior knowledge [1]. Student's initial knowledge is the basic form of concepts that are already in student's minds even before starting learning in class and is formed

from student's interpretations of experiences and their interaction with their environment. The knowledge that will be constructed by students during learning process is in form of initial knowledge and knowledge acquired during class into complex knowledge. But, during the learning process there is no guarantee that students will construct the knowledge correctly, the concepts that interpreted by student can differ from the concepts agreed upon by the experts (scientific conception). These conceptual differences are known as misconception. Misconception is a person's conception that is not in accordance with scientific conceptions by experts [2].

Student's experiences when interacting with surrounding environment can be one of causes of misconceptions. Student's conceptions and misconceptions are strongly suspected to be formed when children interact with nature [3]. Learning methods can also cause misconceptions. So far, in school, the learning process through direct experience and discovery is often neglected, so the students don't understand the concept of physics and unable to apply it in real life [4]. The ability of students to relate natural phenomena to physics concepts is 50%, because students don't directly observe the facts of natural phenomena, so students haven't been able to properly relate natural phenomena to physics concepts [5]. Therefore, learning physics requires a self-discovery process by students so the learning obtained by students is stored as more meaningful knowledge [6].

One of the learning methods that makes it easier for students to learning physics while observing natural phenomena directly around them is environment-based learning by utilizing tourist attractions as a learning resource or commonly reffered as educational park or shortened edupark. Edupark is a natural or artificial garden that allows for learning process to help teachers and students find facts, formulate principles or concepts. This learning involves students making predictions, testing their conceptions and comparing them with experimental results through active participation [7]. Learning in the natural environment, especially in tourist parks, can be a solution in understanding the concept of physics [8]. Edupark integrated with physics learning is expected to reduce student misconceptions. One of the researches on physics learning based on Edupark is the development of Physics E-book of *Bukik Chinangkiek* Edupark which describes the dynamics of motion, work and energy on rides at *Bukik Chinangkiek* Park. Bukik Chinangkiek which is located in Singkarak has natural conditions and rides that are full of physics concepts so the Bukik Chinangkiek tourism park can be used as a source of learning physics. [9]. One of the rides in *Bukik Chinangkiek* Edupark is flying fox ride which contain the applications of Newton's law concept of the. The flying fox ride at *Bukik Chinangkiek* Edupark can be seen in Figure 1.

(a) (b)

Figure 1. (a) Flying *fox ride* (b) Forces that work on flying fox *ride.*
Source: (Lestari & Rifai, 2020: 61)

Here are some examples of Newton's law concepts on the flying fox ride.

a. Newton's First Law, when the player's rope hits the barrier cable when it reaches the end of flying fox rope, the player's body will be pushed forward. The above events show the body's response to maintaining its initial state, keeping the body still or moving.
b. Newton's Second Law, the relation of acceleration to the force and mass of player on flying fox rides.
c. Newton's Third Law, a pair of forces generated when playing flying fox. Usually the pair of forces that occur is between the friction force and the player's motion force, as well as the normal force and gravity force of player.

The results of the teacher's questionnaire showed that many student misconceptions occurred in physics subjects, especially in subject of Newton's law concepts, waves, electricity, electromagnetic induction, and gas kinetic theory. The most common misconception in learning physics is the concept of mechanics, because it has a broad and complex topics. The scope of mechanical materials includes kinematics of linier motion, circular motion, dynamics, Newton's I, II, and III law [10]. So, it can be seen that one of the concepts with a high level of misconception is the concept of Newton's law. Before knowing the level of student misconceptions on Newton's law concept after using Edupark's learning book, the researcher conducted a preliminary research to determine the percentage of student misconceptions based on student's prior knowledge of Newton's law concept. The preliminary research was conducted by giving multiple choice test questions with open reasoning along with Certainty of Response Index (CRI) to 49 SMA/MA students. Based on the test results, the percentage of student's understanding of Newton's law concept was obtained as in Table 1.

Table 1. Average of student's understanding concepts percentage in Newton's law material

No	Concept Understanding Level	Percentage of Students
1	Misconceptions	58,37%
2	Not Knowing the Concept	34,29%
3	Understand the Concept but Not Sure	3,27%
4	Knowing Concept	4,08%

At the end of each lesson about a concept, the teacher will evaluate the student's understanding of the concept. There are several ways to detect student misconceptions, through concept maps, tests (multiple choice or description), clinical interviews, and class discussions [2]. Based on the results of questionnaire given to teachers, the teacher still found it difficult to uncover student misconceptions and differentiate the level of understanding of student's concepts due to student's confusing answers. Learning evaluation to detect student misconceptions should be carried out as early as possible by the teacher before continuing learning for other concepts, so that these misconceptions can be resolved first and these misconceptions don't continue to the next concept.

Multiple choice tests have been shown to be more effective than oral tests or written descriptive tests for detecting student misconceptions because they are objective and can generate scores quickly even with a large number of test taker [11]. In order for multiple choice test to be more effective in detecting student misconceptions, the multiple choice test is accompanied by a question of reason in answering the questions. Multiple choice tests can be varied according to the objective of the test, one of which is by adding the reason for the answer to each item of the question [2]. There are several types of multiple choice tests, namely multiple choice tests for closed reasons and multiple choice tests with open reasons. Multiple choice tests with open reasons are more suitable to be used to find out student's conceptual understanding, because students are given freedom to think in giving reasons related to the answers they choose based on their conceptions.

One method to identify misconceptions, as well as distinguish them from not knowing the concept is to use the Certainty of Response Index (CRI) method. With CRI method, students are asked to respond to each choice of questions given along with the respondent's level of confidence in the correctness of the alternative answers being answered. The advantage of this method is that it can detect student's misconception as well as differentiate the level of student's understanding of concept between knowing concepts, knowing concepts but not sure, misconceptions, and not knowing the concept [12]. The following scales are used on CRI and criteria for each scale as shown in Table 2.

Table 2. CRI Scale and Criteria

CRI Scale	Criteria
0	(Totally guessed answer) if the answer is 100% guesswork
1	(Almost guess) if in answering questions the percentage of guesses between 75% - 99%
2	(Not sure) if in answering questions the percentage of element guess between 50% - 74%
3	(Sure) if in answering the question of percentage of element guess between 25% - 49%
4	(Almost certain) If you answer the question of percentage of element guess between 1% - 24%
5	(Certain) if in answering the question there is no element of guessing at all (0%)

Source: (Hasan, 1999: 297)

CRI has 6 scales, from 0 to 5. The number 0 indicates that students don't know the concepts needed to answer the question (the answer has been completely guessed). Meanwhile, number 5 shows full confidence in the correctness of knowledge about the concepts used to answer the questions [12]. Based on student's answers to multiple choice questions with open reasons and the selected CRI scale, the categories of student's conceptual understanding were obtained using the modified CRI method as in Table 3 [13].

Table 3. Concept Categories of Modified CRI

Answer Options	Reason	CRI value	Category
Right	Right	$> 2,5$	Knowing concept
Right	Right	$< 2,5$	Knowing concept but not sure
Right	Wrong	$> 2,5$	Misconceptions
Right	Wrong	$< 2,5$	Not knowing the concept
Wrong	Right	$> 2,5$	Misconceptions
Wrong	Right	$< 2,5$	Not knowing the concept
Wrong	Wrong	$> 2,5$	Misconceptions
Wrong	Wrong	$< 2,5$	Not knowing the concept

Source: (Hakim, 2012: 549)

It is important to evaluate the understanding level of student's concepts so that the teacher knows the student's misconceptions as early as possible and can find the right way to solve each student. Therefore, the researcher conducted a research on "**Instrument of Understanding Level Test of Newton's Law Concept: Case Study Flying Fox Ride in *Bukik Chinangkiek* Edupark, West Sumatera, Indonesia**".

MATERIALS AND METHODS

Types of Research

The type of this research is Research and Development (R&D) research with the Plomp model. The Plomp model consists of three phases, including; 1) preliminary research in the form of needs and context analysis, literature review, development of a conceptual or theoretical framework; 2) the development phase or prototyping, in the form of product design phase with formative evaluation; 3) assessment phase [14]. The Plomp model is more flexible than other models because each step contains development activities that can be tailored to the characteristics of the research [15]. The stages of this research can be seen in Figure 2.

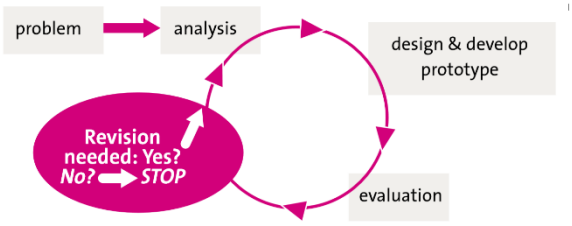

Figure 2. Plomp research phases
Source: (Plomp, 2013: 17)

Procedure Research

The preliminary research stage consisted of teacher and student analysis. Teacher analysis was carried out on two physics teachers from different schools, SMAN 1 Gunung Talang and MAN 2 Solok through a web-based survey method in the form of a list of questions related to the misconceptions experienced by student in learning physics and the efforts made by teachers to detect these misconceptions. The questionnaire can be accessed online via the link provided to the teacher. While the student analysis was carried out through a test of understanding the concept of force and Newton's law using multiple choice test instruments with open reasoning accompanied by Certainty of Response Index (CRI). The instrument was given to 49 students who were a combination of students of SMAN 1 Gunung Talang and MAN 2 Solok.

The next stage is the stage of making a test instrument prototype in the form of multiple choice questions plus the reasons for selecting answers and questions on the level of respondent's confidence in the form of a scale (0-5) until the answer to the question responded is known as the Certainty of Response Index (CRI). The prototype stage consists of a prototype design stage and formative evaluation. The prototype design stages include creating a test content outline, making test instructions, preparing questions, making answer sheets, making answer keys, making assessment guidelines, and making guidelines for interpretation of results. The formative evaluation stage consists of the self-evaluation stage using a self-evaluation checklist, the expert assessment stage using validation instruments, and the small group assessment stage.

Data Type and Data Collection Techniques

The type of data in this research is qualitative and quantitative data. Qualitative data were obtained from online survey of physics subject teachers. Meanwhile, quantitative data were obtained from the results of online student question trials to obtain data on student's conceptual understanding. The data of this research were obtained through testing the understanding of Newton's law concept based on flying fox rides to 30 students of SMAN 1 Gunung Talang.

Research Instruments

Overall, the instruments used in the study are shown in Table 4.

Table1. Research Instruments

Stages		Instruments
Preliminary stage	Teacher Analysis	Questionnaire
	Student Analysis	Test of understanding the concept of Newton's law
Prototyping phase	*Self-evaluation*	*Checklist*
	Product validation	Validity Instruments
	Test questions to students	Test of understanding the concept of Newton's law based on flying fox rides

The self-evaluation stage resulted in several revisions to the problem work instructions section, writing errors on the question items, and problem answers (distractors). The validity evaluation of the question instrument was carried out by 3 validators who were lecturers of Physics Department, Faculty of Mathematics and Natural Sciences, UNP using validation sheets. The assessment is based on a Likert scale. With the Likert scale, the variable to be measured is described as an indicator variable which is then used as a starting point for developing instruments which can be in the form of statements or questions [16]. The score is given on a scale of 1-5 which can be converted into a value with calculations including; 1) Give a score for each answer item on the indicator statement; 2) Add up the total score of each validator for all indicators; 3) Scoring the question items using the formula:

$$Score = \frac{total\ score}{maximum\ score} x100\%$$

The criteria for assessing the question items can be seen in Table 5 [17].

Table2. Criteria for Assessment of Question Items

Percentage Score (%)	Criteria
0 – 20	Invalid
21 – 40	Less valid
41 – 60	Quite valid
61 – 80	Valid
81 - 100	Very valid

Source: (Riduwan, 2012: 23)

The results of the validation of the edupark-based concept understanding test instrument by expert lecturers can be seen in Table 6.

Table3. Results of the Edupark-based concept undertsanding test

No	Aspects	Percentage Value (%)	Criteria
A.	Material	85	Very Valid
B.	Construction	80	Valid
C.	Language	86	Very Valid

After being validated, there are several parts of the instrument that need to be improved, namely correcting the item that haven't shown the application of Newton's law concept in Edupark Bukik Chinangkiek, adding pictures to the items, improving the order of answer choices, and correcting ineffective sentences.

Data Analysis Techniques

Data analysis techniques in this study were carried out using statistical analysis, including:

1. Validity Test of Question Items

The validity test of this item is carried out in order to obtain a valid instrument based on the test instrument in the field. This validity test was carried out using the biserial correlation formula assisted by Microsoft Excel 2019.

$$r_{pbi} = \frac{Mp - Mt}{St}\sqrt{\frac{p}{q}}$$

With:

r_{pbi} = biserial correlation coefficient

Mp = Mean score of the subject answering correctly

Mt = Mean total

St = Standard deviation from total score
p = Proportion of students who answered correctly
q = Proportion of students who answered incorrectly $(q = 1 - p)$

Validity test criteria are:
r_{pbi} calculate > r_{pbi} table = valid.
r_{pbi} calculate < r_{pbi} table = invalid.

2. Reliability Test of Question Items
A good instrument is an instrument that, if used several times to measure the same object, produces the same data (consistent). The following formula determines the overall reliability of the test using the KR 20 technique.

$$r_{11} = \frac{N}{(N-1)}\left(\frac{{s^2}_i - \sum pq}{{s^2}_i}\right)$$

With:
r_{11} = overall test reliability.
N = number of question items in the instrument.
p = the proportion of the number of subjects who answered the item correctly.
q = proportion of the number of subjects who answered the item incorrectly $(q = 1 - p)$
${s^2}_i$ = variance total

The calculation results will be interpreted against the r_{11} value as in Table 7.

Table4. Question Item Reliability Index Criteria

Reliability Index	Criteria
$0{,}91 < r_{11} \leq 1{,}00$	Very high
$0{,}71 < r_{11} \leq 0{,}90$	High
$0{,}41 < r_{11} \leq 0{,}70$	Enough
$0{,}21 < r_{11} \leq 0{,}40$	Low
$0{,}00 < r_{11} \leq 0{,}20$	Very low

Source: (Arikunto, 2009: 103)

3. Question Items Difficulty Test
Testing the difficulty level of the items aims to determine the quality of the questions. A good question is a question that is not too easy or not too difficult, namely questions that have a difficulty index between 0.31-0.70 [17]. The following formula calculates the difficulty level for the objective test.

$$P = \frac{B}{JS}$$

With:
P = Difficulty index.
B = The number of students who answered correctly.
JS = Number of test taker.

The classification of the difficulty levels of the questions is shown in Table 8.

Table5. Classification of Question Item Difficulty Index

Difficulty Level (P)	Classification
0,00 - 0,30	Difficult
0,31 - 0,70	Medium
0,71 - 1,00	Easy

Source: (Arikunto, 2009: 210)

4. Discriminatory Power Test

The analysis of discriminating power aims to determine the ability of the questions to differentiate between high achieving students and those classified as weak achievement students. The following formula for determining the discrimination index [18]:

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

With:
D = Discrimination index number.
J_A = Number of participants in the top group.
J_B = Number of participants in the lower group.
B_A = The number of participants of the top group who answered correctly.
B_B = The number of participants of the lower group who answer correctly.
P_A = Proportion of participants of the top group who answered correctly.
P_B = Proportion of participants of the lower group answered correctly.

The item discrimination index was interpreted using the classification in Table 9.

Table6. Classification of Distinguishing Power Items

Discrimination Index Number (D)	Classification
0,00 – 0,19	Bad
0,20 – 0,39	Sufficient
0,40 – 0,69	Good
0,70 – 1,00	Good of all
Negative (-)	Everything's not good. So all items with a negative D value should be discarded.

Source: (Arikunto, 2009: 218)

5. Distractor Function

A good distractor is distractor that can be avoided by intelligent students and will be chosen by students who don't understand the concept. Distractor has worked well when at least 5% of all test takers are selected.

6. Certainty of Response Index (CRI) Method

The CRI method can be used to identify the level of conceptual understanding based on the level of certainty of student in answering any given questions by utilizing their knowledge and conceptions. Based on the modified CRI method, the categories of student's conceptual understanding were obtained as in Table 3.

RESEARCHS AND DISCUSSION RESULTS

The purpose of this research was to obtain valid and reliable test instrument that can be used to determine the understanding level of student's Newton's law concepts. Based on the validity test results on the flying fox rides question, obtained 3 valid items, there are questions number 5, 10, 20 and question number 7 as invalid item. A valid question means that the question is suitable to be used as a measuring tool for student's conceptual understanding. Meanwhile, the invalid question is not suitable for use, so the question must be discarded. Based on the reliability test results, all items have high reliability criteria with an index of 0.79. This assumes that all items will produce the same data if used repeatedly.

Item number 5 has a high level of validity with a correlation coefficient of 0.67. The ability to distinguish of this item is in good category with a discrimination index of 0.53. This item is included in easy category because it has a difficulty index of 0.73. This item has the answer key C which was chosen by 15 students from the upper group and 7 students from the lower group. This means that the upper group students answered more correctly than the lower group students. Then this item is worth using.

Item number 7 has a very low level of validity with a correlation coefficient of -0.27. The ability to distinguish of this item is in bad category with a discrimination index of -0.20. This item is included in difficult category because it has a difficulty index of 0.23. This item has the answer key A which was chosen by 2 students from the upper group and 5 students from the lower group. This means that the upper group students answered incorrectly more than the lower group students. Then this item must be discarded or it is not suitable for use.

Item number 10 has a high level of validity with a correlation coefficient of 0.62. The ability to distinguish of this item is in good category with a discrimination index of 0.53. This item is included in medium category because it has a difficulty index of 0.67. This item has the answer key A which was chosen by 14 students from the upper group and 6 students from the lower group. This means that the upper group students answered more correctly than the lower group students. Then this item is worth using.

Item number 20 has a sufficient level of validity with a correlation coefficient of 0.50. The ability to distinguish of this item is in sufficient category with a discrimination index of 0.27. This item is included in difficult category because it has a difficulty index of 0.13. This item has the answer key C which was chosen by 4 students from the upper group and not selected by the lower group students. This may imply that only a few of the answer keys were answered correctly by the students who took the test. So this item must be repaired in order to be fit for use.

In Table 10, it can be seen a whole understanding level of student's Newton's law concept.

Table7. Level of understanding of student's concepts based on the results of the test

No	Concept Understanding Level	Percentage of Students
1	Misconceptions	45,33%
2	Not Knowing the Concept	33,50%
3	Understand the Concept but Not Sure	3,33%
4	Knowing Concept	17,83%

The percentage of students who have misconceptions is 45,33%, this shows that there are still many students who misunderstand the concept of Newton's law or aren't in accordance with the conception of scientists. This will certainly have a bad impact if it's not immediately handled by the teacher, because this wrong knowledge will continue to be embedded in student's mind which results in students always incorrectly answering questions related to Newton's law concept. Misinterpretation of concept be known as early as possible by the teacher, because wrong concept can form a consistent model, but not yet in accordance with the scientist's conception [19].

The percentage of students who don't understand the concept is 33,50%, this shows that quite a lot of students have difficulty understanding the concept of Newton's law. Even though the concept of Newton's law is one of the basic concepts of mechanics which is very important to understand in physics lessons because its application is very much found in everyday life, so it will be very useful if students can understand the concept of Newton's law correctly. One concept that is quite important for students to understand is the concept of Newton's law, because Newton's law extensively examines the dynamics of particles which have many benefits in everyday life [20].

The percentage of students in the criteria understand the concept but unsure is 3.33%. This means that there are still students who lack confidence in expressing their knowledge which can be caused by many things. Teachers need to find out the cause and find solutions so that in the future students can be more confident and confident in their knowledge.

The percentage of students who understand the concept of 17.83% indicates that there are students who understand the concept of Newton's law according to scientific concepts and have high confidence in the answer. This is of course very important for the teacher to know how the habits of students who understand the concept so that the teacher looks for solutions to solve concept problems for other students.

Based on the comparison between the student's preliminary test results on Newton's law material (Table 1) with the results of Newton's law material student's tests based on Bukik Chinangkiek Edupark (Table 10), it can be seen that the percentage of students with misconceptions decreased from 58.37% to 45.33%. In addition, the percentage of students who did not understand the concept also decreased from 34.29% to 33.50%. Meanwhile, the percentage of students who understood the concept increased from 4.08% to 17.83%. And the percentage of students who understood the concept but were unsure also increased from 3.27% to 3.33%. This shows that the integration of Edupark into learning tools can improve student's conceptual understanding of Newton's law material, as evidenced by the decreasing number of students who experience misconceptions and increasing the number of students who understand the concept.

In addition to knowing the level of understanding of student concepts, researchers also found the profil of student misconceptions on Newton's law material, as described in Table 11.

Table8. Profil of student's misconceptions on Newton's law concept

Misconceptions	Percentage of students
The player acceleration while playing flying fox ride is the result of multiplication of mass, gravitational acceleration, and the cosine of angular slope	50%
The mass of the object does not affect the object's acceleration	13.33%
The object's acceleration is proportional to the object's mass	20%
The rides that is connected to the rope has a tension force even though the rope is not tense	76.67%
A pair of forces is said to be an action-reaction force if the two forces have the same magnitude and are in opposite directions	50%

Table 11 shows that 50% of students considered the player's acceleration when playing the flying fox ride is the result of the multiplication of mass, gravitational acceleration, and the cosine of angular slope. Meanwhile, based on the $\sum F = ma$ equation, the acceleration experienced by the player is affected by mass, gravitational acceleration, and the sine of angular slope. Therefore, under these conditions the player's acceleration is not affected by the cosine of angular slope. This shows that student's understanding of forces on an inclined plane is not perfect, because students are still confused about the use of sines and cosines at the angle of the object.

13.33% of students thought that the mass of the object did not affect the object's acceleration. In addition, 20% of students considered the object's acceleration to be proportional to the object's mass. Meanwhile, Newton's second law states that the acceleration of an object is proportional to the resultant force and inversely proportional to its mass [21]. The student's concept that stating the acceleration is proportional to the mass of the object and the mass of the object does not affect the object's acceleration is an understanding that is contrary to the definition of Newton's second law.

76.67% of students think that the rides connected to the rope has a rope tension force even though the rope is not tense. Meanwhile, based on the definition of rope tension force in [9], states that the rope tension force is the force on the rope when the rope is tense, and the direction of the rope tension force depends on the point or object being studied. This indicates that a rope has a tension force when the rope is tense, if the rope is not tense then there is no tension force working on the rope.

50% of students consider the pair of forces said to be an action-reaction force if the two forces have the same magnitude and are in opposite directions. Meanwhile, Newton's third law explains that forces are always paired, if the first object exerts a force on the second object, then the second object will exert a force on the first object which is equal to the force it receives but has the opposite direction [21]. Based on this definition, it can be concluded that the action force has the same value as the reaction force, the action-reaction force occurs on different objects, and the action-reaction force has a coincide catch point [22]. This shows that student's understanding of action-reaction force is still not in accordance with the definition of Newton's third law.

CONCLUSION

Based on the results of the research and discussion that has been done, it can be concluded as follows.

1. The test instruments of the understanding level of Newton's law concept integrated with flying fox rides in *Bukik Chinangkiek* Edupark which is declared valid and reliable.
2. The test instruments of the understanding level of Newton's law concept integrated with flying fox ride in *Bukik Chinangkiek* Edupark can be used to determine the understanding level of student's Newton's law concept.

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