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Developing Electronic Student Worksheets Based on Ethnoscience to Train Smart Risk-Taking Behaviour and Growth Mindset

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Abstract: This study aims to determine the practicality and effectiveness of electronic student worksheets based on ethnoscience in training smart risk-taking behavior and a growth mindset. The research employed a hybrid type III mixed-method with a sequential explanatory design, combining quantitative and qualitative approaches. The subjects of the study were junior high school students in Lampung Province, selected randomly. The worksheets were developed based on ethnoscience principles, integrating local culture, traditional knowledge, and scientific knowledge, with validity tested by experts. Quantitative data were collected through product validity tests and hypothesis testing, while qualitative data were gathered through interviews and observations. Quantitative analysis showed a validity score of 91.60% with very high criteria, and hypothesis testing indicated significant differences between the experimental and control classes in the ability to exhibit smart risk-taking behavior and a growth mindset. Based on these results, it is concluded that ethnoscience-based worksheets are effective in training smart risk-taking behavior and a growth mindset, emphasizing the importance of integrating local cultural context in educational tools to enhance learning outcomes and personal development. This approach helps bridge the gap between traditional knowledge and modern scientific understanding, creating a more holistic educational framework.

Keywords: electronic student worksheets, ethnoscience, growth mindset, smart risk-taking behavior.

▪ INTRODUCTION

Introduction contains background, rational, and/or urgency of research. References In the field of education, Smart Risk Taking Behavior (SRBT) is a cognitive process that involves multiple stages. Firstly, it entails deeply contemplating the problem, subject, or case at hand. Next, it involves drawing conclusions from the problem and proposing hypotheses. After that, it requires reassembling those hypotheses and engaging in discussions with group members to find solutions for the problem. (Bal-Incebacak et al., 2019). A mindset is a set of attitudes and beliefs about abilities, such as intelligence. Psychologist and author Carol Dweck coined the terms fixed and growth mindset to describe the attitudes and beliefs people have about learning and intelligence (2006). Students with a fixed mindset believe that they are born with their abilities and that they cannot be changed. In contrast, students with a growth mindset believe that their abilities can be developed and improved over time with practice (Robinson, 2017).

Teachers can help learners develop a growth mindset by explicitly teaching about the brain and how it changes during learning (Robinson, 2017). Teachers with a growth mindset are more likely to teach with more learning strategies so that more learners develop their own growth mindset (Dweck, 2008). Likewise, when teachers themselves have a growth mindset, more learners perform better in class (Rheinberg, Volland, &

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Watts, 2008), better in class (Rheinberg, Vollmeyer, & Rollett, 2000). Similarly, teachers with different mindsets differ in the amount of challenge they give learners, the way they respond to mistakes, and the opportunities they provide for improvement which all impact the mindset of their learners (Dweck, 2008).

Teacher self-efficacy is one of the important aspects for every teacher to have. The higher the teacher's self-efficacy in teaching, it will have a positive effect on the teacher's self, the quality of teacher teaching, and the academic achievement of students (Faadhil, et al., 2020). Teachers' self-efficacy influences students' academic achievement and learning motivation (Zee & Koomen, 2016), teachers' teaching quality, teachers' psychological well-being, teachers' achievement, job satisfaction, and job commitment (Klassen & Chiu, 2011; Skaalvik & Skaalvik, 2010; Zee & Koomen, 2016). This suggests that even if teachers believe that their abilities can be developed, they may not act accordingly if they do not feel confident in their ability to help learners learn. Conversely, confident teachers may be more proactive in using different strategies to support student learning, and thus convey to learners that they can improve.

Teachers who support learners' freedom in learning tend to adopt a learner-centered instructional approach rather than a teacher-centered instructional approach (Reeve & Cheon, 2021). Learning using ethnoscience is meaningful contextual learning so that it can improve students' science literacy (Atmojo, 2012). This means that ethnoscience-based learning is expected to have a persistence effect on learning science (Gondwe and Longnecker, 2014). Persistence in learning is considered a non-cognitive factor that predicts learner success (Sturman & Zappala-Piemme, 2017). Dweck (2006) explains that learners with a growth mindset consider that their intelligence and abilities are changeable so that they are more persistent and focused on long-term learning and appreciate the effort they put in. Learners will also be better able to cope with tasks and be more motivated when experiencing challenging conditions (Dweck, Walton, & Cohen, 2014; Chrisantiana & Sembiring, 2017; Renaud- Dubé, Guay, Talbot, Taylor, & Koestner, 2015; Jach, Sun, Chin, Loton, & Waters, 2017). This means that students with a growth mindset will tend to have persistence in balancing scientific knowledge itself with the cultivation of scientific attitudes, as well as local wisdom values that exist and develop in society (Suastra, 2010).

Ethnoscience encourages teachers and educational practitioners to teach science based on culture, local wisdom and problems that exist in society, so that students can understand and apply the science they learn in the classroom can be used to solve problems they encounter in everyday life, thus making science learning in the classroom more meaningful (Shidiq, 2016). According to Pertiwi & Firdausi (2019) in ethnoscience learning activities, students are expected to be able to make observations, discussions, presentations and practicums. Students' activities during learning using the ethnoscience approach are accompanied by students' process skills that show an increase.

So that the implementation of ethnoscience-based learning requires a shift in the learning model from teacher-centered learning to learner-centered learning, from individual learning towards collaborative learning and emphasizes the application of scientific knowledge, creativity and problem solving in the process of reconstructing original science (knowledge that develops in society) into scientific science. So that in learning, ethnoscience can be integrated in various learning models, including discovery

learning models, problem-based learning (PBL), project-based learning (PjBL), constructivism approaches, contextual learning, and others.

Teachers may adopt different standards when evaluating learners' performance. Most research distinguishes two types of evaluation standards: one focusing on individual improvement and learning, and the other focusing on social comparisons between learners. These standards have been variously labeled as temporal versus social comparison (Butler, 2000), individual versus social reference norms (Retelsdorf & Günther, 2011), and mastery versus normative evaluation (Ames, 1992; Greene et al., 2004). Learners may see ability as changeable when progress is evident in evaluation standards. Conversely, learners may see ability as fixed when stable performance differences among students are evident. In a two-year longitudinal study, fifth- and sixth-grade learners who experienced more normative evaluation practices from teachers showed a sharper decline in growth mindsets about math ability (Dickhauser et al., 2017).

Data on smart risk-taking behavior and growth mindset through ethnoscience learning were obtained using observation, interview, and questionnaire instruments to reveal the mapping of smart risk-taking behavior and growth mindset profiles of students through ethnoscience-based learning. Data on the effectiveness of ethnoscience learning on smart risk-taking behavior and growth mindset of students were obtained through a test instrument containing indicators of smart risk-taking behavior and growth mindset.

Defining Smart Risk-Taking Behavior and Growth Mindset. In the process of learning, students may naturally exhibit both smart risk-taking behavior and a growth mindset. It's crucial to recognize and encourage these traits as they emerge, rather than just prioritizing the final outcome.. By creating a classroom community that supports each other, provides opportunities and respects all learning processes, it makes it easier to achieve complex competencies. Several studies reveal that: a growth mindset guarantees that students have: (1) high curiosity (Dickhäuser et al., 2016; Jirout, Vitiello, & Zumbrunn, 2018; Ng, 2018; Ritchhart, 2015); (2) learning persistence (Dweck, 2006); (3) a high cognitive level as a guarantee that students form what and how to think (Hughes & Zaki, 2015); (4) motivation to continue trying and learning to improve competence (Chrisantiana & Sembiring, 2017); (5) a tendency to have a more positive view of one's abilities (Jach, Sun, Loton, Chin, & Waters, 2017) and (6) good academic achievement (Claro, Paunesku, & Dweck, 2016; Haimovitz, Wormington, & Corpus, 2016; Sisk et al., 2018. This means creating an environment where a growth mindset can develop is important (Bardach et al., 2020; Yeager et al., 2019), followed by a learning process pattern that focuses on encouraging problem solving, collaboration, and understanding deep (Williams, 2014).

On the other hand, risk-taking behavior is built in line with building a meaningful class discussion process that challenges outside viewpoints in learning as a process. Ritchhart & Church (2021) revealed that building a meaningful discussion environment out of the ordinary systematically by involving risk-taking behavior step by step helps students build the skills students need. Beghetto, 2009; Soutter & Clark, 2021 states that risk-taking behavior is shown in real terms by students through behaviors such as expressing ideas, asking questions, or creative thinking even to the point that there appears to be a deviation from the concept based on peer or teacher assessment. In the end, creating a culture of learning environment by applying the concept of smart risk-taking behavior and growth mindset becomes the strength of the school if it is carried out

consistently driven by a scientific learning environment as a source of authentic science learning. Schools not only play a role in shaping students to become generations who are intelligent in terms of knowledge, but also must shape the attitudes and behavior of students in accordance with applicable guidelines. Therefore, by implementing ethnoscience-based learning, students are expected to appreciate Indonesia's cultural heritage more.

Smart Risk-Taking Behavior and Growth Mindset Based on Etnosains. Ethnoscience is knowledge possessed by a cultural community (Azizah et al., 2021; Harefa, 2017; Pertiwi & Rusyda Firdausi, 2019), which is traditional and passed down from generation to generation (Battiste, 2005) and has developed into a science that studies how science is obtained based on the culture that exists within a nation (Khusniati, 2017). Ethnoscience has attracted the attention of many education researchers especially to be integrated into learning. Arfianawati, Sudarmin & Sumarni (2016) reported that ethnoscience is able to develop science learning that combines cultural content from society into part of learning activities. Science learning developed from the perspective of local culture and organized local wisdom related to certain natural phenomena and events will increase students' interest in science and will be easier for students to understand (Dewi, Khery & Erna, 2019). This is possible as found by Ulfah (2019) that in ethnoscience students learn to relate the material studied in class to life, and link science to technology, so that learning at school is not only beneficial for science, but also for life.

Ethnoscience is an interdisciplinary knowledge, which is a collaboration between various disciplines, be it science, social or mathematics. Ethnoscience-based learning is appropriate for use in the learning process, and can improve student learning outcomes and creative thinking skills (Damayanti et al., 2017). Meanwhile (Utari et al., 2020) states that based on the results of observations that have been made, around 76.5% of students do not know about ethnoscience learning. This is a motivation to continue to develop ethnoscience-based learning continuously. This means that learning at school cannot be separated from the students' daily environment. Learning like this will form a good mindset to continue to love the habits or culture that have developed in society and support students' academic abilities. The importance of learning using local cultural approaches and the surrounding environment as learning resources so that students get a more meaningful learning process.

Learning using ethnoscience is meaningful contextual learning so that it can increase students' scientific literacy (Atmojo, 2012). This means that ethnoscience-based learning is expected to have a persistence effect in learning science (Gondwe and Longnecker, 2014). Persistence in learning is considered a non-cognitive factor that predicts student success (Sturman & Zappala-Piemme, 2017). Dweck (2006) explains that students with a growth mindset think that their intelligence and abilities are things that can change so that they are more persistent and focus on long-term learning and appreciate the effort made. Students will also be better able to cope with tasks and be more motivated when experiencing challenging conditions (Dweck, Walton, & Cohen, 2014; Chrisantiana & Sembiring, 2017; Renaud- Dubé, Guay, Talbot, Taylor, & Koestner, 2015; Jach, Sun, Chin, Loton, & Waters, 2017). That is, students with a growth mindset will tend to have persistence in balancing science knowledge itself with the

inculcation of scientific attitudes, as well as local wisdom values that exist and develop in society (Suastra, 2010).

▪ METHOD

The research design used was a modified hybrid design type III (Huang & Shelley, 2016) + mixed method sequential explanatory design (Creswell, 2009). The research design can be seen in Figure 1.

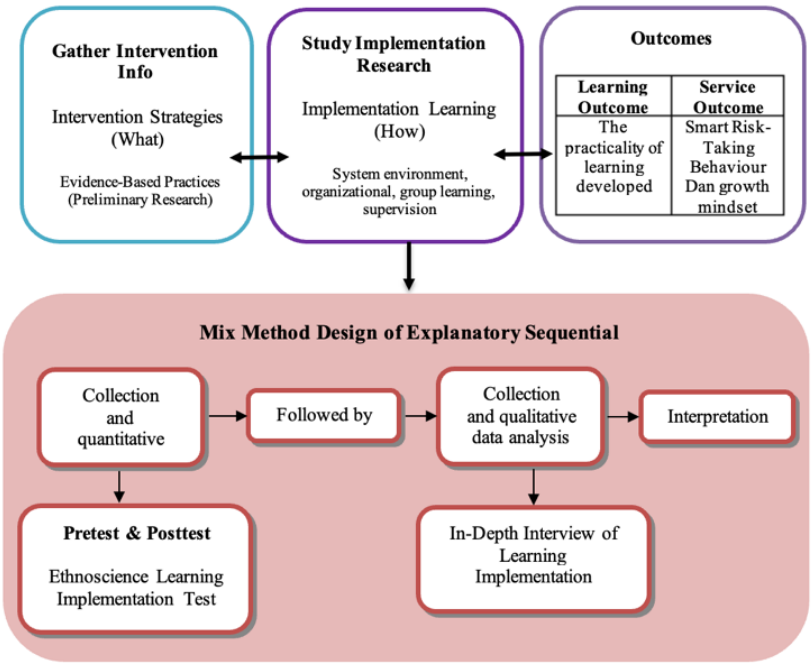

Figure 1. Research design

Data Analysis Participant

Developing Student Worksheets Based on Etnosains to Train Smart Risk-Taking behavior and Growth Mindset The participants in this study were junior high school students from selected schools in the Lampung Province area. The sample selection was carried out using a purposive technique based on regional mapping (see Figure 2).

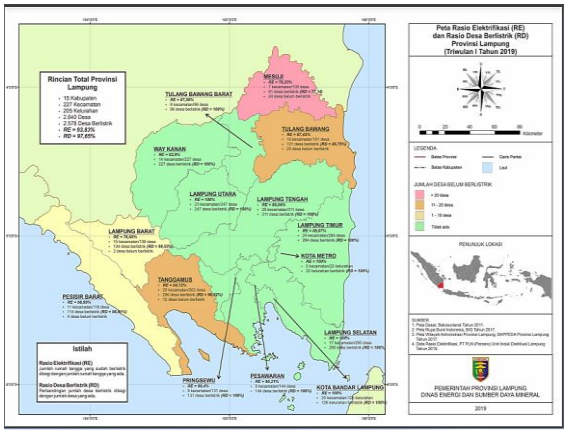

Figure 2. Mapping of research sample in Lampung Province area

The chosen areas were identified for specific reasons: (1) they are expansion areas of established regencies/cities, indicating ongoing demographic development where education is crucial for human resource and demographic fulfillment; (2) they share similar socio-economic and geographical conditions, ensuring consistency in evaluating learning achievements across homogeneous districts/cities in Lampung Province. The selected schools included SMP N 29 Bandar Lampung, SMP N 1 Pesawaran, SMP N 1 Metro, and SMP N 1 Kalianda.

Research Design & Prosedure

In Developing Student Worksheets Based on Ethnosains to Train Smart Risk-Taking behavior and Growth Mindset, Broadly speaking, this study adopts a hybrid type III mixed-method research design combined with an explanatory sequential design. The research begins with preliminary investigations into intervention strategies empirically reviewed, addressing both global and local issues concerning junior high school students' smart risk-taking behavior and growth mindset. These preliminary findings guide the selection of appropriate learning methods aimed at enhancing these aspects. During the implementation phase, a pretest is conducted to establish baseline measures of smart risk-taking behavior and growth mindset prior to the introduction of ethnoscience-based learning. Subsequently, the study proceeds with implementing and evaluating the effectiveness of ethnoscience learning interventions.

After the learning process was implemented, we conducted a posttest to see an increase in the smart risk-taking behavior and growth mindset of the students followed by an in-depth interview about the applied learning. In addition, during the ethnoscience learning process, observations were also made to see the motivation of students while participating in learning and the obstacles encountered in soaring smart risk-taking behavior and growth mindset through ethnoscience-based learning. The overall results obtained (qualitative and quantitative data) are then interpreted to describe the effectiveness of ethnoscience learning and to determine the increase in smart risk-taking behavior and growth mindset of students after being given treatment.

Instrument

The data were collected and data collection techniques are as follows: (a) The enhancement of smart risk-taking behavior and growth mindset through ethnoscience learning was assessed using observation instruments, interviews, and questionnaires to map students' profiles regarding smart risk-taking behavior and growth mindset in ethnoscience-based learning. The distribution of observation instruments, interviews, and questionnaires is as follows: (1) 23-item student response questionnaire regarding ethnoscience learning in schools; (2) 20-item observation sheet for students' growth mindset; and (3) 20-item teacher interview guide (implementation of ethnoscience learning on students' growth mindset). (b) The effectiveness of ethnoscience learning in enhancing students' smart risk-taking behavior and growth mindset was evaluated using test instruments comprising 22 items assessing indicators of smart risk-taking behavior and growth mindset.

Data Analysis

The data in this study were obtained using a questionnaire in the form of a validity

test and pretest-posttest instruments. The validity test results were obtained by carrying out validation tests looking at 2 aspects, namely media and design as well as materials and constructs which were carried out by 5 experts in their fields. The validation test assessment uses a Likert scale adapted from Arikunto (2011) which can be seen in Table 1.

Tabel 1. Likert scale in validation test

Persentage	Criteria
0.00%-20%	Very low/not good validity
20.1%-40%	Low/poor validity
40.1%-60%	Moderate/good validity
60.1%-80%	High/good validity
80.1%-100%	Very high/very good validity

The product developed is said to be valid if it has an interval score of the results of the assessment which is in the vulnerable 40,1%-60% with the validity category being moderate/good validity. The data used to determine the effectiveness of the product is obtained based on tests (quantitative data). The test was carried out twice, namely pretest and posttest. The results of the pretest and posttest answers were analyzed using the N-Gain test after first determining the normality of the data distribution. The criteria for interpreting the N-Gain value (Meltzer, 2002) can be seen in Table 2.

Tabel 2. N-Gain interpretation criteria

***N-Gain* Value**	**Criteria**
$g \geq 0.70$	High
$0.30 \leq g < 0.70$	Medium
$g < 0.30$	Low

▪ RESULT AND DISSCUSSION

Analysing the Results from the Attitude to Science Measures

This research was conducted to determine the effectiveness of student worksheets based on ethnoscience learning activities to train smart risk-taking behavior and growth mindset. Based on the research conducted, the following results were obtained. The results of the first research at the intervention strategies stage were in the form of a preliminary study which was explained empirically. At this stage, problem identification was carried out by distributing questionnaires given to 14 science teachers in Lampung province who had 4-23 years of teaching experience through gform to obtain initial information about the characteristics of students and the implementation of science/science learning at school.

Next, the stage of designing and developing learning tools to train smart risk-taking behavior and growth mindset. This stage begins with the preparation of test instruments based on the preparation of learning objectives which become a benchmark for students' abilities by compiling a question grid, pretest and posttest question scripts. Researchers designed and developed ethnoscience learning tools to train smart risk-taking behavior and growth mindset. The learning tools developed are lesson plan, students worksheets, and assessment instruments for Additive and Addictive Substances material. The validity test was carried out by five expert validators in their fields. The validity test is obtained

by distributing validity test questionnaires along with Lesson plan products, students worksheet and test instruments that have been assessed. In this validity test, suggestions for improvement were obtained from the five validators which can be seen in the Table 3.

Table 3. Suggestions for improvement from validators

Suggestions for Improvement	Corrective Action
1. Clear main point of the problem 2. Change the order of question numbers, number 1 becomes number 4, numbers 2, 3 and 4 become 1, 2, and 3 (p. 5) 3. Change the word narration to 4. shrimp paste is one of the additives. Identify typical Lampung food that contains additives? (Browsing the internet) (p 5) 5. The word problems that occur in society related to additives is replaced with types of food and drinks that are classified as/contain additives. (p 8) 6. No. 4 Based on the results of the identification that has been carried out, are there any harmful additives found in the food and drinks that you identified? What are the negative impacts? 7. Eliminate repetitive questions 8. Add SRTB-GM indicator	Clarify the main core problems, find information related to the statements in the questions to be made, add SRTB-GM indicators and eliminate repetitive questions.

Suggestions for improvement by the validator were then used as a reference in making improvements to the product. The following is the form of improvements that have been made. One of the recommendations that has been accommodated and improved by the researchers is presented in Figure 3

Figure 3. Improvements implemented based on validator feedback

The results of the students worsheets product validity test shown the score value given by validator 1 of 91%, the value of validator 2 of 98%, the value of validator 3 of 96%, the value of validator 4 of 92%, and the value of validator 5 of 81%. The five scores from each validator are then used to find the final average value, in this case the final average value is 91.60% with a very high validity category.

At the implementation research study stage, the effectiveness of student worksheets based on ethnoscience to train students' smart risk-taking behavior and growth mindset abilities on additive and addictive substances material was tested at SMPN 1 Metro, SMPN 1 Pesawaran, SMPN 1 Kalianda, and SMPN 29 Bandarlampung. This research uses Ethnoscience-based PjBL learning. The research results obtained in this study are in the form of quantitative data which are then processed using the help of the SPSS version 25.0 program.

Smart risk-taking behavior and students' growth mindset abilities are analyzed through research instruments in the form of test instruments. The test was carried out twice in each experimental class and control class, namely pretest and posttest. Research related to the effectiveness of ethnoscience-based worksheets for training intelligent risk-taking behavior and students' growth mindset abilities regarding additives and addictive substances was conducted at SMPN 1 Metro, SMPN 1 Pesawaran, SMPN 1 Kalianda, and SMPN 29 Bandarlampung. This research used an experimental class that was treated using LKS based on Ethnoscience-PjBL learning and a control class that used conventional learning. The research results obtained in this research are in the form of quantitative data.

Tabel 4. N-Gain testing

School Partner	Class	Results			
		Upper N-gain	Lower N-gain	N-gain Average	Category
SMPN 1 Pesawaran	Experiment	0.65	0.19	0.49	Medium
	Control	0.58	0.00	0.16	Low
SMPN 1 Metro	Experiment	0.65	0.19	0.49	Medium
	Control	0.58	0.00	0.16	Low
SMPN 1 Kalianda	Experiment	0.70	0.06	0.38	Medium
	Kontrol	0.50	0.05	0.27	Low
SMPN 29 Bandarlampung	Experiment	0.65	0.19	0.49	Medium
	Control	0.58	0.00	0.16	Low

The N-gain test in this study was used to measure the increase in students' smart risk taking behavior and growth mindset abilities and students' cognitive learning outcomes between before and after learning in the experimental class and control class.Based on the results of the statistical N-gain test in Table 4, it shows that the average N-gain in the experimental class is greater than in the control class with an average N-gain value in the experimental class of 0.49 at SMPN 1 Pesawaran, 0.49 at SMPN 1 Metro, 0.38 at SMPN, and 0.49 at SMPN 29 Bandarlampung in the medium category. The average N-gain value in the control class was 0.16 at SMPN 1 Pesawaran, 0.16 at SMPN 1 Metro, 0.27 at SMPN 1 Kalianda, and 0.16 at SMPN 29 Bandarlampung in the low category.

After a normality test was carried out and the results were that the data was normally distributed, an Independent Sample T-Test was then carried out to determine whether there was a difference in the average ability of smart risk taking behavior and growth mindset between students who used Ethnoscience-based PjBL learning and students who used conventional learning. The Independent Sample T-Test N-Gain test results can be seen in Table 5.

Tabel 5. Hasil Uji *Independent Sample T-Test N-Gain*

Sekolah	Kelas	*Mean*	*Sig. (2-tailed)*	Interpretasi
SMPN 1 Pesawaran	Experiment Control	0.49 0.16	0.000	There is a difference
SMPN 1 Metro	Experiment Control	0.49 0.22	0.000	There is a difference
SMPN 1 Kalianda	Experiment Control	0.38 0.27	0.000	There is a difference
SMPN 29 Bandar Lampung	Experiment Control	0.30 0.21	0.001	There is a difference

Based on the Independent Sample T-Test N-Gain test results in Table 18, it can be seen that the sig. (2-tailed) < 0.05. Based on hypothesis testing, if Sig <0.05 then H0 is rejected and H1 is accepted. This means that there is a significant difference in the average ability of smart risk taking behavior and growth mindset of students after being given treatment using Ethnoscience-based PjBL learning. This difference can be seen from the average N-Gain of the experimental class which is greater than the control class in the four schools, namely SMPN 1 Pesawaran, SMPN 1 Metro, SMPN 1 Kalianda, and SMPN 29 Bandarlampung.

The instrument used was given to the sample class using 37 multiple choice questions with the aim of seeing an increase in students' smart risk taking behavior and growth mindset skills on the topic of additives and addictive substances. The question items in the pretest and posttest refer to indicators of smart risk taking behavior and growth mindset as seen from the average mapping of the question items. These indicators consist of explaining scientific phenomena, developing critical thinking skills, interpreting scientific data and evidence, and drawing or evaluating conclusions. Based on the results of mapping the average of the indicator items, it can be seen that SMPN 1 Pesawaran, SMPN 1 Metro, SMPN 1 Kalianda, and SMPN 29 Bandarlampung showed an increase in the ability of smart risk taking behavior and growth mindset of students on the indicator of 'developing critical thinking skills'., the high acquisition was due to Ethnoscience-based learning in class. The smart risk taking behavior and growth mindset ability test questions used focus on additive and addictive substance material, where in the implementation of Ethnoscience-based PjBL learning emphasizes the activity of transforming/reconstructing community knowledge that has been going on for generations into scientific knowledge that we can use in science/natural science teaching activities both in formal/informal/non-formal schools and the general public.

The indicator 'developing critical thinking skills' is in phase 2 of Preparing a Project Plan and phase 3 of Preparing a Schedule in Ethnoscience-based PjBL learning. The indicator 'developing critical thinking skills' contains activities that show challenging creativity in designing research through activities such as providing ideas, determining topics, planning projects, and determining project work schedules. These activities enable students' smart risk taking behavior and growth mindset abilities to skyrocket because smart risk taking behavior and growth mindset contain activities that involve always looking for ways to improve skills, whether that means learning new skills, trying new strategies, or making big changes to how it works (Hogarty, 2022).

In the indicator 'developing critical thinking skills', project planning activities are carried out to gain a better understanding of the goals of the project that has been created by students collaboratively. With this goal, the students involved know and understand where each activity should be directed. The higher the involvement of students in learning activities, the higher the students' achievement of understanding, skills and learning experiences (Divia et al., 2022).

Smart risk taking behavior considers students' courage during the learning process, when students think they are able to take risks (taking risks) they will feel brave to give their opinions and provide ideas without fear of feeling like they have failed. Clifford (1991) found that smart risk taking behavior in education is if the atmosphere and environment allows students to take risks in academic activities. Radloff also found that the benefits of smart risk taking behavior in learning have the advantage of increasing students' contributions to learning, increasing teacher confidence in science learning, and improving relationships between teachers and students.

The effectiveness of student worksheets based on ethnoscience-PjBL

The effectiveness of student worksheets based on ethnoscience-PjBL to train students' smart risk-taking behavior and growth mindset abilities on additive and addictive substances is known through the average results of student response instrument sheets. Learning in experimental and control classes has been carried out directly by researchers to determine the increase in the ability of smart risk taking behavior and growth mindset of students, which is measured through observation instruments and student responses during the Ethnoscience-based learning process using student worksheets. The results of the Smart Risk Taking Behavior and Growth Mindset response instruments of students can be seen in Figure 4.

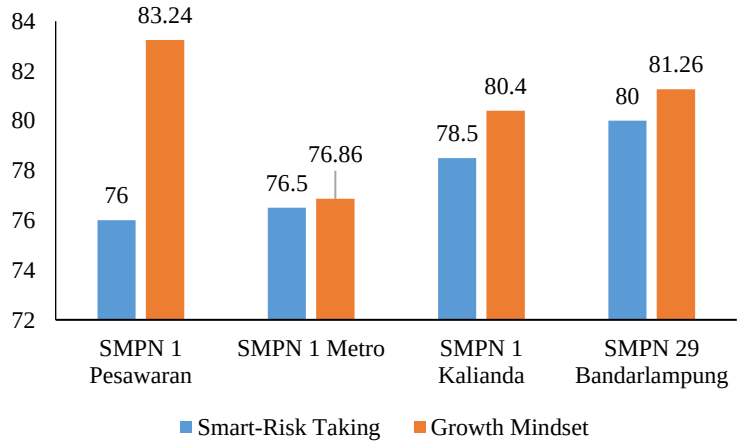

Figure 4. Results of smart-risk taking and growth mindset response instruments

Based on Figure 4, it shows that the highest ability possessed by students is the ability of Growth Minset with an average ability greater than the average ability of Smart-Risk Taking. The smart risk-taking behavior will increase if teachers can develop students' confidence (Djoa et al., 2023). The connection between the desire to learn and taking smart risks is significant. It highlights the need for a learning environment that can

motivate and assist students to develop their thinking abilities, self-esteem, and passion for learning. This, in turn, enhances their ability to take smart risks, even when learning independently online (Efendi & Latifah, 2021).

In addition to the research results obtained in the form of quantitative data described above, the research results were also obtained from the processing of qualitative data obtained from observations and interviews with teachers and students in four schools used as research sites, namely SMPN 29 Bandar Lampung, SMPN 1 Pesawaran, SMPN 1 Metro, and SMPN 1 Kalianda. Based on the results of observations made to science / science subject teachers in the research schools, namely SMPN 29 Bandar Lampung, SMPN 1 Pesawaran, SMPN 1 Metro, and SMPN 1 Kalianda. The following are the results of the observations that have been made, it is concluded that with student worksheets ethnoscience-based learning, students show the ability of smart risk-taking behavior that dares to share ideas, argue with other students, enthusiastic in learning, and able to design projects. Learners also show the ability of growth mindset, namely learners show confidence about the nature (good personality in discussion) and are always open in receiving criticism and suggestions, both from teachers and other learners.

Based on the results of interviews conducted with 5 students in each of the research schools. The following are the results of student interviews at SMPN 29 Bandar Lampung, SMPN 1 Pesawaran, SMPN 1 Metro, and SMPN 1 Kalianda obtained the conclusion that the ethnoscience learning model also provides experience for students to be more intelligent, confident, and brave in expressing their opinions, and makes students more developed.

▪ CONCLUSION

Student worksheets based Ethnoscience learning is able to make students' learning atmosphere more interesting, Student worksheets based Ethnoscience learning students can relate learning materials to their environment. Student worksheets developments results the average value of the five validators is 91,6% with a very high validity category. The current study considers factors at different levels of the school environment and includes various dimensions of teacher beliefs, teaching practices and school climate. The findings show that junior high school students have a more developed mindset and smart risk-taking behaviour when teachers use student worksheets with an ethnoscience approach. In contrast, students reported having a more fixed mindset and smart risk-taking behaviour when teachers assigned different tasks to students with different abilities. These findings provide insights into how to effectively foster students' mindset and smart risk taking in the early stages of education, which can help them develop as they progress through school. The use of student worksheets based ethnoscience by applying the concept of smart risk-taking behaviour and growth mindset provides an opportunity for learners to be able to focus on problem solving and be able to respect each other both between teachers and learners and between learners and other learners, thus creating learners' social-emotional development.

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