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Development of a Formative Assessment Model for the Pancasila Student Profile Strengthening Project for the Independent Curriculum

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Abstract: This study aims to develop a valid, practical and effective formative assessment Project models for Strengthening Pancasila Student Profiles for use at SMK Negeri 4 Payakumbuh. This model was developed using the Borg and Gall method which refers to the development of Puslitjaknov which consists of the stages of analysis, development, validation, testing and implementation. The results of the study are in the form of the Formative Assessment Model consisting of Diagnostic Activity Syntax, Preparation Activities, Implementation Activities, Monitoring Activities, Assessment Activities, and Evaluation Activities. The Formative Assessment Model has been tested using a model book with a Validity value of 0.89, a model guidebook with a validity value of 0.91 and declared Valid. The practicality of the model obtained a value of 96.65% with a very practical category. The effectiveness of using the H-Gain Score test in the Experimental Class was 0.723 or 72.32 with the Effective category. This finding can be interpreted that the Formative Assessment Model is effective for measuring the development of the Pancasila Student Profile character.

Keywords: Assessment formative; Assessment model formative P5; Development character

Introduction

Education is a process of changing humans to be more qualified and useful (Ohenham, J. (Ed), 2024). Changes in attitudes, mindsets and ways of understanding in facing life need to be taught. This teaching can be carried out through education, one of which is vocational education. Vocational education aims to produce students who can immediately work, continue their education or become entrepreneurs. Based on Law Number 20 of 2003 concerning the National Education System, Article 15 explains that Vocational Secondary Education is secondary education that prepares students to work in certain fields.

The orientation of Vocational High Schools is: Preparing human resources who are faithful, pious and have character and have a strong mental attitude to develop themselves sustainably, Mastering science, technology and art and having skills according to the needs of the world of work, Having productive abilities according to their field of expertise to work and be entrepreneurs, Contributing to the development of a competitive Indonesian industry facing the global market according to the contents of the Process Standards which are part of the National Standards for Vocational High School Education. Graduates of vocational education are expected to be able to work well independently or in teams in the industrial world. This presents a challenge for vocational education in

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meeting the demands of the development of the industrial world.

The development of industrial needs has been addressed by the government with the development of the education system in Indonesia. The development of these changes can be seen from changes in education policies and standards. These changes are like changes in the curriculum. The education curriculum in Indonesia has been proven to have changed 10 times since 1947 (Insani, 2019). One of the curriculum changes is the 2013 curriculum. The 2013 curriculum has been implemented in Indonesia for 8 years. In the implementation of the 2013 curriculum, there are various shortcomings. These shortcomings include student activity, assessment and evaluation of learning, authentic assessment results that do not meet the curriculum requirements (Mufarrichah, 2019; Novalinda et al., 2020). These obstacles cause the learning that is carried out to be less than optimal. This is also exacerbated by the pandemic conditions with the learning process being carried out more online, so that many schools experience failure in the learning process.

In the 2022/2023 academic year, a national policy was implemented, namely the implementation of three curricula in learning, both primary and secondary education. These curricula are the 2013 Curriculum, the Emergency Curriculum, and the Prototype Curriculum, which were later refined into the Independent Curriculum. This implementation refers to the evaluation results of the Curriculum Standards Agency for Research and Technology (BSKAP) of the Ministry of Education, Culture, Research and Technology in 2021. These results show that schools using the independent curriculum are 4-5 months more advanced in learning than those using the 2013 Curriculum alone (Ministry of Education and Culture, 2021).

The Merdeka Belajar Curriculum comes with various updates. These updates include being simpler and more in-depth because they focus more on essential materials and character development of students. The freedom obtained with this independent curriculum is that schools are given the freedom to develop existing curricula or add to existing curricula in the industrial world through collaboration. In terms of educators, they have more freedom to choose models, methods and approaches that suit the needs and development of students or are known as differentiated learning. Students are given the freedom to choose subjects that suit their interests and talents.

The Independent Curriculum is one of the curricula in the recovery of competency-based learning (Ministry of Education and Culture, 2022). The main character of the independent curriculum is project-based learning that can support the improvement of students' competencies and attitudinal characteristics through the Pancasila student profile. In the independent curriculum, schools are given the freedom to develop a curriculum with an orientation towards projects that are relevant to learning. The preparation of this curriculum can also involve industry as a form of industry link and match.

Project-based learning is important for developing student character because it provides students with the opportunity to learn through experience (experiential learning). Learning is focused on essential materials so that there is sufficient time for in-depth learning for basic competencies such as literacy and numeracy; and flexibility for teachers to carry out differentiated learning according to student abilities and make adjustments to local contexts and content (Belwal et al., 2020; Zen et al., 2022).

To achieve the best quality and quality of education, the education system must have a policy where changes to the education curriculum system must continue to be improved. As is the case today, the curriculum emphasizes project learning that is carried out in relation to government programs. However, many students miss class hours because they often take dispensation to participate in project learning activities. With this problem, a policy emerged regarding the Pancasila Student Profile Strengthening Project (P5) which is part of the Merdeka Curriculum program. The Merdeka Curriculum prioritizes projects so that the strengthening of the Pancasila student profile can be achieved and can be developed in accordance with the theme set by the government.

Pancasila is the philosophical basis of the Indonesian State and the Pancasila Character values are the main reference in citizen activities including in the world of education in Indonesia. The implementation of Pancasila character value education has been implemented in every curriculum, one of which is the Merdeka Curriculum in the form of the Pancasila Student Profile character education program. The Pancasila student profile has been regulated and determined by the government in the Regulation of the Minister of Education and Culture No. 20 of 2020 concerning the 2020-2024 education and cultural strategy. The Pancasila Student Profile is designed to answer one big question, namely what kind of students with what profile (Competencies) do the Indonesian education system want to produce. In this context, the Pancasila Student Profile has a competency formulation that complements the focus on achieving Graduate Competency Standards at each level of the Education Unit in terms of instilling Character in accordance with Pancasila Values. The Pancasila Student Profile Competence takes into account internal factors related to

the identity, ideology, and ideals of the Indonesian nation, as well as external factors related to the context of life and challenges of the Indonesian nation in the 21st century which is facing the Industrial Revolution 4.0.

Indonesian students are expected to have the competence to become democratic citizens and become superior and productive human beings in the 21st century and have ethics and morals so that they have noble character. Therefore, Indonesian students are expected to be able to participate in sustainable global development and be resilient in facing various challenges. In addition, Indonesian students are also expected to have the competence to become resilient citizens with reference to several dimensions in the Pancasila Student Profile, namely: Faith, Devotion to God Almighty, and Noble Morals; Global Diversity; Mutual Cooperation; Independent; Critical Thinking; and Creative. These dimensions show that the Pancasila Student Profile does not only focus on cognitive abilities, but also attitudes and behaviors according to their identity as Indonesians and citizens of the world.

Based on Kemdikbudristek No.56/M/ 2022, the Pancasila Student Profile Strengthening Project is a project-based Co-curricular activity designed to strengthen efforts to achieve competencies and character in accordance with the Pancasila student profile which is compiled based on Graduate Competency Standards. The implementation of the Pancasila student profile strengthening project is carried out flexibly in terms of content, activities and implementation time. The Pancasila student profile strengthening project is designed separately from intracurricular. The objectives, content and learning activities of the project do not have to be linked to the objectives and materials of intracurricular lessons. Educational units can involve the community and/or the world of work to design and implement the Pancasila student profile strengthening project.

Table 1. Implementation of P5 at SMK and MAK

Level	Provision Amount Theme	Allocation Time
Vocational High School/Vocational Islamic High School Class X	3 themes for the Pancasila Student Profile Project with the provision of 2 elective themes and 1 work theme	288 Lesson Hours
Vocational High School/Vocational Islamic High School Class XI	2 themes for the Pancasila Student Profile Project with the provision of 1 Elective Theme and 1 Employment theme	144 Lesson Hours
Vocational High School/Vocational Islamic High School Class XI	1 Profile Project theme is the Employment theme	36 Lesson Hours

The implementation of the Pancasila student profile strengthening project is carried out in the form of themes based on the priorities of each level of education. For SMK there are 8 themes consisting of 2 optional themes and 1 mandatory theme. The optional themes are: Sustainable Lifestyle, Local Wisdom, Bhineka Tunggal Ika, Build Your Soul and Body, Voice of Democracy, Engineering and Technology, Entrepreneurship and 1 Mandatory Theme, namely Employment. The implementation for SMK and MAK is shown in Table 1.

In the implementation of P5 SMK and MAK, an Assessment is needed. Assessment is an important part of learning in the Pancasila student profile project. The implementation of the Pancasila Student Profile Strengthening Project needs to compile Modules and Assessments as Evaluation materials for the implementation and achievement of the implementation of this Pancasila Student Profile.

The assessment to be achieved in P5 is not in the form of results but a process of change with the rubric Starting to Develop, Moderately Developing, Developing According to Expectations and Very Developing. Where this refers to the dimensions of learning that are integrated with the dimensions of P5 itself, namely Understanding, Application, Meaningful Learning, Character Development and Continuous Assessment.

The assessment and evaluation process is the main point in the success of measuring the achievement of the success of the implementation of character education (Salirawati, 2021). However, in reality, this assessment process is the root of the problem in the failure of the implementation of character education, because it is often not implemented and also the model and instruments in this assessment or assessment do not have a clear reference. Teachers also often consider the assessment process as simple or less important, still considering the final result to be the main point. Whereas in principle the development of the assessment model or instrument should be an important part in implementing the assessment process including in the assessment and evaluation of the results of the application of the Pancasila Student Profile character education in vocational high school students.

One alternative that can be used is to apply a learning model, one of the models that can be applied is the Project Based Learning (PjBL) model. The Project Based Learning (PjBL) learning model is a teaching that tries to link technology with everyday life problems that are familiar to students, or with a school project (Natty et al., 2019; Anderson et al., 2024). The PjBL model is a learning model that uses real-world problems as a context for students to learn about critical thinking and problem-solving skills and to obtain essential

knowledge and concepts from the subject matter. More clearly, Irmatasia et al. (2020) also stated that PjBL can provide students with the opportunity to determine for themselves the projects they will work on, both in terms of formulating questions to be answered, choosing topics to be researched, and determining the research activities to be carried out.

Based on the essence of the P5 objectives, the assessment model will be the determining assessment to see the development of student character. The assessment is divided into 3, namely assessment for learning (formative), learning assessment (summative) and assessment as learning (self and peer assessment) (Atkin, 2007). Based on the opinion above, assessment is not only to measure the learning process and learning outcomes, but also to improve the learning process, motivate students and diagnose student weaknesses. Learning assessment is carried out in an integrated manner in the learning process and is used to assess everything related to the learning process, including to facilitate students in learning. Formative assessment is carried out periodically in all learning units and is an inseparable part of learning. Formative assessment produces feedback to students on their learning progress so that they can plan further learning activities. Formative assessment also produces feedback for teachers regarding the effectiveness of their teaching (Veugen et al., 2021; Pals et al., 2023).

According to the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 104 of 2014, formative assessment functions to improve deficiencies in student learning outcomes in the form of attitude competencies, knowledge and skills during learning. The use of formative tests can be used to measure student understanding related to concept mastery (Ramadhani, 2021). Formative assessment aims to evaluate the process of student understanding, learning needs, and student academic progress during learning, monitor student learning and provide periodic and continuous feedback. For teachers, formative assessment functions to provide information about what challenges students face in the learning process so that they can determine the material to be given. For students, formative assessment functions to help students identify strengths and aspects that need to be developed (Wiwiek, 2022).

The facts on the ground also reveal that in this P5 assessment, teachers still focus on the results of the projects made by students, not on the character values in the Pancasila Student Profile. The P5 Coordinator of SMK Negeri 4 Payakumbuh, Mrs. Desi Letni, said that the P5 implementation process last year only focused on the project or the results of the P5. Likewise, the teachers who assess focus on the results made by students. Teachers only make notes in the manual containing who is more active and then which class is better in their projects.

This is also in line with what was expressed by the P5 Coordinator of SMK Negeri 1 Payakumbuh, Mrs. Yerri Kurnia Putri, who said that the main obstacle in implementing the P5 process assessment is that the existing assessment model is only general or only in the form of final results, so that teachers end up assessing the final results or products only. The school tried to reduce several indicators to carry out formative assessments, but there were only 2 Pancasila Student Profile indicators used by each theme. So this is still not enough to assess the achievement of the character assessment indicators. Teachers still focus on the final project, even though the essence of the assessment is an assessment of the process of measuring the development of students' character values periodically which refers to the Pancasila student profile, not how good the products they produce.

Based on urgency from reference implementation and achievement P5 objectives for participants educate as well as the need a reliable assessment, then need developed model assessment Effective, Practical and Efficient Formative in reach objective education national which has character in accordance with profile student Pancasila. With thus so arranged A research entitled "Development Model Assessment Formative Project Strengthening Profile Student Pancasila in the Curriculum Independent.

Method

Models used in research This namely the Research and Development model (R&D). The R&D model is a development model in which the results of development are in the form of new products and procedures, where these products will be tested, evaluated, and refined to achieve the established criteria in terms of quality, effectiveness, practicality and the like (Gall et al., 2003). In this development, the product that will be produced in the form of learning models, model books, books guide students and lecturers, books labsheets, guides, videos, and application media simulation.

Method Borg and Gall consisting of 10 stages is simplified into 5 stages as simplified by the Center for Policy Research and Innovation (Puslitjaknov, 2008). The Borg and Gall stages are reduced into five stages, namely: analysis; development; validation; trial; implementation.

This study uses one group pretest-posttest design conducted on the Project Strengthening Profile Pancasila Students (P5) at State Vocational School 4 Payakumbuh year teachings 2024-2025. P5 subjects taken because

argument that the models and instruments for P5 assessment during This is at State Vocational School 4 focus his assessment is Products, though substance evaluation the is Development character from Profile Pancasila Students. Methods used is one group pretest posttest and see comparison its value and see development character his students.

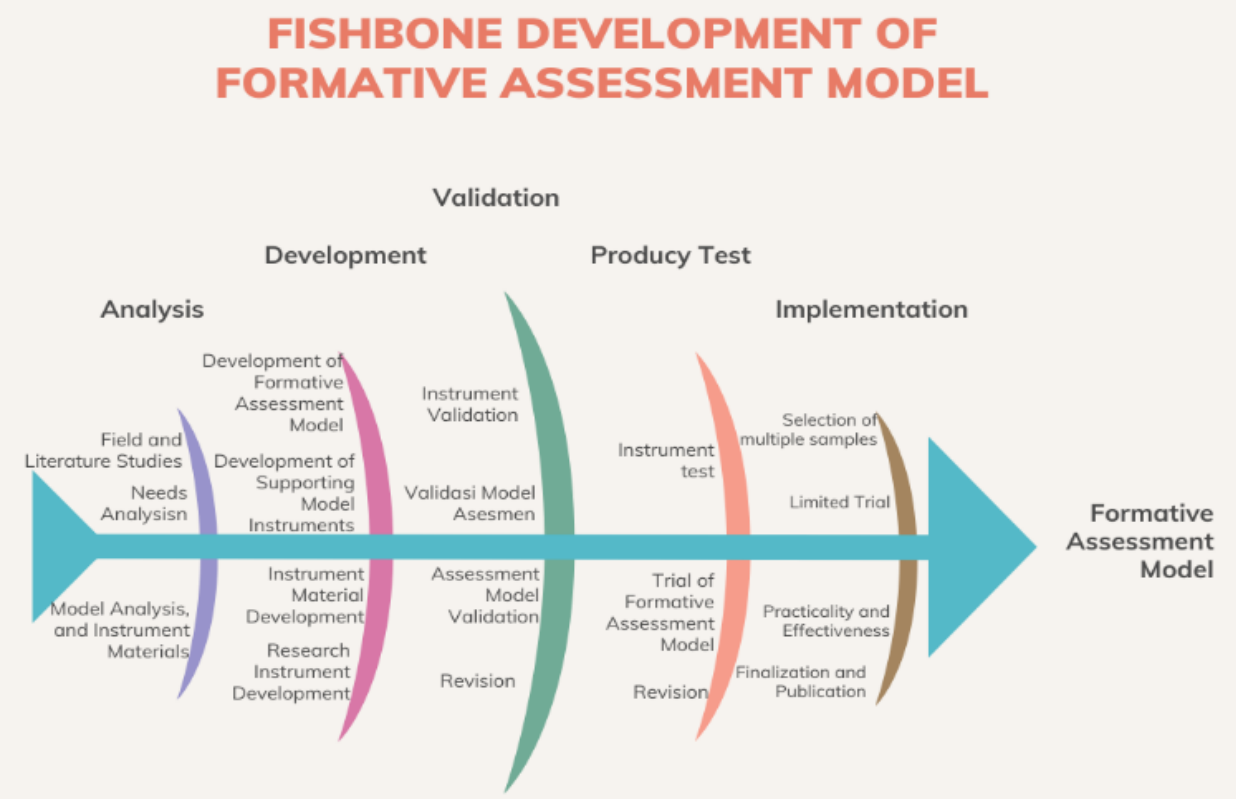

Figure 1. Fishbone development of formative

Subject research of 20 P5 teachers and 30 students in the Computer Engineering class The network being measured development character student with do pretest at the beginning and then given treatment during implementation of P5 and then Post Test was conducted for see development character student based on instruments that have been produced Test results end This will counted with using the N-Gain test. The N-Gain test is used to know how much big influence the treatment given to experimental class. Results obtained Then will become reject measuring in answer results research. In use N-Gain method, required a number of condition analysis. Statement presented in the following table.

Table 2. N-Gain score requirements

Requirements	Purpose	Method	Benchmark
Normality test	To test whether the distribution of data is normal or not	Shapiro Wilk	Sig. > 0.05
Homogeneity Test	To test the data samples taken from populations that have the same variance	Homogeneity of Variance	Sig. > 0.05
T-Test	To test whether there is a significant difference between groups	Independent Sample Test	Sig. (2-tailed) < 0.05

Each requirement must be implemented using the N-Gain test. Once each requirement is met, the N-Gain Method can then be used properly.

$$\text{N Gain} = \left(\frac{\text{Posttest Score} - \text{Pretest Score}}{\text{Ideal Score} - \text{Pretest Acore}}\right) \quad (1)$$

N Gain : Gain Value
Post-test Score : Value after being given treatment
Pre-test Score : Value before being given treatment
Ideal Score : Minimum Completeness value

In determining of finding out the level of effectiveness of the N-Gain calculation, Hake uses the H-

gain category guidelines. The N-Gain category is presented in Table 3.

Table 3. Category gain-score

N-Gain Value	Motion Phase
N-Gain > 0.7	High
0.3 ≤ N Gain ≤ 0.7	Medium
N Gain < 0.3	Low

Results and Discussion

Results

Result of development is an assessment model formative project strengthening profile Pancasila students as in Figure 2.

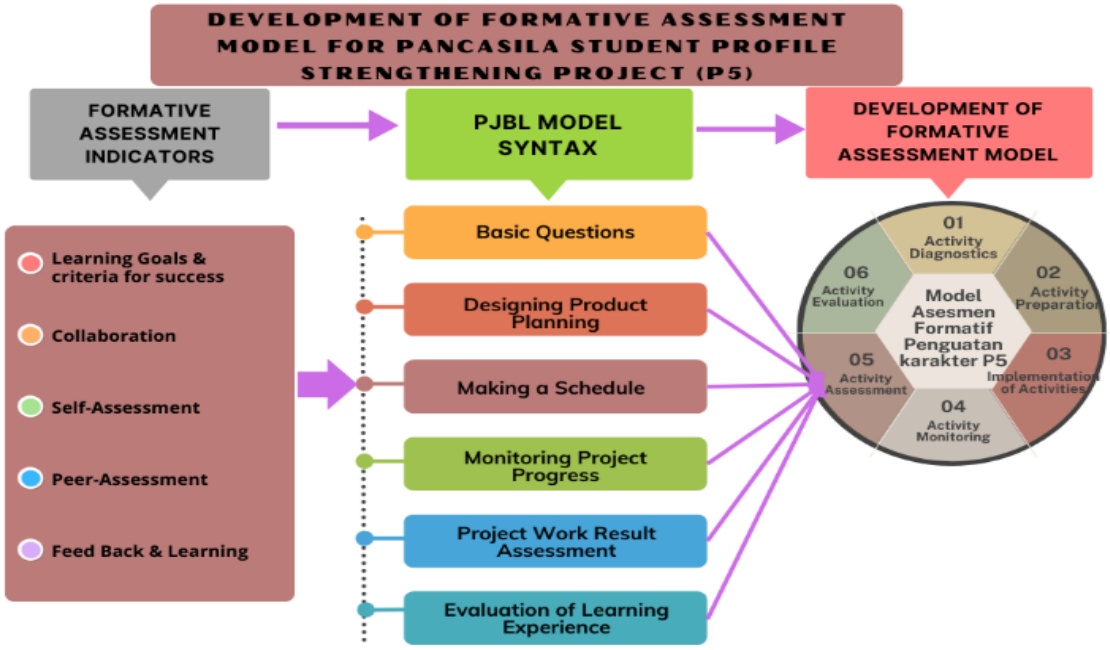

Figure 2. Assessment model formative P5

Table 4. N-Gain test result data

Student	Pretest	Posttest	Post - Pre	100 - Pretest	N Gain Score (%)
Student 1	64.92	90.20	25.23	35.08	71.93
Student 2	66.77	91.40	24.62	33.23	74.07
Student 3	72.62	90.80	18.15	27.38	66.29
Student 4	63.08	91.10	28.00	36.92	75.83
Student 5	64.92	90.50	25.54	35.08	72.81
Student 6	73.23	93.20	20.00	26.77	74.71
Student 7	72.92	95.70	22.77	27.08	84.09
Student 8	82.77	92.60	9.85	17.23	57.14
Student 9	72.92	92.90	20.00	27.08	73.86
Student 10	60.62	93.50	32.92	39.38	83.59
Student 11	80.62	92.30	11.69	19.38	60.32
Student 12	65.85	92.90	27.08	34.15	79.28
Student 13	68.31	89.80	21.54	31.69	67.96
Student 14	68.00	92.30	24.31	32.00	75.96
Student 15	72.30	92.90	20.62	27.69	74.44
Student 16	67.70	90.80	23.08	32.31	71.43
Student 17	76.30	88.60	16.31	27.69	58.89
Student 18	67.40	96.00	28.62	32.82	87.74
Student 19	71.10	93.80	22.77	28.92	78.72
Student 20	70.20	89.80	19.69	29.85	65.98
Student 21	65.54	92.00	26.46	34.46	76.79
Student 22	72.90	92.00	19.08	27.08	70.45
Student 23	63.40	92.00	28.62	36.62	78.15
Student 24	72.00	91.40	19.38	28.00	69.23
Student 25	72.90	91.70	18.77	27.08	69.32
Student 26	70.80	93.20	22.46	29.23	76.84
Student 27	71.40	90.80	19.38	28.62	67.74
Student 28	70.50	90.50	20.00	29.54	67.71
Student 29	74.20	91.10	16.92	25.85	65.48
Student 30	66.80	89.20	22.46	32.33	67.59
Amount	69.96	91.84	21.88	30.04	72.14

In the model above produces 6 pieces model syntax consisting of from Diagnostic Activities, Preparation Activities, Implementation Activities, Activity Monitoring, Assessment Activities and Evaluation Activity. This model used for see development character profile Pancasila students who will be assessed in the learning process. For know development character

student with using that model implemented a number of testing. Testing conducted among them are N-Gain Score, Normality Test, Homogeneity Test and Spaired T Test. Based on the results of the calculation of the N-Gain Score test in the Experimental class using P5 formative assessment models, it is 72.32 or 72.32%.

The normality test in this study applied the Shapiro-Wilk method since the data obtained was less than 50. The data used were the pre-test and post-test results in experimental class. The results of the calculations are presented in Table 5. Based on the table, the significance values were obtained sequentially, respectively 0.359 and 0.538. The value of the four data > 0.05 which means that all data is normally distributed and can be processed with parametric statistics.

Table 5. Test of normality

	Kolmogorov -Smirnov			Shapiro Wilk		
	Statistics	df	Sig	Statistics	df	Sig
Pretest	.13	30	.19	.96	30	.36
Post Test	.07	30	.20	.97	30	.54

The homogeneity test utilizes post-test data to form the experimental class the control class to the pretest and posttest. The results of homogeneity test are presented in Table 6.

Table 6. Tests of homogeneity of variances

Statistics		Lavene Statistics	df1	df2	Sig.
Post Test	Based on Mean	6.276	8	12	.20
	Based on Median	1.395	8	12	.29
	Based on Median and with adjust df	1.395	8	4.935	.37
	Based On trimmed Mean	5.595	8	12	.20

Paired sample t Test is used to find out whether there is a difference in the average of two paired samples. The two samples are pretest and posttest. The following are the results of the Paired T Test calculation.

Table 7. Paired T-Test results

	Paired Samples Correlations		
	N	Correlation	Sig
Paired Pretest & Post Test	30	.05	.79

Based on the table above, the results of the correlation or relationship between the two data or variables can be seen, namely Pretest Post Test. It is known that the significance value is 0.796, meaning that this value is greater than 0.05, so the indication is that there is no relationship between pretest and posttest.

Discussion

The problem in the Pancasila Student Profile strengthening project which is Character Education given from Phase A to Phase F is how to see the development of student character where what is assessed is the process of student character development or Formative Assessment. This assessment requires a clear instrument to measure the development of student character according to the dimensions requested in the Pancasila Student Profile. This has been attempted to be resolved by developing a formative assessment model for the Pancasila Student Profile strengthening project. Conceptually, this model is developed from a combination of the Project Based Learning model with the Formative Assessment model Indicator. The combination of the two models represents a combination of how to develop a project with a project based learning model which requires a process assessment, namely formative assessment with the assessment target being character development (Ngereja et al., 2020).

This formative assessment model has 6 syntaxes consisting of Activity Diagnostics, Activity Preparation, Activity Implementation, Activity Monitoring, Activity Assessment, and Activity Evaluation. The diagnostic activity aims to identify the initial needs of students, according to research, diagnostic assessment helps teachers design appropriate learning strategies based on an understanding of the individual needs of students, especially in improving the character profile of Pancasila students (Ministry of Education and Culture, 2022).

The next syntax is Activity Preparation, where in this syntax is the preparation of the results of the initial assessment or diagnostic activities on students. This preparation consists of planning and aligning the objectives of the Project implementation with the learning outcomes of the Pancasila Student Profile Strengthening Project which are associated with the dimensions of the Pancasila Student Profile, namely critical thinking, creativity or collaboration. It is important for teachers to design activities related to the final objectives of the project, ensuring that the objectives are appropriate (Putri & Amirul, 2023).

After the preparation or arrangement of the schedule in line with the project based learning syntax, it will be implemented in the Activity Implementation syntax. In this implementation, it will be implemented in accordance with the P5 Project Theme that has been determined based on the results of the Student Activity Diagnostic.

Syntax Monitoring activity is the process of teachers to monitor the process that has been carried out by students and monitor the development of student character as a result of cooperation, mutual cooperation and student creativity during the implementation of the

Pancasila student profile strengthening project process. According to Markham (2011), project based learning is not only effective in developing cognitive skills, but also characters such as responsibility, collaboration, and self-confidence. When students are involved in complex projects and focus on real-world problems, they learn to commit, make wise decisions, and work collaboratively, which are important components in character development.

After the teacher provides feedback, an Activity Evaluation Syntax will be carried out, where at this stage input, suggestions and also reflections are given on the implementation of the Pancasila student profile strengthening project. The teacher and students reflect on the learning outcomes and also the assessment process for the development of the Pancasila Student Profile character of students during the implementation (HB & Lubis, 2023; Widarini & Suterji, 2023; Syahputra, 2023). The teacher will evaluate the development of student character.

Development character results from implementation of assessment models formative P5 is shown through N-Gain Score Test calculation. The calculation of the N-Gain Score test to measure the character development of the Pancasila Student Profile is 72.32 or 72.32%. This value of 72.32% in the N-Gain value range has a High or Effective category. This means that it shows the development of student character.

Conclusion

The implementation of the formative assessment model of the Pancasila student profile strengthening project has a significant impact on the development of the Pancasila student character profile. This increase is supported by an increase in character in accordance with the dimensions of the Pancasila student profile. This can be shown by the average post-test value of 91.84 which is higher than the pre-test value of 69.96. The results of the validity test of the model book are 0.89 with a Valid value and the Model Guidebook with a value of 0.91, namely Valid. The Practicality Test of the model is 96.65% with a very practical category. Effectiveness is carried out by calculating the N-Gain Score test to measure the development of the Pancasila Student Profile character is 72.32 or 72.32%. The value of 72.32% in the N-Gain value range has a High or Effective category. This means that it shows the development of student character. This is something new in the evaluation of the implementation of the Pancasila student profile strengthening project which is expected to be able to contribute to improving the character profile of Pancasila students in facing the challenges of the 21st century.

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Authors Contribution
Collecting data, analyzing data, writing original drafts, R.E.S.; methodology, data curation, A.; review writing, visualization, M.G. and M.A.

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Reference

Anderson, I., Melisa, M., Maulia, S. T., & Utami, S. (2024). Project Based Learning (PjBL): Strengthening Philanthropic Character Based on Local Wisdom Through Citizenship Courses. *Edueksos Journal of Social & Economic Education*, *13*(02), 430-440. https://doi.org/10.24235/edueksos.v13i02.18186

Atkin, J. M. (2007). What Role for the Humanities in Science Education Research?. *Studies in Science Education*, *43*(1), 62-87. https://doi.org/10.1080/03057260708560227

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational Research: An Introduction* (7th Edition). Pearson Education Inc.

HB, A. L., & Lubis, Y. A. (2023). Implementation of Pancasila Student Profile Efforts to Shape the Character of Students in Elementary Schools. *International Journal of Students Education*, *1*(2), 76-81. https://doi.org/10.62966/ijose.v1i2.218

Insani, F. D. (2019). Sejarah Perkembangan Kurikulum di Indonesia Sejak Awal Kemerdekaan Hingga Saat Ini. *As-Salam: Jurnal Studi Hukum Islam & Pendidikan*, *8*(1), 43-64. https://doi.org/10.51226/assalam.v8i1.132

Irmatasia, I., Syafruddin, S., & Noviati, W. (2020). Development of Formative Assessment Based on Students' Critical Thinking Skills in Biology Subjects at SMA Negeri 4 Sumbawa Besar. *Proceedings of The National Seminar IPPeMas*, 1(1), 615-621.

Markham, T. (2011). Project Based Learning a Bridge Just Far Enough. *Teacher Librarian*, *39*(2), 38-42. Retrieved from https://nuls.idm.oclc.org/login?url=https://search-proquest-com.nuls.idm.oclc.org/docview/915254354?accou

ntid=25320

Ministry of Education and Culture. (2021). *Regulation of the Minister of Education and Culture No. 64 on Education Process Standards Elementary and Secondary*. Jakarta: Ministry of Education and Culture.

Ministry of Education and Culture. (2022). *Independent Curriculum is the Answer to Overcoming the Learning Crisis*. Retrieved from kemendikbud.go.id

Mufarrichah, D. A. (2019). *Evaluation of the Implementation of the 2013 Curriculum Revised in 2016 in the Learning Process of the Industrial Electronics Engineering Expertise Package Subject at SMK Negeri 2 Probolinggo in the 2018/2019 Academic Year* (Doctoral Dissertation). State University of Malang.

Natty, R. A., Kristin, F., & Anugraheni, I. (2019). Peningkatkan Kreativitas dan Hasil Belajar Siswa Melalui Model Pembelajaran Project Based Learning di Sekolah Dasar. *Jurnal Basicedu*, *3*(4), 1082–1092. https://doi.org/10.31004/basicedu.v3i4.262

Ngereja, B., Hussein, B., & Andersen, B. (2020). Does Project-Based Learning (PBL) promote student learning? A performance evaluation. *Education Sciences*, *10*(11), 330. https://doi.org/10.3390/educsci10110330

Novalinda, R., Jalinus, N., & Jama, J. (2020). Evaluasi Penerapan Kurikulum 2013 di SMK Negeri 1 Payakumbuh. *Cakrawala: Jurnal Pendidikan*, *14*(1), 31-40. https://doi.org/10.24905/cakrawala.v14i1.217

Pals, F. F., Tolboom, J. L., & Suhre, C. J. (2023). Development of a Formative Assessment Instrument to Determine Students' Need for Corrective Actions in Physics: Identifying Students' Functional Level of Understanding. *Thinking Skills and Creativity*, *50*, 101387. https://doi.org/10.1016/j.tsc.2023.101387

Puslitjaknov, P. (2008). *Research Methods for the Development of Learning Innovation*. Jakarta: Center for Policy Research and Educational Innovation, Research and Development Agency, Ministry of National Education.

Putri, C. A., & Amirul, A. R. (2023). Pengaruh Asesmen Formatif, Peran Guru, dan P5 dalam Kurikulum Merdeka Terhadap Hasil Belajar Siswa AKL. *EDUNOMIA: Jurnal Ilmiah Pendidikan Ekonomi*, *4*(1), 81-87. https://doi.org/10.24127/edunomia.v4i1.4877

Ramadhani, D. P. (2021). Analisis Penerapan Asesmen Formatif dalam Pembelajaran IPA dan Fisika: Literature Review. *LENSA (Lentera Sains): Jurnal Pendidikan IPA*, *11*(2), 110-120. https://doi.org/10.24929/lensa.v11i2.172

Salirawati, D. (2021). Identifikasi Problematika Evaluasi Pendidikan Karakter di Sekolah. *Jurnal Sains dan Edukasi Sains*, *4*(1), 17–27. https://doi.org/10.24246/juses.v4i1p17-27.

Syahputra, R. (2023). The Positive Influence of Implementing Project to Strengthening Pancasila Student Profile (P5) with a Theme of Engineering and Technology to Build Unitary State of Republic of Indonesia for Grade IV Students at Inti Nusantara Tebing Tinggi Private Element. *Jurnal Scientia*, *12*(03), 3815-3821. Retrieved from https://www.infor.seaninstitute.org/index.php/pendidikan/article/view/1804

Veugen, M. J., Gulikers, J. T. M., & Brok, P. D. (2021). We Agree on What We See: Teacher and Student Perceptions of Formative Assessment Practice. *Studies in Educational Evaluation*, *70*, 101027. https://doi.org/10.1016/j.stueduc.2021.101027

Widarini, N. W. W., & Suterji, N. K. (2023). Implementation of The Profile Strengthening of Pancasila Student Profile (P5) in Building Student Character in First Middle School. *International Journal of Multidisciplinary Sciences*, *1*(2), 218-231. https://doi.org/10.37329/ijms.v1i2.2276

Wiwiek, M. (2022). Kajian Asesmen dalam Kurikulum Merdeka pada Pembelajaran Biologi (Diploma Thesis). UIN Raden Intan Lampung. Retrieved from https://repository.radenintan.ac.id/20096/