Development of character survey instruments in national assessment of Indonesia for physics teachers

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Abstract. In order to support the realization of the aspiration to build character as mandated in Pancasila and the Preamble of the 1945 Constitution and to overcome current national problems, the Government of Indonesia has made character education one of the priority programs for national assessment. This is a challenge for educators, teachers and education practitioners to make it happen. However, until now there has been no instrument capable of measuring character. This study aims to determine the development process and the feasibility and benefits of a character survey instrument which is part of a national assessment that must be implemented by teachers to students in schools. The research method used is a development research method with the ADDIE research design coined by Dick and Carry. This research was conducted at several schools in West Java with a sample of 10 physics teachers who were selected by purposive sampling technique. The results showed that the character survey instrument is a valid and reliable instrument with a high category. So, it can be concluded that this character survey instrument is an instrument that is suitable to be used for assess and identify the character of students.

1. Introduction

The era that continues to develop and run rapidly gives rise to various new paradigms that trigger every aspect of life to develop in order to meet the demands of existing life, namely the educational aspect. The field of education continues to develop along with changes in the school environment which are influenced by IPTEK advances, globalization, and the environment [1][2]. The purpose of organizing education is essentially to form human resources who have good character and personality, are intelligent, skilled and have national insight as a provision to face challenges in the future. To achieve this goal there needs to be a balance in the development of aspects of knowledge, skill, and attitude [3]. However, if we look at the actual practice in the field, education that takes place in Indonesia places more emphasis on knowledge/intellectual intelligence, even though attitudes or moral values have a very large role in determining the actions of students [4][5]. Many people in this country are caught in cases not because they have low intelligence, but because of bad morality. Currently, we can find various social phenomena that occur, especially in the world of education in Indonesia. All around us we can find students, education graduates, and people with certain positions showing disrespectful attitudes such as being rude, impolite, lying, disrespecting older people, or being selfish, irresponsible, unwilling to admit errors, etc. The existence of this phenomenon encourages the Indonesian government to reorganize all aspects of education in Indonesia. One of them is through a new paradigm in the world of education, namely curriculum renewal [6].
Curriculum renewal in Indonesia that is still used today and continues to be refined is the Kurikulum 2013. Kurikulum 2013 promises to be able to form a generation that is productive, creative, innovative, and has character [7]. Character education is not something new. In Indonesia, regulations related to character education are regulated by Peraturan Presiden Number 87 in 2017 and Permendikbud Number 20 in 2018 about Strengthening Character Education. Long before, policies related to character had been widely discussed. The first president, Bung Karno, often spoke about the importance of national and character building. Even long before that, the Prophet Muhammad said, "Indeed I (Muhammad) was sent nothing but in order to perfect morals". However, the problem that occurs at this time is that there are still few instruments for assessing character education that are adequate, valid, and reliable that can be used appropriately. This is in line with research conducted by [8] which states that it is still difficult for teachers to develop character education assessment instruments. Research conducted by [9] also stated that character assessment instruments, especially self-confidence, are not yet available in the field, which causes character assessments to not be carried out optimally.

In response to these conditions, the Ministry of Education and Culture made a new policy as a benchmark for education, namely the establishment of the National Assessment listed in Permendikbudristek Number 17 in 2021. The national assessment shows what should be the main goal of the school, namely the development of student character and competence. If the assessment is carried out correctly, the results can be used as a basis for improving the teaching and learning process in schools [10]. Character assessment is one of the components in it called the Character Survey. The Character Survey focuses more on the profile of Pancasila students. This character survey is one of the efforts to determine the condition of the character ecosystem of students in schools regarding whether Pancasila is really felt by students in interactions at school. The key elements of the Pancasila student profile can be seen in the table below:

| No. | Main Characteristics | Key Elements |
|-----|---------------------|--------------|
| 1   | Have faith, fear God, and have noble character | (a) Religious morality; (b) personal character; (c) morality to humans; (d) morality to nature; and (e) state morality |
| 2   | Global diversity | Knowing and appreciating culture, intercultural communication skills in interacting with others, reflection and responsibility for the experience of diversity |
| 3   | Worked together | Collaboration, caring and sharing |
| 4   | Independent | Self-awareness and self-regulation |
| 5   | Critical reasoning | Obtain and process information and ideas, analyze and evaluate reasoning, reflect on thoughts and thought processes, and make decisions |
| 6   | Creative | Generate original ideas and produce original works and actions |

The regulation is a challenge for educators, teachers and education practitioners to develop character survey instruments. Therefore, the purpose of this study is to produce a valid and reliable character survey instrument using a Likert scale so that it is feasible to use to measure the character of students according to the five main character values of Pancasila. This product is expected to be used as a teacher reference in conducting character survey assessments.

2. Method
The research method used in this study is the research and development method with the ADDIE instructional design model. The ADDIE model was developed by Dick and Carey in 1996 to design learning systems [11][12]. The flow of research and development activities carried out consists of 5 stages, namely (1) analyzing necessity, (2) designing products, (3) developing products, (4)
implementing products and (5) evaluating products. The flow of research and development procedures can be seen in Figure 1 below.

![Flowchart of research and development procedures](image)

**Figure 1. ADDIE model stages**

The primary data used in this study are quantitative and qualitative data related to research information. This data is needed to determine the level of weakness or deficiency of the assessment instrument that has been made as the basis for the preparation of the development of a character survey instrument with a Likert scale. Data collection techniques used in this study were observation, interviews, and questionnaires. The data collection instrument used was a statement item instrument containing 30 statement items presented on a Likert scale. This data will be analyzed using IBM SPSS 25 for windows. The data were analyzed using qualitative data analysis techniques in the form of percentages obtained from the results of the validity test of the assessment instrument which will be analyzed and presented descriptively and categorically to determine the description of the feasibility of the assessment instrument that has been made. The subjects of this study were 10 physics teachers who were selected by purposive sampling in several schools in West Java, where later the teacher directly assesses the Pancasila character that appears from students on the assessment sheet in the Likert scale format that has been developed.

3. **Result and Discussion**

3.1. **Analysis of needs**

At the analysis stage, interviews were conducted to determine the need for character survey instruments to be developed in schools. The results of the interview stated that in several schools in the West Java region there was no character survey instrument, teachers only used the assessments in the teacher's book, while in several other schools there were character survey instruments but their validity and reliability were not known. In assessing character, teachers tend to use the assessments in the teacher's book without redeveloping and adjusting to learning needs.

3.2. **Product Design**

The design stages in making character survey instruments are as follows: 1) Checking the high school curriculum, 2) Creating a blueprint for character survey instruments using a Likert scale, 3) making scoring rubrics.

3.3. **Product Development**

At this stage, make statement items based on the blueprint that has been made.
Table 2. Pancasila student profile character survey instrument

| Main Characteristics                        | Key Elements    | Indicator (Observed Behavior)                                          | Achievement Category |
|--------------------------------------------|-----------------|------------------------------------------------------------------------|----------------------|
| Have faith, fear God, and have noble character | Worship         | Participate in religious activities at school or outside of school.    |                      |
| Global diversity                           | Remove prejudice| Eliminate prejudice on issues related to certain cultural groups       |                      |
| Worked together                            | Collaborate     | Collaborating with friends in group task                               |                      |
| Independent                                | Positively      | Plan tasks effectively                                                 |                      |
| Critical reasoning                         | Reflection      | Explain the reasons to support his thinking                            |                      |
| Creative thinking                          | Originality     | The ideas generated are not common                                     |                      |

Table 3. The assessment rubric of the Pancasila student profile character survey instrument

| Cultivated (C)                              | Students are always consistent in displaying appropriate behavior stated in the behavioral rubric |
| Developed (D)                               | Learners begin to consistently display behaviors that stated in the behavioral rubric          |
| Start to Developed (SD)                     | Learners display the behavior stated in behavior rubric but not yet consistent                |
| Requires Guidance (RG)                      | Students have not displayed appropriate behavior stated in the behavioral rubric              |

The character survey instrument that has been made is then validated by linguists, assessment experts, and material experts. From the results of the expert assessment validation test, obtained a score of 41 out of a total of 48 with a percentage of 85.4% which means it is included in the very feasible category, the linguist validation test is obtained, a score of 20 out of a total of 26 with a percentage of 74.12% which means that it is included in the eligible category, material expert validation test obtained a score of 27 out of a total of 33 with a percentage of 82% which means it is included in the very feasible category.

3.4. Implementation Product

At this stage, the product that has been validated by experts and has been revised is then implemented in a limited trial. The limited trial was carried out by giving a character assessment instrument questionnaire to the teacher to be used in assessing the profile of Pancasila students as seen from the students during the learning process. This instrument was given to 50 students in several schools in the West Java region. From the limited trial, it was found that of the 30 statement items that were tested, 15 (50%) statement items had a very high level of validity, 12 (40%) statement items had a high level of validity, 3 (10%) statements had a medium level of validity, and 0 statement items had a low level of validity.

Table 4. Distribution of Limited Product Trial Instrument Validity

| Index Range | Category | Limited Product Trial Item frequency | %   |
|-------------|----------|--------------------------------------|-----|
| 0,81 – 1,00 | Very high| 15                                   | 50  |
| 0,61 – 0,80 | High     | 12                                   | 40  |
| 0,41 – 0,60 | Medium   | 3                                    | 10  |
| 0,21 – 0,40 | Low      | 0                                    | 0   |
From the limited test results obtained the lowest $r_{count}$ in the range 0.41 – 0.60 with a medium validity category. While the highest $r_{count}$ is in the range of 0.81-1.00 with a very high validity category. The results showed that the average $r_{count}$ was 0.91 $\geq$ 0.41, so the instrument was valid. While the reliability in the limited test obtained of 0.89 with very reliable category. The results of the reliability test in the limited trial can be seen in the following table.

| $r_{count}$ | Category   |
|-------------|------------|
| 0.00 – 0.20 | Very low   |
| 0           | 0          |
| Total       | 30         |
| 100         |            |

3.5. Evaluation Product

The last stage is the evaluation stage. At the validation stage by experts on character survey assessment instruments based on the profile of Pancasila students, several evaluations were obtained. Some of the evaluations include: a) Indicators or behaviors observed on the character survey instrument, b) sentence editing on the character survey instrument. Researchers made revisions before conducting a limited test. From the results of the limited test analysis, it is known that there are 3 indicators that do not meet the valid category, namely statements number 5, 13, 17 which are then corrected again. Based on the results of the limited test of the character survey assessment instrument based on the Pancasila student profile, there are 30 statements that have been tested. The results of the research show an average $r_{count}$ of 0.91 $\geq$ 0.41, so the instrument is valid. While the reliability in the limited test obtained Cronbach’s alpha score ($\alpha$) of 0.89 with a very reliable category. It can be concluded that the developed instrument is feasible to use. This is caused by several factors, namely as follows. First, the character development instruments that have been developed are appropriate and meet the eligibility criteria. Secondly, the points already describe the real profile of Pancasila students. The eligibility criteria of an assessment instrument is valid and reliable, where it can measure what it should be measured and if the assessment instrument is tested repeatedly, the score does not change significantly [13,14].

4. Conclusion

Character survey instruments is valid and feasible for measure the character of students, so that researchers hope teachers can use the instruments we have developed to measure the Pancasila Student Profile, and make this instrument as a guide for making other Pancasila Student Profile assessment instruments.

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