

## Pedagogical Content Knowledge (PCK) Based On Local Wisdom To Develop Students' Nationality Characteristics

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**Abstract.** The results of this study are outlined in the Pedagogical Content Knowledge (PCK). This study aims to produce PCK based on local wisdom that can develop the national character of elementary school students. To get a decent PCK, the research was carried out using the Research and Development (R&D) approach. The results revealed that, PCK based on local wisdom of the Dayak Desa tribe, was able to improve the behaviour of national character into unity, mutual cooperation, and honesty, each by 0.77; 0.77; and 0.86. Thus, it can be concluded that PCK based on local wisdom can develop the national character of elementary school students.

**Keywords:** Pedagogical Content Knowledge, Local Wisdom, Nationality Characteristics.

## INTRODUCTION

Today the learning process requires students to master a variety of skills to be able to face the challenges of the 21st century. The presence of technology in the era of the industrial revolution 4.0 forced students to master the skills needed. Qualified characters must also support the skills required in the 21st century. These are necessary so that students are not only focused on learning technology but also guide by positive emotional reactions. Thus, the mastery of technology is brought to life by a noble heart, so that technology can humanize its users.

Character education is essential to be developed, especially at the elementary school

level. This is in line with Hidayat's statement (Setyaningrum, and Husamah, 2013: 47) which states that, "If the character of a child has been formed since childhood, ranging from the social environment to elementary school, then the generation of Indonesian people will be human beings with character, which can be the successor of the nation for the creation of a just, honest, responsible society so as to create a safe and peaceful society of a country." This statement also emphasizes that character education must start from elementary school.

Character education, which is developed in the learning process, becomes the character-building blocks of learners in living the life of the nation and state. The national character of learners is absolutely inculcated at an early age.

It is realized that the formation of moral doing takes a long time. The development of national character values can be implemented based on the content of local wisdom.

Local wisdom is a conceptual idea that aims to maintain good traditions that have been passed down through generations carried out by local community groups. Naritoom (Wagiran, 2012: 330) writes, "Local wisdom is the knowledge that discovered or acquired by local people through the accumulation of experiences in trials and integrated with the understanding of surrounding nature and culture." Naritoom's statement explains that local wisdom is knowledge gained through combined experience between knowledge of nature and culture (Eriyani, 2012). It also means that local wisdom is closely related to the view of life that goes down through generations in a community group.

The local wisdom of the Dayak Desa tribe who inhabit the Sintang regency that deserves to be elevated as the nation's character is *Huma Betang*. *Huma Betang* is one of the local wisdom living in the Dayak community who live in *Huma Betang (Rumah Betang)*. *Huma Betang* is a living place that is inhabited by many families all belonging to one relative; this wants to show that the Betang community is bound by a kinship system based on blood relations (Gunawan, 2017: 70). Furthermore, according to Gunawan (2017: 71), "The value of character education in *Huma Betang* is a sense of togetherness, solidarity, cooperation, honesty and even distribution, mutual welfare, which is the goal. Thus, the local wisdom of *Huma Betang*, which contains national character values, namely unity, cooperation, and honesty, can be the development of national character values that need to be developed in children from an early age.

Character development of students based on the local wisdom of *Huma Betang*, can be integrated through learning. Where the teacher, must be able to plan a teaching so that learning objectives can support the development of these characters. Teacher's planning in the learning process is contained in the Pedagogical Content Knowledge (PCK) learning tool.

PCK is a learning device that combines the concepts of knowledge and ways of teaching. PCK is a form of representation of ideas, parables, explanations, examples, and ways of formulating and conveying material in order to be understood by others (Purwianingsih

& Mardiyah, 2018: 1). This statement indicates that PCK is a form of teacher's understanding of the teaching component so that students can understand it well.

PCK consists of content elements and pedagogy knowledge. Otto & Everett (Chaitidou, et al, 2015: 404), wrote that, "... pedagogy involves the knowledge of main teaching strategies, and content knowledge refers to learning objectives ...". It means that PCK is composed of a combination of concepts of knowledge about teaching strategies and learning objects. Thus PCK is an integrated learning device that links studies between pedagogy and subject material.

Based on this description, this research focuses on developing Pedagogical Content Knowledge (PCK) based on local wisdom to establish the national character of elementary school students. This study aims to produce PCK based on local wisdom that can develop the national character of elementary school students

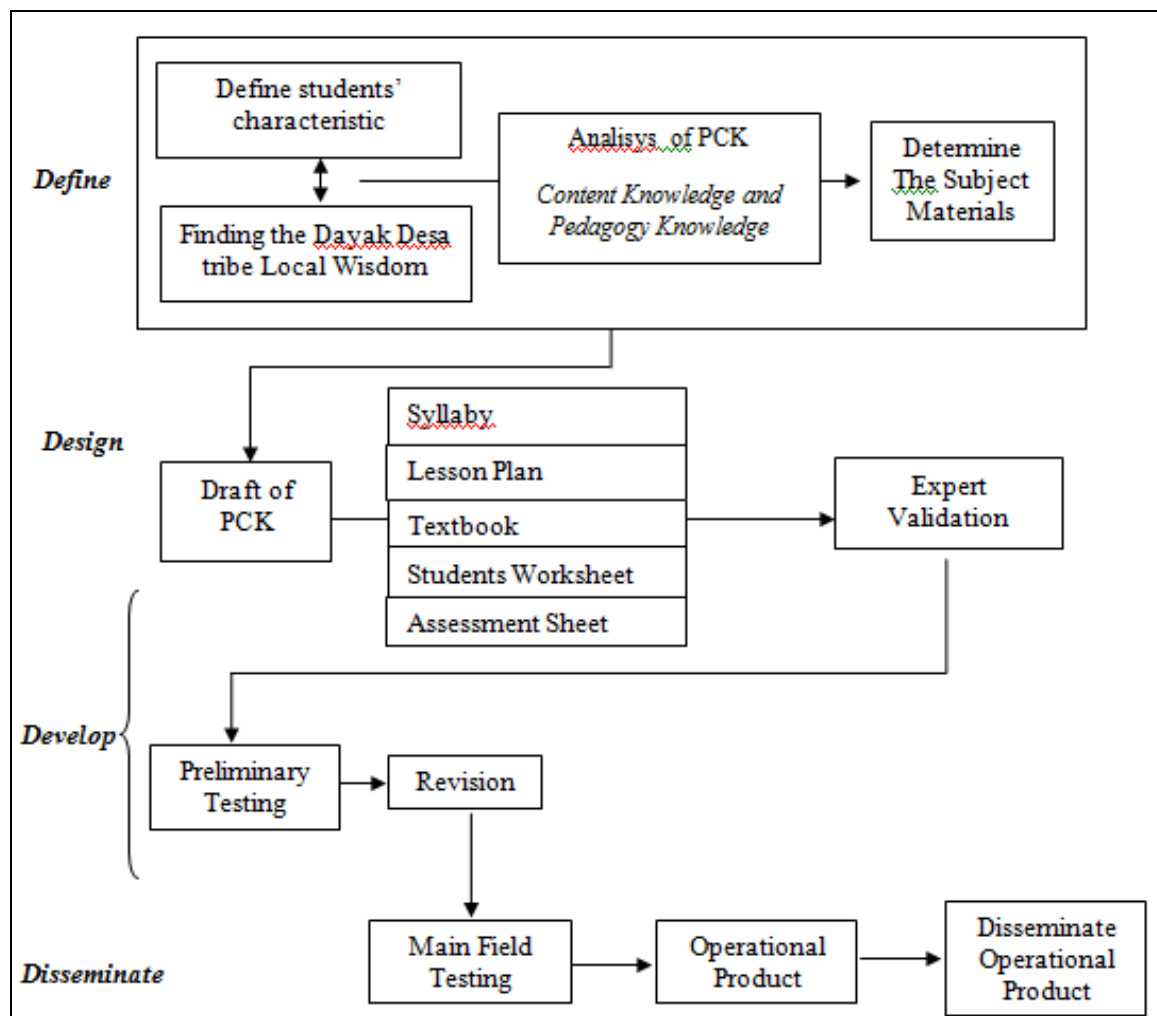
## METHOD

The study was conducted with Research and Development (R&D). The research was conducted to collect data on the characteristics of elementary school students in Kecamatan Sintang, an analysis of local wisdom that is in line with the national character values, as well as the subject material delivered. While development is a phase of PCK development consisting of lesson plan, textbooks, student worksheets, and assessment sheets.

The R&D research used in this research was the Borg & Gall model modified by Thiagarajan with the 4D model, namely, define, design, develop, and disseminate (Thiagarajan, Semmel, & Semmel, 1974: 5). In the define stage, a preliminary study is carried out consisting of analysis of student characteristics, analysis of local wisdom, and analysis of subject matter. Furthermore, the design phase is carried out validation of the PCK design consisting of the syllaby, the lesson plan, textbooks, student worksheets, and assessment sheets.

In the develop stage, the equipment that has been validated is tested in a limited environment and is the primary test subject. After being declared effective, dissemination was carried out at several schools in Kecamatan Sintang, Sintang regency, West Kalimantan,

Indonesia. The research steps can be seen in figure 1.



**Figure 1.** 4D steps of R&D

Data analysis used was descriptive qualitative analysis, descriptive statistical analysis, and inferential statistical analysis. Descriptive qualitative analysis is used to analyze the characteristics of students, analysis of local wisdom, and analysis of subject matter. Descriptive statistical analysis was used to analyze the results of the validation using validation category formulas as seen on table 1 (Azwar, 2012:163). Then inferential statistical analysis is performed to examine the effects of field trials on PCK.

**Table 1.** Validation category

Interval	Category
$X > \bar{x}_i + 1,5 SB_i$	Very good
$\bar{x}_i + 0,5 SB_i < X \leq \bar{x}_i + 1,5 SB_i$	Good
$\bar{x}_i - 0,5 SB_i < X \leq \bar{x}_i + 0,5 SB_i$	Medium
$\bar{x}_i - 1,5 SB_i < X \leq \bar{x}_i - 0,5 SB_i$	Poor
$X \leq \bar{x}_i - 1,5 SB_i$	Very poor

## RESULTS AND DISCUSSION

### Results

The results of research consist of two data, namely validity and trial test. The trial was carried out in two phases. Expert validation shows that the PCK developed is suitable for use in learning. The level of feasibility can be seen

from the results of expert validation as shown in table 2.

**Table 2.** PCK Validation by expert

PCK's Component	Score		Mean score	Category
	Materials expert	Learning expert		
Sillaby	46	44	45	Very good
Lesson plan	53	53	53	Very good
Textbook	70	67	68.5	Very good
Students worksheet	50	47	48.5	Very good
Assessment sheet	Valid with revision			Good

Based on table 2, the PCK developed was declared feasible because it received very good assessments from material and learning experts. Furthermore, to determine the effectiveness of PCK, two trials were conducted,

namely the phase I and the phase 2. The results of the PCK implementation trial on the national character of unity, mutual cooperation, and honesty, can be seen in figure 2.



**Figure 2.** Data result of both phase I dan Phase II trial

## Discussion

The development of the moral dimension of the elementary school students, according to Kohlberg is at the pre-conventional stage (Howe, 1993). The main characteristic of this stage is moral acceptance without questions from the authority figures. This statement means that the moral concept offered by the teacher will be accepted in full by the students. It becomes a strategic step in developing character values in students, where students can practice in themselves so that they become daily attitudes and habits even inherent throughout their lives. This statement is in line with the explanation of Giddens (Saptono, 2011: 58) which states that, "Habits create life structures that make it easier for people to act; through habitus, people do not

have to laboriously reason, distance themselves or give meaning each time they want to act. "

The students' character development will also be significant if it is based on the habits and activities carried out daily. These habits and activities are in line with learning that should be carried out contextually. The contextualise of education is actualized through local wisdom. It is in line with the opinion of Suhartini, et al (2019), who wrote, "cultural values that have been considered good in the form of local wisdom are used ad material or sources of education material."

There are a lot of values in local wisdom, especially in the Dayak Desa tribe who inhabit various regions in Sintang Regency, West Kalimantan, Indonesia. One of the local wisdoms is *huma betang* or *rumah panjae*. The

value of local wisdom contained in the life of the *rumah panjau* is unity, cooperation, and honesty. The value of local wisdom is parallel with the development of national character as stated in Puskurbuk (2010), which writes about several national characters that need to be developed, including unity, cooperation, and honesty.

Pedagogical content knowledge (PCK) is a combination of various learning components and the material to be conveyed in the learning process. Shulman (1987) proposes, "PCK is a blending of content and pedagogy to enhance the understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and various levels of abilities of learners." Through PCK, the teacher delivers the material in accordance with the freedom and depth of the material and the abilities of the students (Dwianto, A., Wilujeng, I., Prasetyo, Z.K., & Suryadarma, I.G.P., 2017).

In the taxonomies of PCK attributes introduced by Veal & MaKinster (1999), PCK contains several components, namely, sociocultural, pedagogy, curriculum, and classroom management, nature of science, environment, context, and assessment. In the sociocultural part, PCK can be seen to have a cultural dimension and the social life of the local community. Thus, PCK should also review artistic approaches in the learning process. Therefore, the development of PCK based on local wisdom is highly recommended to develop the national character of students. Based on these explanations, a learning tool, namely Pedagogical Content Knowledge (PCK) based on local wisdom, has been designed to develop national character in elementary schools. The compiled PCK consists of a learning syllabus, lesson plan, textbooks, student worksheet, and assessment sheets.

The lesson plan must be designed in such a way as to be able to achieve the expected goals. In line with the statement of Borich (2007: 112) which states, "Planning is the systematic process of deciding of what and how your student should learn." The lesson plan is designed as a learning process that refers to the habituation of the values of unity and cooperation. The learning process is carried out in groups, where the importance of unity and cooperation are highly emphasized. Work on assignments in groups allows students to accept ideas from their members. At the same time,

students must unite to formulate the task or assignments given by the teacher.

Textbooks are designed by remaining the existing curriculum with local wisdom elements affixed. By including the local wisdom of Dayak Desa tribe, such as the process of rice cultivation known as *buma*, it is easy for students to assimilate the values contained in the process. The process of *buma* of Dayak Desa tribe is very rich with the value of unity and cooperation, where starting from land clearing to harvesting, the Dayak Desa tribes always unite and work together.

On the student worksheet, students are invited to complete various tasks in groups. The duties given are always charged with local wisdom. Assignments in student worksheet are filled with the value of honesty, as well as unity and cooperation. The value of honesty contained in the scientific process is observation. Students are asked to honestly observe an activity that is given, then write it on a prepared worksheet. The spirit of unity and mutual assistance are always displayed because they are still in groups.

On the assessment sheet aimed at students is to measure cognitive aspects and character behaviour. The cognitive aspects assessment sheet is given a test to students to measure the ability to respond to the material that has been provided. In contrast, the teacher in each learning activity observes character behaviour.

Based on the results of the trial, PCK, based on local wisdom, can develop the behaviour of character that is unity, cooperation, and honesty. Students are increasingly increasing in-character behaviour. In the Phase I trial, the mean of 10 students who showed the character of unity, mutual cooperation, and honesty were respectively 0.61; 0.70; and 0.77. Whereas in the Phase II trial, out of the 14 students who took part in the learning during the 21 meetings, the average attitudes of unity, cooperation, and honesty were 0.77; 0.77; and 0.86. Thus, there was an increase in the behaviour of the characters of unity, cooperation, and honesty, each by 0.16; 0.07; and 0.09, with data variants each of 0.177; 0.176; and 0.105.

These results as seen on figure 2 shows that the implementation of pedagogical content knowledge at every learning meeting can improve student character behaviour. The statement made by, Stedje (2014) in

Purnamasari & Wangid (2016: 178) which says, "Character education occurs every minute in the classroom." So, the development of character behaviour must occur continuously in each learning process.

The development of the character of unity and mutual assistance is carried out through individual and group learning activities. In personal activities, students read the text in the book, which is given various messages about unity under the local wisdom of the Dayak Desa tribe. One of the local wisdom that is raised in the text contained in the book is "*Lempuang sama ngatua Berat sama ngesan*," which means both light and heavy are both raised. This value tells that whatever the situation must always be together, work together, and unite. In group activities, students are asked to do various exercises and assignments contained in worksheets, including mathematics learning. With this attitude, students are always invited to unite, cooperate, or work together in achieving their learning goals. It is in line with the statement of Mariana, *et al* (2018: 533), which states, "So, when students learn mathematics in primary school, they can also learn about the unity value."

The results of the study showed an increase in honest behaviour among students in line with the learning activities carried out. To get maximum character behaviour, character education in the learning process must be carried out continuously. It cannot be done in a short time. As Sarah said, *et al.* (2019: 444), who said that, "the character is not a variable that can be achieved quickly. It takes a long time to reach it." In this study conducted during 21 learning meetings, where students are not only treated to textbooks containing messages in accordance with local wisdom, but carry out activities directed by teachers and activities in students worksheets. In the textbook, one of the messages written is "*Bayah alim-alim pala manuok*" which means don't act dishonestly. Besides, in learning activities by teachers, students are always invited to report activities following the results of group discussions. This habit is intended so that students are accustomed to saying something according to what is seen. Thus students are trained to speak honestly. In line with Suud, *et al.* (2019), who stated, "the implementation of honesty culture is integrated with all fields of study both in material and teaching methods and in the process of assessment for students."

Besides, during the learning process, there are activities carried out by students to increase love for the nation and state. The activity is, singing a national song, member name groups based on the diversity of the archipelago, namely the name of the island and the name of the *Pancasila* precepts, as well as learning the basic movements of regional dances. This mean that knowledge from local wisdom should be introduced into learning (Surya: 2011). The students character including national character improve using materials form local contents (Ariani, 2016; Hairida, 2020; Khusniati, 2014; Mannan, 2015). Thus, learning tools that combine pedagogical theory and subject matter called Pedagogical Content Knowledge (PCK) based on local wisdom can develop the character of unity, cooperation, and honesty of elementary school students.

## CONCLUSION AND SUGGESTION

Pedagogical content knowledge (PCK) based on local wisdom has been developed to develop the national character of elementary school students. The PCK components that were designed were the learning syllabus, lesson plan, textbooks, student worksheets, and assessment sheets. The local wisdom of the Dayak Desa tribe adopted is the *rumah panjae*, which has the value of living unity, mutual cooperation, and honesty. This value is in line with the value of the national character of the Indonesian people. Based on the results of the analysis, after learning with PCK based on local wisdom obtained data of civic character behaviour of unity, cooperation, and honesty, respectively 0.77, 0.77, and 0.86. Based on the description in the discussion, it can be concluded that pedagogical content knowledge (PCK) based on local wisdom of the Dayak Desa tribe, can improve the national character of elementary school students. The following research is suggested to involve a large number of respondents in order to obtain more comprehensive results.

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