

The development of PACCE learning model based on the Bugis local wisdom to promote student social awareness

Arman Abu Bakar ^{a,1}, Susriyati Mahanal ^{b,2,*}, Abdul Gofur ^{b,3}, I. Ibrohim ^{b,4}

^a Doctoral Program in Biology Education, Faculty of Mathematics and Natural Sciences, Universitas Negeri Malang, Jl. Semarang 5 Malang, East Java 65145, Indonesia.

^b Department of Biology, Faculty of Mathematics and Natural Sciences, Universitas Negeri Malang, Jl. Semarang 5 Malang, East Java 65145, Indonesia;

¹ armanabubakar92@gmail.com; ² susriyati.mahanal.fmipa@um.ac.id*; ³ abdul.gofur.fmipa@um.ac.id; ⁴ ibrohim.fmipa@um.ac.id

* Corresponding author

Abstract: The Makassar Bugis local wisdom, *Pacce*, contains values that are useful to instil self-confidence, a strong work ethic, and social awareness in individuals. The integration of these values into the learning process may assist in shaping student character. Unfortunately, research into learning models based on the Makassar Bugis local wisdom remains limited. Thus, the aim of this study was to generate a learning model based on the Bugis local wisdom, *Pacce*. In this study, we also ensured the validity, practicality, and effectiveness of the learning model in promoting student character. The current study employed the Plomp & Nieveen research and development (*R&D*) model. The model was tried out to 32 tenth-grade students at SMA Negeri 1 Pangkajene, Pangkep Regency. The research instruments comprised validation sheets, questionnaires, achievement tests, and character observation sheets. The results showed that the learning model and student worksheets developed in this study were valid in terms of cultural appropriation. The learning model was also practical and effective in improving student cultural awareness. It can be inferred that the learning model developed from the Bugis local wisdom may be used to develop student social awareness.

Keywords: character; local wisdom; PACCE learning model; social awareness

Citation: Bakar, A. A., Mahanal, S., Gofur, A., & Ibrohim, I. (2024). The development of PACCE learning model based on the Bugis local wisdom to promote student social awareness. *Research and Development in Education (RaDEn)*, 4(1), 361-373.
<https://doi.org/10.22219/raden.v4i1.33056>

Received: 6 April 2024
Revised: 23 April 2024
Accepted: 7 May 2024
Published: 11 May 2024



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1. Introduction

Developing social awareness in students has established a sense of urgency among educators. In order for students to thrive in the 21st-century world, the educational process needs to accommodate the cultivation of student character and social-emotional abilities. In other words, the enhancement of students' social awareness is crucial in the present educational system (Hidayati et al., 2022). The character of social care leads to a responsible attitude to help colleagues in need, respecting the rights of everyone (Lee, 2016), and showing compassion for others (Lerner, 2018). A person with a caring attitude is one who lives with a clear conscience, is a high performer, is proactive in doing good deeds, and pushes themselves harder for better results (Pane & Patriana, 2016). To achieve this goal, teachers serve an important role as catalysts, facilitators, and role models for the students (Juvonen et al., 2019; Lavy, 2020; Pattaro, 2016).

Past studies have reported cases of bullying at school as an indicator of students' poor social awareness. For instance, Borualogo and Casas (2021) observed school bullying among children from specific age groups (8, 10, and 12 years old) in Indonesia. The study revealed that around 12.5% of children experienced bullying at school. In South Sulawesi alone, students' aggressive behaviours, such as threatening and hitting another student, were found to be high, which is 19% daily (Bowes et al., 2019). These issues related to students' poor social awareness might be rooted in poor self-image, negative past behaviour, and other disheartening individual and family factors that have been affected by the unpleasant experiences encountered by the individuals involved (Copeland et al., 2015). In addition to that, the bullying perpetrator usually has an antisocial personality and comes from a family that lacks social skills (Juvonen & Graham, 2014).

One of the effective ways to promote students' social awareness is by implementing a learning model that can facilitate character education (Ningsih et al., 2021). Uge et al. (2019) argue that local wisdom can be utilized to develop students' character. The preservation of local wisdom is crucial within the school setting (Suprpto et al., 2021). Local wisdom could positively affect the behavior and creativity of a student (Fuad et al., 2022). The incorporation of local wisdom into the educational process is useful for reconstructing education, facilitating societal development and transformation, and promoting equality, freedom, and individual dignity (Singh, 2013). Several studies have revealed that the integration of indigenous knowledge and learning activities can enhance students' critical thinking and moral development. Integrating the principles in the Bugis culture, namely "*Tudang Sipulung*" into learning has proven to be effective in improving students' cooperative character (Mughtar et al., 2024). Besides, technology-based learning models can also incorporate local cultural values to enhance student character (Jamaluddin et al., 2021).

Researchers have created various learning models to encourage social awareness and put them into practice. These learning models have been implemented in different school subjects and learning objectives to promote student positive character. Innovative learning models, including digital storytelling, discovery learning, and edutainment strategies, are considered beneficial for promoting students' social awareness (Javed et al., 2018; Smeda et al., 2014; Thang et al., 2014). Additionally, there have been studies focusing on incorporating local wisdom into the pedagogical practice to increase students' social sensitivity (Ilhami et al., 2019).

While some research supports the advantages of using a local wisdom-based learning model to enhance student character, there is still a lack of study specifically implementing the Makassar Bugis culture, *Pacce*, to promote social awareness in the classroom. Hence, it is imperative to address this gap by undertaking a thorough and extensive study.

The PACCE learning model is a model developed by integrating Bugis Makassar cultural values as a philosophical foundation. *Pacce* cultural values contained are "*mabbulo sibatang*" or humans live like a piece of bamboo, which means that *pacce* culture teaches about the meaning of togetherness, synergy, and collaboration between individuals and groups (Fikri et al., 2018). The essence of the value of *Pacce* has been passed down from the ancestors of the Bugis people and has become a philosophy of life "*tellu temmallaiseng*" which means "three interconnected or interrelated", namely words, deeds, and speech (Suhaeb et al., 2018). *Pacce* culture which means a sense of pain and feeling the pain of others, thus teaching a caring attitude to other social groups (Tarman & Muhsin, 2016). The values contained in *pacce* refer to organizational improvement, for example *matinulu* (hard work), *getteng* (tough), *macca* (smart), with this principle it is expected that students have a performance that supports the process and provides quality results (Sidin et al., 2021). The PACCE learning model offers a comprehensive and integrated method to foster students' social awareness, aligning with the traditional values of Bugis Makassar.

The purpose of this research is to develop and test the PACCE learning model based on Bugis local wisdom in the context of promoting students' Social Awareness. This research is expected to provide valuable insights into the effectiveness of this learning model, as well as contribute to the development of character education in Indonesia. The role of Research and Development (R&D) in this study is very important in designing, refining, and evaluating the PACCE learning model, so that it is in accordance with educational objectives and local cultural values. The novelty of this research is a local wisdom-based learning model, namely the PACCE learning model which is expected to increase the social awareness.

2. Research Methods

2.1. Research Design

The current study utilized the Plomp and Nieveen (2013) research and development (R & D) model to develop the PACCE learning model. The model was generated through

four stages: preliminary research, prototyping phase, and assessment phase (formative and summative evaluation). In addition to developing the model, this study also sought to examine its effectiveness in enhancing students' social awareness.

2.2. Study Time, Place, and Participants

This study began on January 18, 2022, and ended in December 2023. The research activities were performed at the Public Senior High School Number 1 of Pangkajene (SMA Negeri 1 Pangkajene), Pangkep Regency. This study involved 32 tenth-grade students from the school as the tryout subjects.

2.3. Research Instruments

The instruments used to collect data in this study comprised expert validation sheets to assess the product's validity, the student-response questionnaire to evaluate the practicality of the product, social awareness questionnaire to assess the participants' social awareness prior to and after the implementation of the PACCE learning model. The validity of the model was measured using expert validation sheets (Tegeh et al., 2014) and established into one of the following criteria: (0% - 54%) invalid, (55% - 64%) less valid, (65% - 74%) moderately valid, (75% - 89%) valid, (90% - 100%) very valid. Meanwhile, the model's practicality was examined using the student-response questionnaire, which contained items evaluating the model's ease of use and benefits, the feasibility of the student worksheet, and the teacher's role in implementing the model. The model's practicality was categorized into one of the five following criteria (Riduwan, 2019): ($P \leq 20\%$) not practical, ($20\% < P \leq 40\%$) less practical, ($40\% < P \leq 60\%$), moderately practical, ($60\% < P \leq 80\%$) practical, ($80\% < P \leq 100\%$) extremely practical. The effectiveness of the model in improving students' social awareness was determined based on the correlation coefficient, where (0 - 0.19) indicates no correlation, (0.2 - 0.39) weak correlation, (0.4 - 0.59) moderate correlation, (0.6 - 0.79) strong correlation, dan (0.8 - 1.00) extremely strong correlation (Barnett et al., 2016).

2.4. Research Procedures and Data Analysis

The present study was conducted in three stages. The first stage was *preliminary research*. At this stage, we performed a literature study on the Makassar Bugis local wisdom and social awareness in character education. The results of the literature study were used to design the hypothetical model of PACCE. During the second *prototyping phase*, the PACCE prototype was developed based on the hypothetical model. The final phase, which is the *assessment phase*, contains formative and summative evaluation. *Formative evaluation* involves the validation of the prototype based on expert judgment. Meanwhile, the *summative evaluation* aimed to examine the effectiveness of the prototype in enhancing students' social awareness. The summative evaluation was executed through a pre-test and post-test group-only experimental study. The design of the experiment involved one group of research subjects. It measured only the dependent variable (social awareness) before and after the research intervention. The research steps can be explained as follows. A pre-test was carried out before implementing the PACCE learning model. The data obtained at this stage was students' mean scores determined based on ordinal scale: strongly agree (4), agree (3), disagree (2), and strongly disagree (1). Following the pre-test distribution, the PACCE learning model was implemented. After that, students' social awareness was measured on the post-test. Similar to the pre-test, the post-test data were also obtained using ordinal scale. Data analysis was performed using paired sample t-test. The t-test was conducted to investigate the difference in students' mean score before and after the intervention. As a result, we could determine whether the participants experienced a significant increase in social awareness after the implementation of the PACCE learning model. After going through the summative evaluation, the prototype was enhanced to become the PACCE learning model.

3. Results

3.1. Product Development

In order to develop the hypothetical model of PACCE, we conducted an in-depth analysis of existing theories relevant to character education and local wisdom-based learning. Then, we examined the principles of the Makassar Bugis local culture, called *Pacce*, including its cultural systems, traditions, and social norms that can encourage social awareness among students.

The final result of this study was the PACCE learning model based on the Makassar Bugis local wisdom. PACCE integrates the principles of the Bugis local culture, *Pacce*, into its syntax to promote students' social awareness. PACCE is a problem-based learning method that contains five stages, which are abbreviated as PACCE (Preview, Analyze, Collaborate, Communicate, and Evaluate). The syntax of PACCE and the theories underlying its development are presented in [Table 1](#).

Table 1. The Syntax (Stages of Learning) of PACCE

Syntax	Description	Theoretical and Empirical Evidence
Preview	1) Students connect information in memory with new information.	Preview encourages readers to engage in several processes important for reading and comprehension (Denner et al., 2003).
	2) Students create a broad understanding of the subject matter.	Preview plays a role in storing all detailed information in memory and can be retrieved (Hilte & Reitsma, 2006). The pedagogical framework developed by Ausubel, known as meaningful learning, pertains to the method in which novel information is assimilated through its association with pertinent notions that are already present within cognitive architectures (Kahveci & Ay, 2008). Preview can help students gain the desired meaningful knowledge (Rosli et al., 2018).
Analyze	1) Students find an outline of the main problem.	Upon engagement with others, a learner is able to scrutinize information from a more expansive viewpoint, which has the potential to enhance the individual's capabilities in social awareness (Huang et al., 2019).
	2) Students raise questions related to the problem presented.	Opportunities for students to talk about their ideas about certain concepts or problems are very prominent in the constructivist learning process (Soh et al., 2010).
Collaborate	1) Students work together to solve problems.	According to social constructivist learning theory, truth, or knowledge, is achieved by society through discussion and social consensus (Duffy & Cunningham, 1996)
	2) Students' express ideas and thoughts.	Collaboration can be used as a tool for gaining individual knowledge and creating collective knowledge (Goh & Hu, 2014)
Communicate	1) Students communicate with peers.	Following the collection of data by a collective, it is incumbent upon the members of the group to determine the manner in which to arrange, integrate, and convey the information in such a way that it becomes comprehensible and valued by their audience (Bosworth, 1994).
	2) Students provide suggestions and input for solving problems.	

Syntax	Description	Theoretical and Empirical Evidence
		Communication supports social interactions within teams (Troth et al., 2012). Communication that is open and relaxed is more likely to increase the prospects for changes in student attitudes and behavior (Dobson et al., 2017).
Evaluate	1) Students evaluate solutions. 2) Students conduct a reflection.	Evaluation and feedback aim to improve the quality of the learning process and identify learning strategies that are useful for students (Rodrigues et al., 2018). Reflection plays an important role in learning from experience (Larsen et al., 2016). Reflection makes an analogy of someone reflecting on the activities they have carried out (Cattaneo & Motta, 2021).

3.2. Product Validation Results

The validity of the PACCE learning model was determined based on two aspects: cultural appropriateness and model practicality. The results of the cultural appropriateness validation can be seen in Table 2.

Table 2. Cultural Validation Results

Aspect to Evaluate	Mean (%)	Category
Rationale	88.89	Valid
Supporting Theories	91.11	Very valid
Syntax	88.89	Valid
Social System	88.57	Valid
Reaction Principles	90.67	Very valid
Supporting System	93.33	Very valid
Instructional & Accompanying Impacts	88.00	Valid
Validity	89.92	Valid

The mean score for model’s cultural validity was 89.92. This score indicated that the model was valid in terms of cultural appropriateness. The results of the teaching module’s validity test are presented in Table 3.

Table 3. Validity of the Teaching Module

Aspect to Evaluate	Mean (%)	Category
Module Components	86.67	Valid
Learning Objectives	93.33	Very valid
Implementation	90.00	Very valid
Competency & Material Coverage	93.33	Very valid
Character Development	93.33	Very valid
Time Allotment	90.00	Very valid
Formative & Summative Evaluation	93.33	Very valid
Validity	91.42	Very valid

The mean score for the teaching module was 91.42. The results of the student worksheet’s validity test are presented in Table 4.

Table 4. Validity of the Student Worksheet

Aspect to Evaluate	Mean (%)	Category
Material Appropriateness	97.77	Very valid
Material Organization	90.00	Very valid
Evaluation	90.00	Very valid
Language	93.33	Very valid
Validity	92.77	Very valid

The mean score for the student worksheet was 92.77. This score indicated that the worksheet was extremely valid.

3.3. Practicality of the PACCE Learning Model

The practicality of the PACCE learning model was measured using a questionnaire. The questionnaire contained items that evaluated the model’s ease of use and benefits, the feasibility of the student worksheet, and the teacher’s role in implementing the model. Table 5 displays the results of the analysis of the student-response questionnaire.

Table 5. Results of the Student Questionnaire

Aspect to Evaluate	Mean	Category
Ease of use	88.38	Extremely practical
Benefit	88.40	Extremely practical
Worksheet feasibility	89.13	Extremely practical
Teacher’s role	95.63	Extremely practical
Mean	90.38	Extremely practical

The mean score for model’s practicality was 90.39, indicating that the PACCE learning model was extremely practical.

3.4. Effectiveness of the PACCE Learning Model in Promoting Social Awareness

The effectiveness of the PACCE learning model in promoting social awareness was measured using a correlation analysis. The analysis was conducted to investigate the increase in participants’ social awareness after implementing PACCE for a semester. The tryout participants comprised 32 tenth-grade students from SMA Negeri 1 Pangkajene, Pangkep Regency. The result of the t-test analysis of the pre-test and post-test data is depicted in Table 6.

Table 6. The Effectiveness of PACCE in Promoting Social Awareness

Pre-test Mean	Post-test Mean	Correlation	Sig.
70.27	80.63	0.783	0.000

Table 6 shows a correlation value of 0.783 at the 0.00 significance level. This result indicated that there was a correlation between the implementation of the PACCE learning model and a significant increase in participants’ social awareness (by 10.361).

4. Discussion

4.1. Validity of the PACCE Learning Model

The validity of the PACCE learning model was examined using validation sheets modified from Novitra et al., (2021). Validators of the model were made up experts in instructional models and a cultural expert. The model validation results showed that the model was valid in terms of cultural appropriateness. The components measured in this cultural validity process included the rationale underlying the model’s development, supporting theory, syntax, social system, reaction principles, supporting system, instructional

and accompanying impacts. According to the experts, the PACCE learning model had to undergo minor revisions on the cultural aspects mentioned earlier.

Then, the validity of the teaching module was evaluated based on the completeness of the module components, learning objectives, learning implementation, competency and material scope, character development, time allocation, formative and summative assessment. The analysis results showed that the teaching model was extremely valid. However, some aspects still needed to be improved. Similarly, the student worksheet obtained a very high score in terms of validity in material appropriateness, organization, assessment, and language usage. Despite this result, some small revisions on the student worksheet were still necessary.

Validity is a fundamental aspect that needs to be considered in research and development (Clark & Watson, 2019). The concept of validity is crucial in ensuring that a product is capable of generating precise and reliable data (Barry et al., 2014). Validation in this study was conducted by experts in learning models and a practitioner in culture. Expert validation sheets can also be used to assess the credibility of educational materials (Bolarinwa, 2015). The current study revealed that the model was valid in terms of cultural appropriateness. The teaching module and student worksheet developed in this study also obtained a very high score in terms of validity. In short, the PACCE learning model can be implemented in the classroom after undergoing some minor adjustments based on the experts' comments and suggestions.

Widoyoko (2014) argues that a product is said to be reliable if it can achieve a score in the "valid" category during the validation process. High validity score indicates high consistency. It shows that the product has already met the predetermined target (Souza et al., 2017). In this study, the learning model achieved a valid score, while the teaching module and student worksheet were considered as extremely valid. These findings suggested that the PACCE learning model based on the Makassar Bugis local wisdom was consistent with the development goals and thus can be implemented in the classroom to promote students' social awareness.

4.2. Practicality of the PACCE Learning Model

Practicality refers to the ability of the development product to be employed in typical conditions, and the ease with which teachers may incorporate the development results into the classroom learning process (Plomp & Nieveen, 2013). The analysis results characterized the generated learning model as highly practical. This means that the PACCE learning model could be easily implemented by the students in the learning process.

Khalifa et al., (2016) proposed that incorporating indigenous knowledge into the learning process is a means of establishing a productive and supportive educational setting. Using local wisdom values in education can cultivate a deep appreciation for one's own culture (Albantani & Madkur, 2018); enhance the quality of knowledge acquired by students, stimulate innovation (Pratoom & Savatsomboon, 2012); instill values that serve as the foundation for everyday behavior (Horvat et al., 2014); enhance cognitive abilities, and boost student motivation (Hidayati et al., 2020). Local wisdom, within the realm of science, has a significant impact on student interactions in schools. It serves as both a method and a tool that is specifically created to enhance teaching and learning (Maretta et al., 2016).

4.3. Effectiveness of the PACCE Learning Model in Promoting Social Awareness

The analysis results showed that students' social awareness increased by 10.361 after the implementation of the PACCE learning model. The correlation between the model's application in the classroom and the increase in students' social awareness score was quite significant, which is 0.783. The analysis of participants' social awareness has demonstrated that students engaged in collaboration to successfully accomplish tasks and solve problems. This collaboration allowed them to effectively select the most appropriate solution by displaying social awareness in each stage of PACCE. This finding further indicated that integrating the Makassar Bugis local wisdom into the learning process was an

effective method for enhancing students' social awareness. [Plomp and Nieveen \(2013\)](#), state that if an intervention using a product is shown to be effective in improving the dependent variable, it indicates that the product (in this case the PACCE learning model) has met the predetermined criteria.

The effectiveness of the PACCE learning model in promoting the social awareness is illustrated in each syntax. In the preview stage, students are able to understand different perspectives from various sources of information, identify their interests, and gain knowledge about diverse experiences, with this students develop empathy for others ([Abdelhalim, 2017](#); [Amjadi & Talebi, 2024](#)). At the analyze stage, students determine the subject matter and raise questions, so that students can consider the social impact of their decisions on others ([Knijnenburg et al., 2022](#)). This makes them more careful in making decisions and considering the social consequences ([Jemal, 2017](#)). When one considers others in decision-making, the tendency to benefit all parties involved, not just oneself will train a sense of caring for common needs and interests. At the collaborate stage, students are encouraged to work together in groups, with the aim that they are able to accept and appreciate diversity, and avoid negative behavior. Good collaborative activities between group members will strengthen social awareness ([Panadero & Järvelä, 2015](#)). This means group members become more sensitive to each other's feelings, motivations and needs ([Jetten et al., 2014](#)). When group members understand each other's roles and contributions, it will foster a caring and responsive attitude towards the goals to be achieved.

Communicate stage, students are trained to communicate well in conveying findings, ideas, problem-solving ideas that have been done in groups in class discussions. Communication are crucial attributes that help social interaction ([Haleem et al., 2022](#)). Communicating well, giving advice, and managing conflict effectively can increase students' social awareness ([Bambaeroo & Shokrpour, 2017](#); [Barry et al., 2014](#)). Finally, at the evaluate stage, students provide feedback and reflect on the learning experience after carrying out discussion activities. During the reflection process, individuals not only deepen self-understanding, but also assist others in understanding their own point of view (externalization). This builds better social awareness due to mutual respect and understanding of others' perspectives ([Baumer et al., 2014](#)). Feedback is used as method to practice social awareness, particularly by understanding others' perspectives ([Ashford et al., 2016](#)).

5. Research Limitations

There are various limitations to this research. First, this research was carried out exclusively in a singular educational institution, utilizing a restricted sample size. Hence, it is necessary to use caution when generalizing the outcomes of this study. To enhance the external validity of this research, it is advisable to include a greater number of schools and a larger sample size in future studies. Furthermore, this study exclusively focused on tenth-grade students. Therefore, future research should involve students from all grade levels to ascertain the generalizability of the findings.

6. Conclusions

Based on the results of this study showed that the PACCE learning model which was developed based on the Makassar Bugis local wisdom was valid, practical, and effective in enhancing students' social awareness. The findings of this study offer robust evidence for the effectiveness of the PACCE learning model that draws upon Bugis indigenous knowledge to foster social awareness among students. By incorporating Bugis local wisdom principles into the learning process, students can understand the importance of showing compassion towards others in their daily lives. Therefore, PACCE can also serve as a highly effective alternative model for fostering student character, particularly in terms of cultivating social awareness. This study significantly contributes to the advancement of character education in Indonesia, particularly in enhancing students' social awareness. The findings of this study can serve as a foundation for creating more efficient and pertinent educational approaches to enhance students' social awareness. Future studies should consider increasing the number of research samples, and extend the time frame for

implementing the PACCE learning model syntax in the classroom in order to attain more optimal results.

Future research should consider applying the PACCE learning model not only to the Bugis Makassar tribe, but can be adapted to the local wisdom characteristics of other regions. This could involve an in-depth study of local cultural values and traditions to develop an appropriate learning model, and a comparative study across different cultural contexts. Thus, elements can be identified that can be adapted or customized for application in other regions without compromising the effectiveness of the model.

Author Contributions: Data analysis, methodology, and writing original draft preparation: Arman, A. B.; validation, review and editing: Susriyati, M; Abdul, G; Ibrohim.

Acknowledgments: We would like to express our gratitude to the Principal of UPT SMAN 1 Pangkajene, the educators, and the students who have actively participated and cooperated in the execution of this study endeavour.

Conflicts of Interest: The authors declare that there is no conflict of interest regarding the publication of this paper.

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