

EVALUATION OF VALIDITY AND FEASIBILITY OF THE CASHFLOWPOLY BOARDGAME AS A FINANCIAL LEARNING MEDIA FOR MIDDLE SCHOOL STUDENTS

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ABSTRAK

Abstrak: Penelitian ini bertujuan untuk mengetahui validitas konten dan feasibility dari penggunaan permainan papan Cashflowpoly sebagai media pembelajaran keuangan dalam konteks pendidikan formal di jenjang sekolah menengah pertama. Penelitian ini berjenis R&D yaitu pada tahap evaluasi formatif. Berdasarkan metode *expert based evaluation*, disimpulkan bahwa permainan papan tersebut valid dengan katagori *excellent* yang ditunjukkan dengan nilai *Content Validity Index* (CVI) yaitu S-CVI sebesar 0,92 dan semua I-CVI bernilai di atas 0,83. Panel ahli berjumlah enam orang yang berasal dari latar belakang profesi guru, akademisi, praktisi keuangan, praktisi pendidikan dan psikolog. Selain itu, berdasarkan penilaian menggunakan kuesioner dengan Likert skala 5 yang dilakukan setelah *field trial* dengan partisipan (N=135) disimpulkan bahwa penggunaan papan permainan Cashflowpoly layak digunakan dalam sekolah menengah pertama. Penelitian ini juga mengidentifikasi tantangan penggunaan Cashflowpoly pada aktivitas intrakurikuler dan alternatif solusi berdasarkan saran ahli dan partisipan di lapangan. Hasil dari penelitian ini memberikan kebaruan yang menawarkan alternatif media pembelajaran keuangan yang valid dan layak untuk diterapkan kepada remaja/ siswa di sekolah menengah pertama. Oleh karena itu, peneliti merekomendasikan kepada pembuat kebijakan, sekolah, dan guru untuk menggunakan media pembelajaran ini sebagai salah satu alat pembelajaran literasi keuangan, termasuk mengintegrasikannya dalam kegiatan intrakurikuler.

Abstract: This research aims to determine the content validity and feasibility of using the Cashflowpoly board game as a financial learning medium in the context of formal education at the junior high school level. This research is of the R&D type, specifically at the formative evaluation stage. Based on the expert-based evaluation method, it was concluded that the board game is valid with an excellent category, as indicated by the Content Validity Index (CVI) value, namely an S-CVI of 0.92 and all I-CVIs above 0.83. The expert panel consisted of six individuals from backgrounds in teaching, academia, finance, education, and psychology. In addition, based on the assessment using a 5-point Likert scale questionnaire conducted after the field trial with participants (N=135), it was concluded that the use of the Cashflowpoly board game is suitable for use in junior high schools. This study also identifies the challenges of using Cashflowpoly in extracurricular activities and alternative solutions based on expert advice and field participants. The results of this study provide a novelty that offers a valid and feasible alternative financial learning media to be applied to adolescents/students in junior high schools. Therefore, the researchers recommend to policymakers, schools, and teachers to use this learning media as one of the tools for financial literacy education, including integrating it into extracurricular activities.

A. INTRODUCTION

Currently, the younger generation in Indonesia often experiences financial behavior problems. The issues include difficulties in managing personal finances and problems with using digital financial

applications. A cross-sectional study conducted in Indonesia involving 393 teenagers and young adults aged 16-24 found that 90% of respondents reported experiencing financial difficulties (Kaligis et al., 2021).

Other data from OJK's P2P Lending Statistics show that the younger generation, particularly those aged 19-34, dominate the use of consumer online loan applications. These consumer online loan applications can be standalone digital applications or integrated into e-commerce platforms as paylater features. The statistics recorded that there were 82,208 online loan recipient accounts owned by individuals under the age of 19, as of July 2023 in Indonesia (Otoritas Jasa Keuangan, 2023). In addition to dominating usage, this group also has the highest number of defaults in Indonesia from July 2022 to July 2023. It is recorded that there are 1,077 accounts experiencing delays of more than 90 days, with a total loan amounting to 1.7 billion rupiah (Otoritas Jasa Keuangan, 2023).

The concerning prevalence of financial mismanagement among young Indonesians is also compounded by the following two factors. First, the low prevalence of financial literacy among teenagers. The financial literacy scores of Indonesian students aged 15 ranked below the average of OECD countries in the PISA 2015 Assessment. The average score achieved by Indonesian students is 338, far below the average score of 505 for participating countries (OECD, 2017). The low financial literacy of children and teenagers is blamed as one of the root causes of the financial problems faced by Indonesian youth. Secondly, these various prevalences are very concerning because behaviors exhibited in youth are predictors of financial behavior and financial well-being in adulthood (Utkarsh et al., 2020).

The prevalence of financial mismanagement and financial literacy among young Indonesians underscores the urgency of research in financial literacy education. Education programs aimed at enhancing financial literacy to mitigate these financial behavior challenges align with a systematic literature review of 160 studies published from 1970 to 2020, which indicates that financial literacy is a key determinant of healthy financial behaviors (Goyal & Kumar, 2021).

The urgency for study in financial literacy education aligns with the recent policy from the Ministry of Education, Culture, Study, and Technology (Kemendikbudristek), which released the Financial Literacy Education Guide on October 18, 2024, as a component of the Merdeka Curriculum. This guide aims to enhance understanding, skills, and abilities in

managing finances wisely in daily life (Badan Standar, 2024). The Kemendikbudristek Financial Literacy Education Guide is designed to assist teachers in integrating financial literacy through intramural, extracurricular, and co-curricular activities from early childhood education to high school. This guide emphasizes four main elements of financial literacy that need to be taught. First, how to earn an income. Second, budgeting skills. Third, the importance of setting aside income. Fourth, the ability to manage risks and prepare for emergencies (Badan Standar, 2024). In accordance with the dimensions of financial behaviour and financial literacy, the competencies targeted in the above Financial Literacy Education Guidelines not only encompass cognitive aspects but also affective ones to shape wise financial behavior (Amagir et al., 2018; Azib et al., 2022; Becchetti et al., 2013; Bhattacharya & Gill, 2020; B. Dervishaj, 2021; Fernandes et al., 2014; Fessler et al., 2020; Johan et al., 2021; Josef & Vera, 2017; Lemrova et al., 2019; Mireku et al., 2023; Utkarsh et al., 2020; Xiao & Dew, 2011).

The current research evaluates the validity and feasibility of the Cashflowpoly Boardgame as a financial educational tool for middle school students. This research is urgent for two reasons. At first, there is a research gap related to learning media that focuses on financial attitudes and behaviors. Despite policies advocating for financial literacy education to encompass more than just knowledge, research on financial learning media in Indonesia predominantly emphasizes the enhancement of financial knowledge. (Aisyah et al., 2022; Candra Sari et al., 2022; D. E. Sari et al., 2020; R. C. Sari et al., 2024; R. C. Sari & Fatimah, 2017). This study addresses the research gap through focusing on the board game Cashflowpoly, which attempts to influence financial attitudes and behaviors.

Second, this research is urgent as it evaluates the integration of board games as an innovative learning media within the framework of formal education, particularly in middle school settings. Recent research shows the impact of innovative educational methods, such as board games, on the improvement of the three main dimensions of financial literacy, namely knowledge, attitudes, and behaviors among students (Reisdorfer-da-Silva et al., 2025). The findings consistently show that interactive and gamification approaches can significantly enhance financial literacy, particularly board games which

have proven to be engaging educational tools at a low cost (Fazli Sabri et al., 2018; Lew & Saville, 2021; Mousa, 2019; Rodriguez-Raga & Martinez-Camelo, 2022; Selamat & Ngalm, 2022).

Boardgame Cashflowpoly was developed in the years 2023-2024 by individual designers. The board game focuses on the financial attitude and intended to young users, aged 10 and above. In the process of designing and developing this board game, part of the instructional design and development process has been carried out, through the stages of design, production, and user evaluation in small groups. However, there are several evaluation stages that have not yet been conducted. Furthermore, although intended as an educational board game, Cashflowpoly is not specifically designed for formal learning contexts, especially. This research is significant as it takes place inside the context of formal education, which has various distinctive characteristics and challenges, including a relatively large number of students per class, time constraints, and subject matter limitations. Based on previous research, different educational contexts often require different media and financial education programs to have an optimal impact (Batty et al., 2015; Coda Moscarola & Kalwij, 2021; Kaiser et al., 2022; Kaiser & Menkhoff, 2017, 2020; Supanantarook et al., 2017; Walstad et al., 2017).

Therefore, this study aims to assess the validity and utility of the Cashflowpoly board game as a financial education tool within the framework of formal middle school education. By addressing this gap, this research contributes to the field by exploring an innovative financial literacy intervention that aligns with the needs of formal education settings in order to enhances students' financial behaviors effectively.

B. RESEARCH METHOD

This study evaluate the validity and feasibility of Cashflowpoly as a financial learning medium in middle schools through two steps:

1. Expert Based Evaluation

Expert-based evaluation is a widely used method for assessing the value of an educational program and media. For example, institutional programs are periodically reviewed by boards and accreditation commissions, including experts and laypeople. Evaluation can also be conducted by

panels of academics who assess according to their expertise, to ensure the quality of educational programs (Gall et al., 2007). Before conducting the assessment, the experts provided a statement of willingness to give a rating, received a presentation and explanation about the board game from the designer or researcher, and then played the board game.

The evaluation was conducted by six experts. The number is in line with the ideal number for CVI assessment, which is 5-10 people (Gilbert & Prion, 2016; Lynn, 1986; Polit & Beck, 2006).

Table 1. Expert Panels List

Rater	Description
A	Financial planning practitioner as well as an education practitioner (Head of Community Learning Activity Center/ PKBM).
B	Lecturer and a certified financial planner.
C	Lecturer and researcher in the field of behavioral finances.
D	Education expert and a member of the board game community.
E	Middle school social studies teacher, and
F	Developmental and educational psychologist.

The evaluation is documented using a 4 point scale Likert questionnaire, with a score of 1= Not Relevant, 2= Somewhat Relevant, 3= Moderately Relevant, and 4= Very Relevant. The rating results are then converted into an index based on the CVI procedure ((Polit & Beck, 2006)). In addition to the ratings, the researcher also conducted unstructured interviews to clarify the assessment results.

Table 2. Items of Content Validity Questionnaire

Item	Questions
1	Does the breadth and depth of the concepts in the game align with the learning objectives? Namely, to shape attitudes and tendency for good basic financial management behavior.
2	Is the presentation of material in Cashflowpoly appropriate for the cognitive abilities of adolescents aged 12-15 years?
3	Do you think Cashflowpoly is interesting for teenagers to learn about personal financial management?
4	Are the financial concepts presented valid and correct?
5	Does the simulation used help adolescent understand the concept of financial management?
6	Is the simulation (illustration and example) in the game logical?

2. Field Trial

Field trials were conducted referring to the third level of formative evaluation according to

Dick, Carey, and Carey’s model, where the evaluation of the media is carried out in a situation fairly close to the context in which it ultimately will be used and is conducted in a quantitative manner (Gall et al., 2007). In accordance with this, the researcher conducted field trials on four classes of seventh-grade junior high school students. Field trials were conducted in intracurricular activities, specifically in the IPS subject, each in two lesson hour or one session. One lesson hour is 40 minutes, so the field trial was conducted for 80 minutes (one session).

Each class, consisting of 30-35 students, plays the Cashflowpoly board game separately according to their respective class schedules. The game was led by three Game Masters, with the researcher being one of them, and was also accompanied by the social studies teacher. Response assessment was conducted separately using a questionnaire by the subject teacher without the presence of the game master, to avoid bias. The questionnaire was then submitted by the subject teacher to the researcher.

The evaluation using a 5 point scale Likert questionarie, with a score of 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree. In the questionnaire, there were also open-ended questions regarding suggestions or criticisms of the cashflowpoly board game, which were not mandatory to fill out. The questionarie focuses on how students experience the Cashflowpoly game.

Table 3. Items of Participants Response Questionarie

Item	Questions
1	The use of the Cashflowpoly board game makes learning finance enjoyable
2	The use of the Cashflowpoly board game makes finance easy to understand
3 (R)	The Cashflowpoly board game is difficult to play (reversed)
4 (R)	The Cashflowpoly board game makes financial material confusing (reversed)

The results were then processed using descriptive statistics to determine the average student perception of the use of Cashflowpoly as a financial learning medium.

C. RESULTS AND DISCUSSION

1. Expert Based Evaluation Results

The experts panels came from various related backgrounds The selection of the raters is based on a comprehensive consideration of expertise in

the field of personal financial management and/or behavioral finance, field understanding or application in formal education, and expertise in psychology/ adolescent development.

The results given were subsequently converted according to the Content Validity Index (CVI) procedure, yielding the following I-CVI and S-CVI (Polit & Beck, 2006). The CVI method is usually used in measuring the content validity of psychological assessment scales and measures, but this method can also be used in assessing the content validity of a learning media (Safura et al., 2022).

Table 4. CVI Based on Expert Judgment

Item	Rating 4-Scale						Conversion						I-CVI
	Item												
	A	B	C	D	E	F	A	B	C	D	E	F	
1	4	4	4	4	3	4	1	1	1	1	1	1	1.00
2	4	4	2	3	3	4	1	1	0	1	1	1	0.83
3	4	4	2	4	4	4	1	1	0	1	1	1	0.83
4	4	2	4	3	3	4	1	0	1	1	1	1	0.83
5	4	4	4	4	4	4	1	1	1	1	1	1	1.00
6	4	4	4	4	4	4	1	1	1	1	1	1	1.00
S-CVI													0.92

Based on the I-CVI assessment, all experts agree that Cashflowpoly has the breadth and depth of the concepts in the game that align with the learning objectives, specifically to shape attitudes and tendencies for good basic financial management behavior. Rater 1 pointed out that Cashflowpoly meets at least four elements of the learning objectives mentioned in the Implementation Guide for organizing Financial Literacy Education for Educational Units and Stakeholders issued by the Standards, Curriculum, and Assessment Agency of the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia. The objectives are 1) earning income, 2) managing budgets, expenses, and debts, 3) saving income, and 4) managing risks and preparing for emergencies (Badan Standar, 2024).

All the experts also agree that the simulation methods present in the game make it easier for students to understand financial concepts that might still be abstract for teenagers, such as long-term financial goals in the Financial Goals component. This is in line with previous research on children that states that linking abstract concepts with more concrete images will make it easier for children to understand those concepts

(Friedman, 2000; Scheinholtz et al., 2011). If related to financial concepts, teenagers may not yet have experienced the process of earning, the process of long-term financial planning, etc. However, with the simulations available in the Cashflowpoly game, those concepts become more concrete and simple.

Nevertheless, there are 3 items that have differing opinions among experts; Item 2) "Is the presentation of material in Cashflowpoly appropriate for the cognitive abilities of adolescents aged 12-15 years?" Item 3) "Do you think Cashflowpoly is interesting for teenagers to learn about personal financial management?" Item 4) "Are the concepts presented valid and correct?" Each item's I-CVI scored 0,83, reflecting one disagreement on the item.

First disagreement was item 2). Rater C (academics in behavioural finance) raised concern whether the middle school student have cognitive abilities to understand the complex komponen which is presented in Cashflowpoly. Different opinion explained by Rater F (psychologist) who stated that children aged 12 in Piaget's stages of cognitive development are entering the Formal Operational stage where they have begun to develop more complex thinking abilities (Santrock, 2014). Thus, the Cashflowpoly media is in line with the cognitive development stage of the target, which is middle school students. Related to this issues, concerning the many elements of the game, Rater 1 pointed out that middle school student require closely supervision during their initial experience with Cashflowpoly to comprehend the game rules effectively. Rater 1 suggested that this game ought to be conducted across multiple sessions to attain optimal comprehension. Nonetheless, Rater 1 concurs that Cashflowpoly is appropriate for the cognitive capabilities of middle school students.

Second concern was whether Cashflowpoly is interesting for teenagers to learn about personal financial management (Item 3). This item was clarified in the field trial results, which focused on direct responses and opinions from students.

Another disagreement was on the item 4) raised by Rater 2 (academics and financial practitioner) who emphasized the insurance concept on the game, which may not yet be

familiar to middle school students. The rater also raised concern about the pension fund concept, which is overly simplified. The difference of opinion was expressed by Rater 1 (financial planning practitioner as well as an education practitioner), who stated that the concept of insurance is correct and needs to be included in Cashflowpoly. It is because the insurance concept aligns with the learning objectives "managing risks and preparing for emergencies" on the Kemendikbudristek Guidance.

Despite the disagreements, the I-CVI values of the three items are still in the excellent category, considering the number of experts is above five (Polit & Beck, 2006). Since all items have an I-CVI value above 0.78 and have an S-CVI/Ave above 0.90 overall, it can be said that the content validity of Cashflowpoly is excellent (Polit & Beck, 2006).

2. Field Trial Responses

Participants in this field trial were selected through convenience sampling, specifically from 4 classes at SMP N 1 Sidoarjo. All participants are in the same grade level, which is the 7th grade or the youngest grade in middle school. The four classes are taught by the same social studies teacher. The total number of participants is 135 students (nett). The trial was conducted over a gross period of 80 minutes, including the first 5 minutes for setting up the venue and transitioning from one class to the next, 10 minutes for explaining the rules of the Cashflowpoly game, followed by 60 minutes for the game itself, and 5 minutes for closing.

Two items in the questionnaire are favourable and the other two items are non-favourable. Before data processing, the researcher performed data cleansing by removing data that provided the same value on both favourable and non-favourable items, as it indicated careless filling. The non-favourable items were reversed before processing. The average assessment results are presented in the table.

Table 5. Students Response After Using Cashflowpoly
5-scale Likert Questionnaire

Item	Mean	Interpretation
1	4.43	Participant agrees with the statement that the use of the Cashflowpoly board game makes learning about finance enjoyable.
2	4.01	Participants agree that the use of the Cashflowpoly board game makes finances easy to understand.
3 (R)	3.78	Participants expressed neutrality regarding the ease of use of Cashflowpoly.

4 (R)	4.1	Participants agreed that the Cashflowpoly board game media made financial material less confusing.
Average : 4.08		

If we compare the number of participants who answered agree/strongly agree in each statement with the total number of participants, we obtain the following information; 88% participants agrees with the statement that the use of the Cashflowpoly board game makes learning about finance enjoyable. In line with this, previous research mentioned that the pleasant feelings generated by board game play in financial education create a comfortable learning environment, that the use of board games in financial education can increase student engagement in the classroom (Bharathi & Kulkarni, 2020).

Besides that, 77% participants agree that the use of the Cashflowpoly board game makes finances easy to understand. Further, 81% participants agreed that the Cashflowpoly board game media made financial material less confusing. This is in line with expert assessments stating that the simulation in the Cashflowpoly game helps adolescents understand the abstract concept of financial management. Hal ini juga sesuai dengan penelitian sebelumnya yang menyebutkan bahwa penggunaan boardgame reducing fear and anxiety towards accounting/finance material that has been considered difficult (Bharathi & Kulkarni, 2020).

Nevertheless, based on the results of the questionnaire, there is room for improvement in the use of the Cashflowpoly board game in the classroom context. The item 3 average score given by the students is 3.78. Which means, in general, students responded neutrally regarding the ease of use of the media, with 38% of students stating that this board game is difficult to play. In the open-ended questions, three statements were also obtained; *"Make it easier so that the first time playing it won't be confusing," "Provide a guide/manual with easy-to-understand words,"* and *"The game is fun, if possible, provide a game guide."*

This indicates that although the game is enjoyable, it cannot be denied that the rules/manual is still hard to comprehend by some students who are playing it for the first time. This aligns with the expert's opinion (Rater 1) who suggests that there should be intensive guidance when participants first play the Cashflowpoly board game and giving more time to comprehend the game rules.

D. FINDINGS AND DISCUSSION

Based on the Expert Based Evaluation Results, it was found that the board game Cashflowpoly is valid with an excellent index as a financial learning medium for middle school students. In terms of content and concept, Cashflowpoly is considered to have breadth and depth that align with the learning objectives of financial education for secondary schools. The simulation method used in the game is also considered logical, aligned with everyday life, and can help students understand personal finance management material more concretely. Thus, the use of board games can reduce fear and anxiety towards accounting/ finance material that has been considered difficult. Although there are simplifications, particularly in the concept of pension funds, other personal financial management concepts in the Cashflowpoly board game are considered valid and appropriate, in accordance with the Implementation Guide for organizing Financial Literacy Education for Educational Units and Stakeholders (Badan Standar, 2024).

Based on the field trial results, it can be concluded that most participants agree that the use of Cashflowpoly makes financial learning enjoyable, easy to understand, and less confusing. This is consistent with previous research and also aligns with the opinions of the majority of experts in the Expert Based Evaluation Results. Thus, the use of Cashflowpoly is deemed appropriate within the context of formal education in the classroom/intracurricular activities. The enjoyable feelings that arise from playing board games can create a comfortable learning environment and increase student participation.

The challenge in using the Cashflowpoly board game in an intracurricular context is the time limitation within a single lesson session. One lesson session is generally conducted in two class hours (80 minutes). This results in limited time to explain the game rules, while the game components are quite numerous. This caused students to experience confusion when playing the game for the first time. Based on expert recommendations in the Expert Based Evaluation Results and student suggestions in the Field Trials, there are two alternatives that can be implemented to address this issue.

The first alternative is to increase the lesson hours in one session to three lesson hours (120

minutes) by moving similar subject sessions. The second alternative is to divide the learning components into two different sessions. The first session is conducted with a focus on the components of earning income (learning objectives 1) and managing expenses (learning objectives 2). Next, in the following session, components such as managing budgets and debts (learning objectives 2), saving income (learning objectives 3), and managing risks and preparing for emergencies (learning objectives 4) can be added.

E. CONCLUSSIONS AND RECOMENDATIONS

Based on the results of the Expert Based Evaluation Results and Field Trial, it can be concluded that the Cashflowpoly board game is valid and feasible for use as a financial learning medium in the context of formal schools, specifically in secondary schools. Therefore, the researchers recommend that policymakers, schools, and teachers use this learning media as one of the tools that can be utilized in intracurricular activities.

Although this research has contributed to the practical implementation of financial education, the researchers also acknowledge that there are limitations in this study. The limitation of this study is that the evaluation still focuses on inputs in the educational process. Therefore, the researchers suggest that future studies should 1) conduct further research measuring the output in terms of the impact of using this learning media on improving financial attitudes or enhancing good financial behavior tendencies, or 2) examine the effectiveness of using this learning media compared to other learning media.

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