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GAMING MEETS ACCOUNTING: AN INSIGHTFUL JOURNEY THROUGH DORAEMON STORY OF SEASON

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Abstract

This research explores the educational potential of Doraemon Story of Seasons, a game that blends the charm of the Doraemon series with engaging farming simulation mechanics. The study adopts an ethnographic approach, focusing on participant observation to analyze how the game implicitly teaches fundamental accounting principles. The purpose of this research is to investigate the game's capacity to transform traditional gameplay into an interactive learning environment. Through managing resources, making financial decisions, and engaging in-game economic activities, players interact with core concepts of accounting, such as budgeting investment, and financial tracking. Findings indicate that Doraemon Story of Seasons effectively integrates educational content within its gameplay, providing players with practical experience in financial management and decision-making. The novelty of the study lies in its demonstration of how seemingly conventional video games can serve as an innovative educational tool. This research underscores the transformative potential of game-based learning, suggesting that video games like Doraemon Story of Seasons can be potent platforms for delivering educational content, thus redefining the landscape of learning methodologies. The study opens avenues for further exploration into the use of video games as a viable and effective medium for education.

Keywords: Education, Accounting Education, Gamification, Game based Learning, Gaming Accounting

Abstrak

Penelitian ini mengeksplorasi potensi edukasi dari Doraemon Story of Seasons, sebuah game yang memadukan pesona seri Doraemon dengan mekanisme simulasi bertani yang menarik. Penelitian ini mengadopsi pendekatan etnografi, dengan fokus pada observasi partisipan untuk menganalisis bagaimana permainan tersebut secara implisit mengajarkan prinsip-prinsip dasar akuntansi. Tujuan dari penelitian ini adalah untuk menyelidiki kapasitas permainan untuk mengubah gameplay tradisional menjadi lingkungan belajar interaktif. Melalui pengelolaan sumber daya, pengambilan keputusan keuangan, dan terlibat dalam aktivitas ekonomi dalam game, pemain berinteraksi dengan konsep inti akuntansi, seperti penganggaran investasi, dan pelacakan keuangan. Temuan menunjukkan bahwa Doraemon Story of Seasons secara efektif mengintegrasikan konten pendidikan dalam gameplay-nya, memberikan pemain pengalaman praktis dalam manajemen keuangan dan pengambilan keputusan. Kebaruan dari penelitian ini terletak pada demonstrasi bagaimana video game yang tampaknya konvensional dapat berfungsi sebagai alat pendidikan yang inovatif. Penelitian ini menggarisbawahi potensi transformatif pembelajaran berbasis permainan, menunjukkan bahwa video game seperti Doraemon Story of Seasons dapat menjadi platform yang ampuh untuk menyampaikan konten pendidikan, sehingga mendefinisikan ulang lanskap metodologi pembelajaran. Studi ini membuka jalan untuk eksplorasi lebih lanjut mengenai penggunaan video game sebagai media pendidikan yang layak dan efektif.

***Kata Kunci**:Pendidikan, Pendidikan Akuntansi, Gamifikasi, Pembelajaran Berbasis Game, Akuntansi Gaming*

INTRODUCTION

The educational sphere, particularly Higher Education Institutions in Indonesia, employs a diverse array of instructional methodologies, encompassing engaging interactive lectures, in-depth group discussions, challenging case studies, and the incorporation of sophisticated information technology. In practice, faculty members serve not merely as educators but also as catalysts for creativity, facilitators of profound understanding, and sharpeners of students' critical analytical skills. They are tasked with transforming the classroom into a dynamic and captivating learning environment.

Research conducted by (Arhin & Johnson-Mallard, 2003; Barone et al., 2004; Gregoryk & Eighmy, 2009; Robinson & Timperley, 2007; Young, 2002) highlights a growing obsolescence in the conventional learning paradigm centered around faculty lectures and routine assignments. These researchers stress that in today's digital era, where students spend significant time engaging in entertainment and gaming, there is an escalating need for more interactive and engaging learning methodologies. This trend is further influenced by the increasing number of students who prefer learning through visual and kinesthetic means.

This diversity in student characteristics necessitates a broader spectrum of pedagogical approaches. Game-based learning (GBL), which integrates gaming elements into the learning process, has proven effective in refocusing attention and enhancing students' critical thinking and creativity. GBL, extensively applied in social sciences education, demonstrates how learning can be transformed into an enjoyable and engaging process. The concept of integrating games into education is not novel, but the emergence of digital games as mainstream entertainment has opened new avenues for education to harness games as an effective learning tool (Plass et al., 2015).

Interestingly, a survey on digital game consumption by the youth reveals startling data. A study by the Pew Internet & American Life project indicates that nearly all boys and a majority of girls engage in digital gaming, averaging 7 to 10 hours per week (Lenhart et al., 2008). This phenomenon is also evident in Indonesia. A report from We Are Social suggests that Indonesia is one of the largest gaming markets globally, especially in the digital gaming category. The report notes that nearly all internet users aged 16-64 in Indonesia play video games. Further research by Vero and Decision Lab shows that the gaming industry in Indonesia is experiencing rapid growth, with millions of Indonesians engaging in gaming regularly, both individually and in online communities (Burhan, 2022).

These figures underscore the profound influence of gaming in the daily lives of Indonesians, prompting researchers to delve further into how digital games, particularly Doraemon Story of Seasons, a real-life strategy game, can be leveraged in education, such as in teaching fundamental accounting. This research aims to understand how students assimilate lessons delivered through gaming mediums and how this can transform the educational landscape in the future.

Game Based Learning

Game-based learning and gamification represent a trend that has been implemented across various domains, including workplace training, education, and social media. A significant portion of the population has been exposed to game-based engagement techniques, whether they are aware of it or not. The MNC Horizon report of 2014 identifies games and

gamification as emerging trends in higher education, anticipating their adoption within a timeframe of two to three years. Numerous universities and academic libraries have begun to integrate a variety of game-based technologies. Kim, (2013) posits that gamification can enhance motivation levels and provide additional incentives in a multitude of activities within higher education. With the proliferation of applications and technologies, incorporating game-based learning has become more accessible.

The discourse surrounding games and learning, as well as the evaluation of their impacts, becomes complex due to the fact that 'games' as a general term encompasses such a wide range that it becomes less useful without further specification (McFarlene, Sparrowhawk, Heald, 2002). The term 'games' encompasses not only various academic disciplines (humanities, science, engineering, etc.) and content genres (second language learning, science, engineering, etc.) but also game genres (casual games, first-person shooters, massively multiplayer online games (MMOs), role-playing games, etc.), each of which intersects and connects with one another. Consequently, it cannot be assumed that research findings obtained from studying games of one genre can be readily applied to another. For instance, badges introduced in MMOs may be beneficial for guiding learners through certain educational tasks, but when integrated into casual games, they may distract from learning.

In essence, the concept of game-based learning (GBL) involves the use of games or game-like elements within an educational context to enrich the learning experience. It entails the integration of principles from game design into the learning environment to engage and motivate learners, facilitate active participation, and support the acquisition of knowledge and skills (Pesare et al., 2016). Games are often designed to be engaging, and by incorporating game elements such as challenges, competition, and rewards into learning, educators aim to capture and maintain students' interest in their educational subjects.

Games also typically require active participation and decision-making from players (Tinambunan et al., 2023). Thus, in the context of learning, this interactivity can enhance the understanding of information for learners who actively engage with game content. Additionally, games generally provide immediate feedback on players' performance. This aspect is valuable in the learning environment as it allows students to learn from their mistakes, make improvements, and cultivate a positive attitude as a result.

The inherently competitive and goal-oriented nature of games can motivate learners to achieve objectives and overcome challenges. This intrinsic motivation can contribute to a more positive learning experience (Chen & Tu, 2021). Some games also involve collaborative elements, fostering teamwork and communication skills among players. Cooperative games can be employed in educational settings to support peer learning. Games can also be designed to adapt to individual learning progress, providing personalized learning experiences. This adaptability can accommodate various learning types and paces.

Game based Learning in Accounting

The adoption of game-based learning is not a novel concept, and its application in the field of accounting is well-established (Calabor et al., 2019; Sugahara & Cilloni, 2021). The principles of game-based learning, which emphasize engagement, interactivity, feedback, motivation, and adaptability, align well with the educational objectives in accounting education (Chen & Tu, 2021; Chiotaki et al., 2023; Pesare et al., 2016). Various forms of game-based learning can be implemented in accounting education, such as simulations that replicate real-world scenarios, allowing students to apply accounting principles in practical contexts (Bhavani et al., 2020; Silva et al., 2021; Srimaryani et al., 2023). These simulations can involve tasks like financial statement analysis, budgeting, and decision-making,

providing a safe environment for students to learn from mistakes and understand the consequences of their decisions.

In addition to real-world scenario simulations, financial literacy games can also be integrated into the accounting education environment. These games simulate business or personal financial management, enhancing students' understanding of fundamental accounting concepts. Such games may cover topics like budgeting, financial planning, and investment decisions. Another approach involves transforming accounting case studies into interactive scenarios or games, making them more engaging. Students can work through accounting issues, analyze financial statements, and make decisions as they progress through the game.

Introducing game elements like quizzes, challenges, and competitions can make accounting learning more enjoyable (Smiderle et al., 2020). Leaderboards, badges, and rewards can add a competitive element that motivates students to participate more actively. Role-playing games (RPGs) can also be designed to simulate business scenarios where students take on roles such as accountants, auditors, or financial analysts (Anderson & Lawton, 2009). This approach fosters teamwork and problem-solving (Othlinghaus-Wulhorst & Hoppe, 2020; Rementilla, 2016). Lastly, the development of interactive online platforms can incorporate game elements and provide a dynamic learning experience. These platforms can include interactive learning, virtual assessments, and collaborative activities.

Doraemon Story of Seasons

Doraemon: Story of Seasons is a video game that merges the renowned Japanese manga and anime series "Doraemon" with the farming simulation concept from the "Story of Seasons" series. Developed by Brownies and published by Bandai Namco Entertainment, the game places players in the role of Nobita, the central character from the Doraemon series, who engages in farming activities. Tasks include cultivating crops, caring for livestock, and fostering relationships with other characters from the Doraemon universe. Doraemon, a futuristic robotic cat, supports Nobita by providing an array of advanced gadgets to facilitate more efficient farming.

This game generally adheres to the structure found in other "Story of Seasons" titles, wherein players partake in farming activities, participate in various events, and focus on expanding their farm as well as cultivating relationships with other characters. The incorporation of "Doraemon" characters and gadgets introduces a unique twist to the conventional farming simulation gameplay.

Although Doraemon: Story of Seasons is primarily a farming simulation game not explicitly designed for educational purposes, inventive educators and learners can explore ways to integrate elements from this digital game into basic accounting education. This can be achieved through the development of various analogies and practical exercises, tapping into the game's existing framework and mechanics.

Basic Accounting

Basic accounting constitutes the fundamental framework for managing financial transactions in both personal and business contexts. The double-entry bookkeeping system, a core concept, posits that each transaction embodies two aspects, debits and credits, ensuring that liabilities and equity align with debit and credit principles. These accounts are organized within a ledger, providing a comprehensive record of financial activities. The trial balance serves as a crucial tool for verifying the accuracy of recorded transactions. Financial statements, including the income statement, balance sheet, and cash flow statement, offer

insights into an entity's financial health. Accrual accounting recognizes revenues and expenses as they occur, while cash accounting tracks transactions based on cash exchanges. Other critical aspects include depreciation, which allocates the cost of long-term assets, and financial ratios for performance analysis. Understanding these basic accounting principles is vital for effective financial management and decision-making. Many individuals and businesses utilize accounting software to automate and simplify these processes.

Accounting is commonly referred to as the language of business because it facilitates communication about a business's financial position and performance to stakeholders. Through accounting, stakeholders can comprehend a company's financial condition, enabling informed decision-making (Barth et al., 2008). Accounting is crucial for budget preparation, setting financial objectives, and ensuring legal compliance. Effective accounting practices can help prevent fraud and mismanagement, ensuring businesses operate efficiently and transparently.

The field of accounting operates under a series of fundamental principles that ensure the consistency, reliability, and comparability of financial reports (Hribar & Jenkins, 2004). Key accounting principles include the accrual principle, stating that transactions should be recorded as they occur, not necessarily when cash changes hands; the consistency principle, ensuring that accounting methods are applied consistently from one period to the next; and the prudence principle, which advises that expenses and liabilities should be recorded as soon as possible, but revenue only when it is certain. Beyond these basic principles, another crucial element in the accounting system is the accounting equation, assets = liabilities + equity. This equation represents the relationship between a company's resources, the liabilities it incurs, and the equity depicting the ownership stake in the company. The equation must always balance and forms the foundation for double-entry bookkeeping.

Double-entry bookkeeping is a fundamental concept where every financial transaction affects at least two accounts, one debit and one credit. This system ensures the accounting equation remains balanced and provides detailed records of all transactions. It aids in error detection and is fundamental for obtaining accurate financial reports (Olaoye & Olatunji, 2020).

Accurate financial statements are the end result of the accounting process, including the balance sheet, income statement, statement of owner's equity, cash flow statement, and notes to the financial statements. The balance sheet provides a snapshot of a company's financial condition at a specific time, showing the positions of assets, liabilities, and owner's equity. The income statement reveals a company's financial performance over a period, detailing how revenue is transformed into profit or loss. The statement of owner's equity illustrates increases or decreases in the owner's equity portion of the company. Meanwhile, the cash flow statement offers information about cash inflows and outflows from operating, investing, and financing activities, showing how changes in the balance sheet and income statement affect cash and cash equivalents (Doyle & Lundholm, 2003).

METHODS

Research focusing on the analysis of games in relation to human aspects, such as accounting, still lacks a clear methodological framework. However, Aarseth's research suggests that if researchers opt to comment on or utilize games in their analysis, they must immerse themselves and engage with the games to the extent that they can provide relevant examples based on their level of in-game experience. This perspective aligns with Boelstroff's assertion that understanding games culturally requires participant observation. Consequently, this research adopts an ethnographic approach with participant observation as its method.

Ethnography emphasizes exploratory efforts to understand the inherent nature of specific social phenomena rather than testing hypotheses about them (Atkinson, 1992). This approach typically deals with unstructured data or data not yet codified into categories, allowing for the possibility of specific analyses. Research using this approach is generally conducted on a small number of cases, even detailing a single case by analyzing data encompassing the interpretation of meanings and functions as a product, predominantly taking the form of verbal descriptions and explanations without extensive reliance on quantitative and statistical analysis. This study falls within the ethnographic approach, focusing on a single case or object, namely the game Doraemon Story of Seasons. It is analyzed by interpreting the meanings and functions of its rules, narrative, and strategies, subsequently utilizing them as materials for fundamental accounting education.

FINDINGS AND DISCUSSION

Findings

In his research Aarseth, (2003) identified three dimensions of game characteristics, which are:

- Gameplay, this encompasses the actions, strategies, and motivations of the players, illustrating the game from sociological, ethnological, and psychological perspectives.
- Game-structure, this includes the rules of the game, including simulation rules, depicting the game from perspectives related to game design, business, law, computer science/artificial intelligence.
- Game-word, this covers the fictional content, topology/level design, textures, etc., representing the game based on artistic, aesthetic, historical, cultural/media learning, and economic perspectives.

Using these three dimensions, various analyses can be conducted on Doraemon Story of Seasons, detailed in the following sections.

SWOT Analysis

Playing Doraemon Story of Seasons essentially requires the ability to build strategies and maintain good routines to maximize profits, allowing the player (in this case, acting as Noby) to successfully execute each mission. The game starts with a lengthy narrative about how the main character, Noby, ends up stranded on a deserted island and must work as a farmer to fulfill his needs and complete missions within the game. Initially, Noby's mission is to purchase a bag that can hold more items for 6,000 G. However, Noby only has a starting capital of 2,110 G, comprising 2,000 G in capital coins and 110 G from initial sales as shown in Figure 1:

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Figure 1. Screenshot of Radish Sales Outcome

In addition to the initial coin capital, Noby also obtains a total of 80 seeds from the General Store, consisting of 20 radish seeds, 20 cabbage seeds, 20 potato seeds, and 20 strawberry seeds. In accounting terms, this can be considered as Noby receiving a grant to start his business, as shown in the screenshot below:

Figure 2. Screenshot of Seed Acquisition at the Beginning of the Game

Apart from having the capital in the form of plant seeds, Noby's financial resources come from various activities such as farming, fishing, bug catching, gardening, and mining. Each of these financial activities has its strengths and weaknesses. To overcome the shortcomings of these activities, the player needs to employ the right strategies. Below is a SWOT analysis of these money-making activities.

Farming

Farming is considered the primary activity of the player character in this game. As the main activity, the yield from this activity is also quite high. However, it is very energy-intensive for the limited character energy and time-consuming. Based on this information, the SWOT analysis is as follows:

Strengths: - Reliable source of income. - Easily expandable by increasing the cultivated land.	Weaknesses: - Requires funds for initial investment in seeds and equipment.

- Seasonal diversity allows for strategic planning and crop rotation.	- Susceptible to weather conditions, such as storms. - Consumes considerable time and energy, as plants require regular care.
Opportunities: - Opportunities to plant high-value crops for greater profit. - Participation in seasonal festivals for additional rewards. - Building relationships with other characters for potential collaborations.	Threats: - Fluctuations and variations in crop prices.

Fishing

The fishing activity takes place in Rollin Forest, featuring a small pond accessible only through a hidden path beneath two trees. This pond offers the opportunity to catch a variety of valuable and unique fish. Notable examples include the Mbenga fish, found in the second season, summer, valued at 2,500 G, and the Arowana, available in the third season, autumn, also highly sought after. These rare fish coexist in the same pond with less valuable species such as Crayfish, found in all seasons. The SWOT analysis for this activity is as follows:

Strengths: - Diverse fish species with varying values. - Can be performed in different locations, offering diverse catch results. - Relaxing and requires fewer resources compared to farming.	Weaknesses: - Requires investment in fishing equipment and bait. - Limited to certain fishing locations and seasons. - Income varies based on the rarity of the caught fish.
Opportunities: - Participation in fishing competitions for prizes. - Building a collection of rare and valuable fish. - Developing relationships with characters through fishing-related events.	Threats: - Overfishing reducing certain species. - Weather conditions affecting fishing success.

Bug Catching

Bug catching in this game appears easy for some but may present challenges for others to unlock this ability. It is a way to earn money in the game, as it does not require significant financial output, and the primary requirement is the skill to catch bugs. The SWOT analysis for this activity is as follows:

Strengths: - Low investment with minimal equipment needed. - Can be performed across various locations and seasons.	Weaknesses: - Limited to specific times of the day. - Income varies based on the rarity of the caught bugs. - Some insects may be challenging to catch, requiring skill.

- Insects often have varying values, offering diverse income.	
Opportunities: - Selling rare bugs for higher profits. - Participating in bug-catching contests for prizes. - Trading bugs with other characters.	Threats: - Seasonal changes affecting bug availability.

Foraging

Foraging is an activity players can engage in to gather various items from the natural environment. It involves exploring the game world and collecting items like wildflowers, fruits, herbs, and other resources for various purposes. The availability of collectible items changes with the seasons. Different items may appear at different times of the year, so it's a good idea to explore regularly and note seasonal changes. Although gardening generally does not require special tools, having a scythe can help, as it allows players to quickly harvest plants and collect items more efficiently. However, when engaging in gardening, it is essential to remember that the character has limited inventory space, so players need to manage collected items wisely. The SWOT analysis for this activity is as follows:

Strengths: - Requires minimal investment. - Can be done throughout the year. - Diverse items, including fruit, flowers, and herbs.	Weaknesses: - Limited to specific locations. - Income varies based on the rarity of collected items. - Some items may require special tools to collect.
Opportunities: - Selling high-value collected items. - Crafting and cooking with natural ingredients. - Building relationships by gifting collected items.	Threats: - Seasonal changes affecting item availability. - Limited inventory space to carry items.

Mining

Mining allows players to discover various minerals and fossils using a pick to dig. This activity is conducted in a cave consisting of 11 floors, with the first floor as the entrance, and at the bottom, players will also find a hidden cave for fishing legendary fish. The SWOT analysis for this activity is as follows:

Strengths: - Finding high-value ores and gemstones. - Providing resources for crafting and upgrading tools. - Can be a profitable source of income.	Weaknesses: - Requires investment in a hammer and other mining tools. - Limited to specific mining locations. - Energy-intensive activity, requiring strategic planning.
Opportunities: - Upgrading tools for more efficient mining. - Discovering rare minerals for high-value sales.	Threats: - Possibility of encountering dangerous creatures in the mines.

- Unlocking new areas with better mining opportunities.	

Based on the SWOT analysis of these five activities in the game, to optimize economic gains, players will require a wise strategy from various activities. The most important action is to engage in farming with an emphasis on high-value varieties to establish a consistent and reliable income stream. As the growth of crops takes several days, players can allocate time to mining during the non-productive crop periods. In addition to mining, players can engage in fishing activities for fish sales or participate in fishing competitions to obtain prizes and build social relationships with other characters. Furthermore, when character energy is low, players can opt for gardening activities, collecting items from the natural environment surrounding the game layout. Lastly, if players encounter insects during their activities, they can capture these insects to sell at relatively high prices.

Based on the above discussion, the gameplay dimension in the Story of Seasons game teaches players to prioritize after conducting a SWOT analysis to maximize profits. Therefore, the first learning emphasized in the Doraemon Story of Seasons through the gameplay dimension focused on game strategy is the application of Strategic Management.

Accounting and Business Analysis

In this section, researcher will analyze the game "Doraemon Story of Seasons" from the Game-structure dimension, focusing on business aspects and accounting records. As previously mentioned, at the start of the season, the main character obtains a cash grant and seeds as initial capital to begin the game.

Table 1. Details of Seed Capital Acquisition

Seed Type	**Price**	**Quantity**	**Total**
Radish	30	20	600
Cabbage	70	20	1.400
Potato	40	20	800
Strawberry	120	20	2.400
Total			**5.200**

Noby's total capital amounts to 5,200 gold plus 2,110 G in coins. The journal entry in the T-account for the main character's capital acquisition in accounting is as follows:

Description		**Debet**	**Kredit**
Inventory (Radish Seed)		600 G	
Inventory (Cabbage Seed)		1.400 G	
Inventory (Potato Seed)		800 G	
Inventory (Strawberry Seed) Gold Coin		2.400 G 2.110 G	
	Capital		7.310 G

The nominal value of the seeds acquired by Noby is quite substantial. However, to grow these seeds to a point where they can be sold, Noby will require significant energy and time, while his energy at the game's start is very limited, and the in-game time is quite short. As a result, Noby will run out of energy or time even before he can plant all the acquired seeds.

Given the challenges faced by players at the start of this game, players currently acting as Noby need to devise a strategy that allows the character to remain active while still managing

the seed capital obtained to maximize income and profits. Based on the seed price information the player has, strawberry seeds can be the best choice for planting because they have the potential for high fruit sale prices compared to the seed purchase price. Therefore, a strategy that can be applied at the start of the game is to first plant strawberry seeds, followed by other seeds in the subsequent days.

After playing the game for one season, the player then successfully obtains information on the sale price and planting time of various plants that can be grown in the first season of the game, spring. From this information, players can determine which plants yield maximum profit for one season. The strategy that can be used in determining the most profitable plant is to perform a simple calculation of Profit. The Profit figure can be obtained from the money earned from plant sales multiplied by the maximum harvest minus the seed purchase cost. The simple formula for Profit is as follows:

Profit = ((Price x Max Yields) – Cost) / Cost x 100%
Profit per day = ((Price x Max Yields) – Cost) / Days to Grow

Based on the formula arrangement, the ROI for each plant that can be planted in the first season is as follows:

Table 2. List of Plants and Profit Calculation

Plant	**Sale Price**	**Max Harvest**	**Seed Price**	**Time to Grow**	**Profit**	**Profit per Harvest**	**Profit per Day**
Grass	10	5	10	10	40	0	0.00
Radish	110	1	30	5	80	80	16.00
Wheat	50	5	50	15	200	0	0.00
Daisy	260	1	40	7	220	220	31.43
Potato	210	1	40	8	170	170	21.25
Campanula	320	1	70	11	250	250	22.73
Moondrop Flower	500	1	60	12	440	440	36.67
Cauliflower	410	1	80	12	330	330	27.50
Carnation	360	1	70	12	290	290	24.17
Cucumber	120	3	60	9	300	60	6.67
Bean	130	3	70	10	320	60	6.00
Strawberry	240	3	120	16	600	120	7.50

Based on the table of profit calculations above, the plant with the highest profit value is strawberry, with a profit of 600 G for each seed purchase. However, strawberries take a long time to grow, so the profit per harvest and per day is lower than other plants. Therefore, strawberries are not suitable for obtaining maximum profit in the short term in the first season of the game.

If players want to achieve high profits in the short term, they can choose to grow carnations, which have a profit of 290 G per harvest and an average profit of 24.17 G per day. However, carnations take 12 days to grow, while there are only 30 days in one season. So, carnations are not the ideal plant for cash flow in the first season of the game when players do not have sufficient financial resources.

If players need faster cash flow, they can choose to plant potatoes, which have a profit of 170 G and an average profit of 21.25 G per day, or radishes, which have a profit of 80 G per

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harvest with an average profit of 16 G per day. Therefore, based on the player's initial capital data and profit calculations, players can complete the first mission, which is to buy a bag worth 3,000 G on day 8 after harvesting radish and potato crops, with calculations as below:

Table 3. Profit Calculation from Seed Capital Planting

Plant	Profit per Day	Number of Seeds	Total Profit per Day	Harvest Day	Total Harvest Profit	Profit Balance
Radish	16	20	320	5	1600	1600
Potato	21.25	20	425	8	3400	5000
Cabbage	6	20	120	10	1200	6200
Strawberry	7.5	20	150	16	2400	8600

The data in the profit calculation table shows that the total profit the player will earn on day 8 after harvesting potatoes is 5,000 G, while the maximum profit after harvesting strawberries on day 18, after the 3rd strawberry harvest, is 8,600 G. The records that can be made during these 18 days include:

Sales Record on Day 8:

Figure 2. Radish Harvest Results on Day 8

The above figure shows the results of the radish harvest on day 8, which the player is processing for sale. Meanwhile, the radish sales results up to day 8 can be seen in the figure below:

Figure 3. Screenshot of Radish Sales Results in the Record Book up to Day 8

The above figure is a screenshot from the record book, which is a feature available in the game. Meanwhile, the recording of the radish plant sales can be presented in the T-account in accounting as shown in the table below:

Table 4. Recording of Radish Sales on Day 8

Description		**Debit**	**Credit**
Cash		2.200 G	
	Sales (Radish)		2.200 G
CoGS		600 G	
	Inventory (Radish Seed)		600 G

The above table shows the recording of the radish plant harvest on day 8 with a total sales revenue of 2,200 G and the Cost of Goods Sold, which is the seed purchase price of 600 G. Thus, on day 8, the main character earns a profit of 1,600 G. Next, on day 11, the player can harvest potato crops, which can be seen in the figure below:

Figure 4. Screenshot of Day 11 (Potato Harvest Time)

In this harvest, 20pcs of potatoes are obtained, which can then be sold by the player immediately.

Sales Record on Day 11:

Figure 5. Screenshot of Potato Harvest Results on Day 11

The above figure shows the results of the potato harvest on day 11, which the player is processing for sale. Meanwhile, the sales results of the crops up to day 11 can be seen in the figure below:

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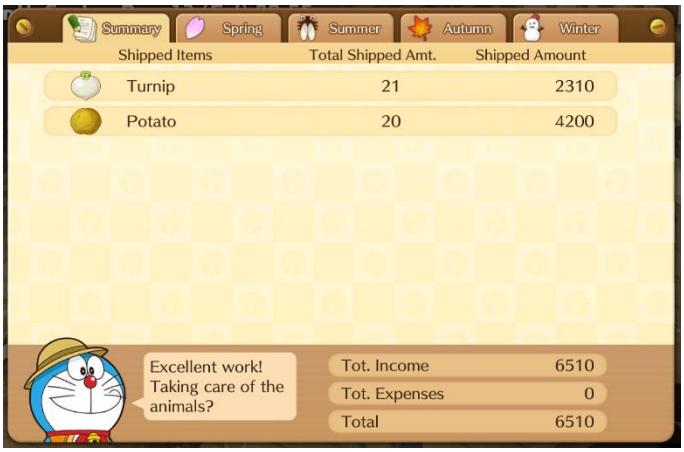

Figure 6. Screenshot of Sales Results up to Day 11

The above figure is a screenshot from the record book in the game, showing the sales transactions that occurred up to day 11. Meanwhile, the specific recording of potato plant sales can be presented in the T-account in accounting as shown in the table below:

Table 5. Recording of Potato Plant Sales on Day 11

Description		**Debit**	**Credit**
Cash		4.200 G	
	Sales (Potato)		4.200 G
CoGs		800 G	
	Inventory (Potato Seed)		800 G

The above table shows the recording of the potato plant harvest on day 11 with a total sales revenue of 4,200 G and the Cost of Goods Sold, which is the seed purchase price of 800 G. Thus, on day 11, the main character earns a profit of 3,400 G. With this profit, the total profit of the main character on day 11 is 5,000 G, the sum of the profits from day 8 and day 11. The total gold of the player character on day 11, in addition to the profits earned, also comes from the initial capital of 2,110 G, making the total held by the character on day 11 amount to 7,110 G. With this amount, the main character can make a purchase of a larger bag worth 6,000 G. The player's purchase of the large bag can be seen in the figure below:

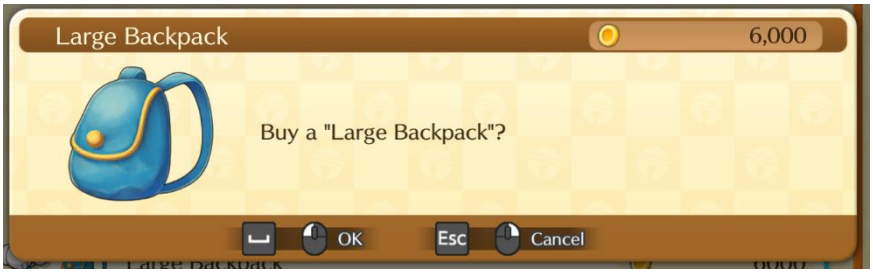

Figure 7. Screenshot of Large Bag Purchase by the Player

With this purchase transaction, the player can also record the purchase of the bag, as seen in the table below:

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Purchase Record of the Bag (Completion of First Mission) on Day 11:

Table 6. Recording of Large Bag Purchase on Day 11

Description		**Debit**	**Credit**
Supplies (Large Bag)		6.000 G	
	Cash		6.000 G

The above table shows the recording of the bag purchase on day 11, valued at 6,000 G. Next, on day 17, the player can harvest cabbage crops, which can be seen in the figure below:

Figure 8. Screenshot of Cabbage Harvest on Day 17

In this harvest day, 20 pcs of cabbage are obtained, which can then be sold by the player immediately.

Sales Record on Day 17:

Figure 9. Screenshot of Cabbage Harvest Results on Day 17

The above figure shows the results of the cabbage harvest on day 17, which the player is processing for sale. Meanwhile, the sales results of the crops up to day 17 can be seen in the figure below:

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Figure 10. Screenshot of Sales Results up to Day 17

The above figure is a screenshot from the record book in the game, showing the sales transactions that occurred up to day 17. Unlike previously, this time the total expenses column records an expenditure of 6,000 G, which is the recording of the large bag purchase transaction by the player on day 11. Meanwhile, the specific recording of cabbage plant sales can be presented in the T-account in accounting as shown in the table below:

Table 7. Recording of Cabbage Plant Sales on Day 17

Description		**Debit**	**Credit**
Cash		8.200 G	
	Sales (Cabbage)		8.200 G
CoGS		1.400 G	
	Inventory (Cabbage Seed)		1.400 G

The above table shows the recording of the cabbage plant harvest on day 17 with a total sales revenue of 8,200 G and the Cost of Goods Sold, which is the seed purchase price of 1,400 G. Thus, on day 17, the main character earns a profit of 6,800 G. Next, on day 19, the player can harvest strawberry crops, which occur three times, as seen in the figure below:

Figure 11. Screenshot of Strawberry Harvest on Day 19

In this harvest day, 20 pcs of strawberries are obtained each time, which can then be sold by the player immediately.

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Record Sales on Day 19:

Figure 12. Screenshot of Potato Harvest on Day 19

The above image illustrates the harvest of strawberries on day 19, which the player is processing for sale. Meanwhile, sales results of the crops up to days 19, 24, and 29 can be observed in the following screenshots:

Figure 13. Screenshot of Sales Results up to Day 19

Figure 14. Screenshot of Sales Results up to Day 24

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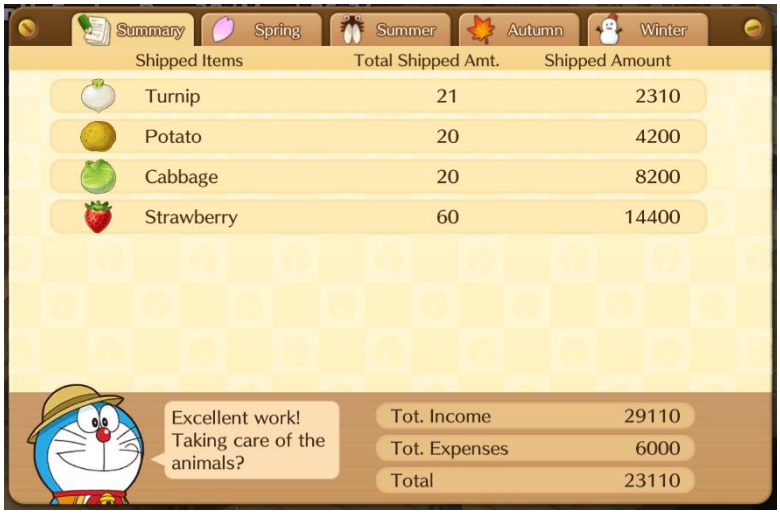

Figure 15. Screenshot of Sales Results up to Day 29

These screenshots provide a visual representation from the game's record-keeping book, demonstrating the sales transactions of strawberry crops from the first harvest on day 19 to day 29. For specific accounting of strawberry sales, the transactions are presented in the T-account journal format as shown below:

Table 8. Accounting of Strawberry Sales on Day 19

Description		**Debit**	**Credit**
Cash		4.800 G	
	Sales (Strawberry)		4.800 G
CoGS		2.400 G	
	Inventory (Srawberry Seeds)		2.400 G

This table records the harvest of strawberry crops on day 19, showing total sales proceeds of 4,800 G, with the COGS, being the purchase price of seeds, amounting to 2,400 G. Consequently, on day 19, the main character realizes a profit of 2,400 G.

Table 9. Accounting of Strawberry Sales on Day 24

Description		**Debit**	**Credit**
Cash		4.800 G	
	Sales (Strawberry)		4.800 G
CoGS		2.400 G	
	Inventory (Strawberry Seeds)		2.400 G

The table above represents the record of strawberry crop sales on day 24, showing total sales proceeds of 4,800 G and COGS of 2,400 G. Therefore, on day 24, the main character realizes a profit of 2,400 G.

Table 10. Accounting of Strawberry Sales on Day 29

Description		**Debit**	**Credit**
Cash		4.800 G	
	Sales (Strawberry)		4.800 G
CoGS		2.400 G	
	Inventory (Strawberry Seeds)		2.400 G

This table displays the accounting for the harvest of strawberry crops on day 29, indicating total sales proceeds of 4,800 G, with COGS amounting to 2,400 G. As a result, on day 29, the main character achieves a profit of 2,400 G.

Discussion

Based on the results of participant observation, it is apparent that the computer game "Doraemon Story of Seasons" transcends the boundaries of traditional gameplay. It is transformed into a dynamic interactive classroom where core accounting principles are not just illustrated but also practiced as part of the game's strategic framework. Within this gaming realm, players are not merely observers but active participants in a world that intricately mirrors the complexities of financial management and decision-making. As players navigate through the game, managing resources, and planning investments, they unwittingly execute fundamental budgeting principles and resource allocation, reflecting the intricate process of financial planning and execution prevalent in the real business world. Players also make decisions to invest in crops or livestock to create goods, embodying the essence of cost-benefit analysis and investment appraisal, critical components of financial and managerial accounting. Further, the game subtly introduces a basic understanding of asset management and financial record-keeping.

By analyzing the scenarios and mechanics of this game, the researcher aims to demonstrate how this game not only serves as a metaphorical representation of accounting concepts but as an active and practical teaching tool that incorporates accounting principles into its gameplay. The principles that can be applied in this game include:

1. Resource Management and Budgeting

In the game scenarios, players are required to manage resources such as seeds, tools, and money to effectively run a farm. This directly relates to budgeting and resource allocation in accounting. The need to plan future expenditures and make decisions based on available resources reflects the budgeting process in business. In an educational context, players inherently learn the importance of planning and anticipation in resource management, a key concept in financial accounting and budgeting.

2. Investment and Return on Investment (ROI)

In this context, players invest in various types of plants and livestock, each requiring different times to grow and yield different benefits. This relates to the concept of ROI and investment appraisal in accounting, where the cost of investment is weighed against potential returns. In an educational context, players gain a direct understanding of the ROI concept, comprehending that different investments have distinct risk profiles and return rates.

3. Financial Recording and Tracking

Successful gameplay requires tracking various resources, incomes, and expenses. This aspect of the game introduces players to the basic accounting practices of recording and tracking finances, allowing players to experience meticulous record-keeping and its role in effective financial management and decision-making, reflecting practices in accounting and management.

The straightforward integration of accounting principles into the gameplay experience transforms theoretical concepts into tangible skills, fostering not just engagement and enjoyment but also a profound practical understanding of accounting in an innovative and effective manner. "Doraemon Story of Seasons" is not just a game but an educational platform that reshapes how accounting principles are perceived and learned, paving the way for a new era of game-based learning.

CONCLUSION

Doraemon Story of Seasons offers more than just an engaging narrative and interactive gameplay; it functions as a fertile ground for incorporating and teaching basic accounting principles. The game mechanics align with key accounting concepts, providing players with hands-on practical experience in managing resources, making accurate financial decisions, understanding the importance of investment, and compiling financial records. Through this game-based learning approach, accounting is transformed from an abstract concept into a real, interactive experience, facilitating a deeper understanding and application of accounting principles in a captivating and innovative way.

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