Revolutionizing Children's English Vocabulary Acquisition: The Power of Educational Games

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Abstract. Language learners' proficiency heavily relies on their grasp of English vocabulary. Proficiency in vocabulary corresponds to improved language skills. This research delves into the profound impact of educational games on English vocabulary acquisition, shedding light on the positive influence these games wield on children's linguistic development. Employing a descriptive qualitative case study approach rooted in Skinner's theory, this research extracts data through direct observation. The subsequent analysis involves a series of steps: identifying words acquired by children from the educational game "My Talking Tom," categorizing the amassed vocabulary, juxtaposing the data, transcribing children's pronunciation of the vocabulary, and ultimately drawing insightful conclusions. The findings of this investigation unveil a notable surge in vocabulary acquisition attributable to the "My Talking Tom" game, underscoring its favorable influence on children.

Keywords: English vocabulary, children, language acquisition, educational games

Introduction

In contemporary times, gaming has become a ubiquitous activity spanning various age groups, particularly capturing the attention of children. Beyond serving as a source of entertainment, games have emerged as a conduit for expanding foreign language vocabulary, most notably in English. This phenomenon is underpinned by the prevalence of English as the language of instruction in many game interfaces. Proficiency in English vocabulary lays the foundation for adeptness in reading, writing, listening, and speaking in the language. A profound vocabulary repertoire correlates with an enhanced grasp of a language, especially English.

Diverse avenues exist for the acquisition of English vocabulary, with one notable avenue being the proliferation of educational games employing English as their instructional medium. Through game engagement, participants incidentally encounter and absorb novel vocabulary. For individuals with limited or no prior exposure to English, engagement with such games initiates their exposure to and familiarity with English vocabulary. Alqahtani (2015) posits that vocabulary represents an amalgamation of diverse words interwoven to convey meaning. Vocabulary acquisition can manifest both consciously and subconsciously. Deliberate vocabulary acquisition occurs through structured learning, whereas subconscious acquisition materializes through exposure, auditory input, or environmental factors. Notably, educational games stand as an exemplar of the latter, implicitly facilitating the acquisition of vocabulary.

Vocabulary acquisition, an intricate and evolving process, requires considerable time and remains inherently unpredictable. Studies in this realm predominantly emphasize word meanings as the focal point of vocabulary acquisition investigations. Further exploration delves into the role of word encounter frequency in vocabulary acquisition. The prevailing

framework categorizes the comprehension of a nation's lexicon into nine 'word knowledge' components, encompassing aspects such as spelling, morphological elements, semantic meanings, grammatical functions, and collocations. Notably, psycholinguistics serves as the discipline that investigates the acquisition of vocabulary, as observed in Schmitt's work (2019).

Psycholinguistics, the discipline dedicated to comprehending language utilization and acquisition among humans, delves into the intricate interplay between language and cognitive processes, particularly those involving speech production and comprehension. Its emergence as a scientific discipline can be traced back to the 20th century, initially known as linguistic psychology or the psychology of language. The fusion of these realms gave birth to the field known today as psycholinguistics. This discipline covers three critical domains: (1) issues surrounding language acquisition, (2) the interrelation between language knowledge and usage, and (3) the intricacies of speech production and comprehension processes (Arifin, Hermoyo & Ridlwan, 2023). As one of the fields within the domain of psycholinguistics, language acquisition has experienced rapid growth in recent times. This phenomenon is attributed to shifting perspectives on language teaching and learning, as well as the increasing prevalence of universal concepts in language acquisition (Aprilia, 2021).

The acquisition of language, including vocabulary mastery, varies significantly between adults and children. Normally developing children naturally acquire their first language, often shaped by their mother tongue. This initial language acquisition isn't confined to a single language; for instance, children exposed to bilingual environments integrate two languages during their first language (L1) acquisition (Lestari & Maria, 2013). Children naturally acquire L1 in a multilingual setting due to their inherent Language Acquisition Device (LAD). This cognitive tool enables children to effortlessly grasp L1. L1 acquisition in children encompasses various aspects such as Receptive Language, Simultaneous Command Understanding, Complex Sentence Repetition, and Game Rule Comprehension, all of which are pertinent to this research (Lestari & Maria, 2013). In addition, Aprilia (2022) argues that language acquisition in children can be discerned through investigations focused on the child's unique linguistic development. This form of research holds paramount significance, given the captivating nature of children's language progression. Furthermore, the outcomes of such research endeavors may potentially yield solutions to diverse issues. Subsequently, these research findings shed light on the pertinent nature of language acquisition phenomena, contributing to the advancement of linguistic theory.

In line with the explanation before, mobile applications, particularly educational games, serve as powerful tools for language development. Kacelt and Klimova's (2019) research underscores that these applications enhance language skills, notably vocabulary acquisition, and augment children's motivation to learn through engaging interfaces combining visuals, audio, and text. Educational games amalgamate entertainment with knowledge dissemination, encompassing diverse genres such as shooting games, adventure games, role-playing games, simulations, quizzes, and puzzles (Winarmi, Naimah, & Widiyawati, 2019). The choice of the "My Talking Tom" game for this research stems from its classification as a simulation-based educational game, boasting accessible vocabulary and visual cues aiding comprehension.

To scrutinize children's vocabulary acquisition, this research employs B.F. Skinner's behaviorism theory. Skinner's perspective posits that children acquire language skills through environmental stimuli, with language development construed as habit acquisition. This developmental process is inherently influenced by the duration of environmental exposure, underpinned by principles of stimulus-response and imitation (Huda, 2017). Extended gameplay inevitably impacts users, yielding both favorable and unfavorable outcomes. Notably, one positive outcome is the augmentation of vocabulary in foreign languages, particularly English. Consequently, this research ventures to delve deeper into the vocabulary acquisition facilitated by "My Talking Tom" gameplay and its ensuing impact on children's English vocabulary proficiency.

Theoretical Framework

The 'My Talking Tom' mobile game was selected as the primary subject of investigation for this research endeavor. This study has been designed to rigorously examine the process by which children acquire English vocabulary through online gaming media. Specifically, the research focuses on three children between the ages of 5 to 7 years as research subjects, denoted by the initials A (5 years old), K (6 years old), and S (7 years old). These children hail from distinct familial backgrounds, experience disparate family dynamics, and maintain varying nutritional profiles. The selection of research subjects is grounded in the author's consideration of language development stages. Within this framework, various words and sentences featured within the 'My Talking Tom' game will be utilized as interrogative prompts by the author during the course of this research.

Materials and Method

This research adopts a qualitative methodology, an investigative approach aimed at delving deeply into programs, events, activities, processes, or individuals. It also aimed to explore and understand the meaning individuals or groups ascribe to a social or human problem (Neisya, Aprilia, & Anita, 2023). Qualitative research seeks comprehension of social and humanitarian subjects through means such as interviews, observations, and document analyses. This type of research is useful since the researchers need to know about an event, who was involved, and where it happened (Aprilia, Neisya, & Sonia, 2023). The outcomes of such research are not intended for generalization (Julianto, 2018). In this research, the Creswell case study method is employed, entailing a comprehensive examination of a specific case (Levitt, Bamberg, Creswell, Frost, Josselson & Suárez-Orozco, 2018).

The selected medium of investigation for this research is the "My Talking Tom" game. The rationale behind opting for "My Talking Tom" as the research subject stems from its classification as an educational simulation game. Notably, "My Talking Tom" features a selection of vocabulary that is readily comprehensible to children. Furthermore, the game incorporates animations and visuals that align with the intended meanings of the vocabulary, facilitating a seamless understanding for young learners.

The research hones in on unraveling how children acquire English vocabulary through interaction with this game. The study involves three female participants, aged 5-7 years, identified as A (5 years old), K (6 years old), and S (7 years old). These participants stem from distinct family backgrounds, varied upbringing approaches, and diverse nutritional habits. The vocabulary embedded within the "My Talking Tom" game was employed as the basis for interview questions. Participant selection aligns with the stages of language development, as outlined by Ramdhani and Amalia (2023). The Later Development phase, spanning from 30 months of age into adulthood, involves the progression toward sophisticated grammatical structures and an expanded vocabulary repertoire.

Data collection comprises observation, wherein the researchers gauge the vocabulary acquired by the children while engaging with "My Talking Tom." Over a period of two weeks, with frequent gameplay, the researchers attentively observe and take notes regarding the vocabulary mastered by the children during game sessions. Supplementary to direct observation, interviews are conducted, and the note-taking method is employed to ensure comprehensive documentation of key information. Interviews unveil the children's vocabulary comprehension gleaned from the "My Talking Tom" game. Drawing inspiration from Creswell, the data analysis process involves deciphering textual or visual data. The analysis journey encompasses data preparation, diverse analytical approaches, profound data comprehension, data presentation, and expansive data interpretation. In the analytical process, the following steps are followed: (1) Identifying words acquired through "My Talking Tom," (2) Classifying vocabulary as either easily comprehensible or not using the VocabKitchen vocabulary profiler, (3) Cross-referencing results from observations, (4) Employing a diary study to chronicle children's spoken words, (5) Drawing conclusions regarding vocabulary production at specific developmental stages. By adhering to this

methodical approach, the research aims to unravel the nuanced intricacies of English vocabulary acquisition facilitated by the "My Talking Tom" game.

Results and Discussion
Results

"My Talking Tom" stands as a virtual pet application introduced by the Slovenian studio Outfit7 on November 11, 2013. This game marked Outfit7's foray into smoother animations, showcasing the contemporary design of Talking Tom. The game's premise revolves around nurturing an anthropomorphic gray tabby cat named Tom, who can be renamed as per the player's preference. Players engage in Tom's care and guide him from kittenhood to adulthood, achieved by diverse interactions like feeding, attending to his bathroom needs, engaging in mini-games, and ensuring a comfortable resting place in his bed when fatigued. Tom can mimic spoken words for up to 25 seconds via the device's microphone, utilizing synthesized voices. Through in-app purchases, players can further personalize Tom with clothing, skins, and accessories, adding a layer of customization.

The research at hand strategically selected "My Talking Tom" as the medium of investigation. The research is dedicated to comprehending how children absorb English vocabulary through online gaming media. Specifically targeting three children aged between 5 to 7 years old, denoted by initials A (5 years old), K (6 years old), and S (7 years old), the research intends to explore the vocabulary incorporated within the game through a series of questions posed to these subjects.

Drawing from the study's findings, the researchers illuminate the English vocabulary acquisition by children through educational games, grounded in Skinner's theory. This encompasses a thorough examination of how children absorb vocabulary in the context of "My Talking Tom." Furthermore, the research delves into elucidating the positive impacts of educational games on children's cognitive development. In essence, the research provides a comprehensive exploration of the vocabulary learning dynamics within the realm of interactive online gaming, highlighting the unique attributes of "My Talking Tom" as a medium for linguistic development in children.

Table 1.
The vocabulary found in the My Talking Tom game used for interviews

Vocabulary/Sentences	Age of children		
	5	6	7
Turn off the light	☑	☑	☑
Pet me, please	☑	☑	☑
Let's go to the bathroom	☑	☑	☑
I want to play, let's go to the living room	-	☑	☑
I'm sleepy, let's go to the bedroom	-	☑	☑
I have to pee	-	☑	☑
Drag food in my mouth	-	☑	☑
I'm hungry, let's go to the kitchen	-	☑	☑
Feed my belly	-	☑	☑
Customize your tom	-	☑	☑
Its toilet time	☑	☑	☑
Watch over me	-	-	-
Start	☑	☑	☑
Play	☑	☑	☑
Select	☑	☑	☑
Remove	☑	☑	☑
gray fur	☑	☑	☑

White fur	☑	☑	☑
Black fur	☑	☑	☑
Brown fur	☑	☑	☑
Orange fur	☑	☑	☑
Candy fur	-	-	☑
Rainbow fur	☑	☑	☑
Round glasses	-	☑	☑
Eye patch	-	☑	☑
Sunglasses	☑	☑	☑
Swimming mask	☑	☑	☑
Fairy googles	-	-	-
Police sunglasses	-	-	-
Green eyes	☑	☑	☑
Pink eyes	☑	☑	☑
Cat eyes	☑	☑	☑
Hungry potion	☑	☑	☑
Baby potion	☑	☑	☑
Max potion	-	☑	☑
Adult potion	☑	☑	☑
Balloons	☑	☑	☑
Spooky train	-	-	☑
Ice smash	-	-	☑
Level up	☑	☑	☑
Stickers	☑	☑	☑
Try it	☑	☑	☑
Total acquired vocabularies	**26**	**36**	**39**

Drawing from the outcomes of the observations and interviews detailed in the aforementioned table, it is evident that children are capable of acquiring and comprehending the English vocabulary embedded within the My Talking Tom game. These data further substantiate the notion that as a child progresses in age, their vocabulary acquisition intensifies, accompanied by a heightened capacity to grasp increasingly intricate vocabulary structures.

Table 2.
The results of vocabulary classification using the vocabulary profiler

Vocabulary/ Sentences	A1	A2	B1	B2	C1	C2
Turn off the light	of, the, light	turn				
Pet me, please	Pet, me, please					
Let's go to the bathroom	Go, to, the, bath, room	lets				
I want to play, let's go to the living room	I, want, to, play, go, to, room	lets		living		
I'm sleepy, let's go to the	I'm, go, to, the, bedroom	lets	sleepy			

bedroom						
I have to pee	I have, to				pee	
Drag food in my mouth	Food, in, my, mouth		drag			
I'm hungry, let's go to the kitchen	I'm, hungry, go, to, the kitchen	lets				
Feed my belly	My		feed		belly	
Customize your tom	your				customize	
Its toilet time	It's, toilet, time					
Watch over me	Over, me	watch				
Start	Start					
Play	Play					
Select			select			
Remove			remove			
Gray fur	Gray		fur			
White fur	White		fur			
Black fur	Black		fur			
Brown fur	Brown		fur			
Orange fur	Orange		fur			
Candy fur		candy	fur			
Rainbow fur			fur	Rainbow		
Round glasses		round				
Eye patch	Eye					patch
Sunglasses	Sun					
Swimming mask	Swimming			mask		
Fairy googles				googles	fairy	
Police sunglasses		police				
Green eyes	Green, eye					
Pink eyes	Eyes	pink				
Cat eyes	Cat, Eyes					
Hungry potion	Hungry				potion	
Baby potion	Baby				potion	
Max potion						
Adult potion	Adult				potion	
Balloons		balloons				
Spooky train	Train				spooky	
Ice smash	Ice			smash		
Level up	Up	level				
Stickers				stickers		
Try it	It	try				

Based on the results of vocabulary classification using the CEFR (Common European Framework of Reference for Languages) with the vocabulary profiler, the explanation is as follows:

A1 : Beginner
Individuals at this level possess rudimentary English skills, capable of understanding and utilizing common vocabulary and simple sentence structures.

A2 : Elementary
Individuals with an A2 or elementary level proficiency can engage in English communication, though their scope is limited to mastered subjects. For instance, they can comprehend brief narratives and discuss personal preferences like favorite songs.

B1 : Intermediate
At this stage, individuals can proficiently engage in both passive and active English conversations. The range of topics they can discuss is broader than the previous level, spanning informal and somewhat formal settings. This may involve topics like personal goals, lifestyles, and even participating in job interviews in English.

B2: Upper intermediate
At the B2 level, individuals display English mastery across various contexts with relative ease. They adeptly understand and employ intricate English constructs. They are capable of composing texts on societal subjects, furnishing comprehensive explanations.

C1: Advanced
Proficiency at this level signifies the ability to utilize English for academic and professional ends. Individuals encounter minimal difficulties in understanding and applying English across diverse scenarios. Expressing ideas spontaneously, fluently, and confidently in both oral and written forms, across varied subjects, becomes second nature.

C2 : Proficient
Individuals who achieve a C2 level of proficiency are tantamount to native speakers. This implies the aptitude to wield English effortlessly across all scenarios and conditions (Karagoz & Cobanoglu, 2022).

These CEFR levels provide a comprehensive framework for gauging English language competency, highlighting the gradual progression from basic skills to near-native fluency.

Discussion

After conducting observations and interviews with the subjects as described in the table above, Skinner's theory proves that language acquisition occurs through exposure, which is exemplified in examples such as playing the game "My Talking Tom". Vocabulary that is encountered repeatedly becomes embedded in memory, developing into a new language that enhances English vocabulary.

Engaging with educational games represents a viable strategy for language acquisition. Such games serve not only as sources of entertainment but also as potent tools for learning. By incorporating language learning within the context of a game, individuals are more likely to remain motivated and less burdened when tackling what may be perceived as a complex linguistic endeavor. This heightened motivation, in turn, contributes to the optimization of learning outcomes.

The amount of time users devote to playing these games plays a pivotal role in shaping their proficiency in the English language. The repetition of vocabulary within the game environment, coupled with consistent contextual usage, bolsters their comprehension of the language. The substantial accumulation of vocabulary and the regular practice of English interactions foster a sense of familiarity and ease. Consequently, language skills encompassing listening, speaking, reading, and writing are poised to flourish.

Analyzing the game "My Talking Tom" through vocabulary classification using a vocabulary profiler, it can be seen that the dominant vocabulary is included in level A1 (beginner) which is easy to understand. There are also elements from the A2 (basic) and B1 (intermediate) vocabulary groups. Acquisition of abundant vocabulary and frequent English interaction fosters user familiarity. Therefore, language skills which include listening, speaking, reading, and writing will develop.

These learning media, which encapsulate educational games, encourage the creative use of language. Educational games encourage the communicative use of language, facilitating meaningful language contexts and thereby improving English comprehension.

This has a positive impact on a child's overall learning and English language proficiency, similar to in-school education. This confirmation is based on the results of observations and interviews conducted.

Similar findings were also seen in the research by Hafifah, Adawiyah, and Putra (2022). Their study explored the influence of online games, such as Free Fire, Mobile Legends, Minecraft, and Roblox, on children aged 8 to 11 years. Their findings showed that children acquired new English vocabulary and understood its meaning through online games, which included terms such as "error," "lag," "battle," "build" and more. Similar results were also corroborated in Putri, Susanto, and Nur's research (2022), which was outlined in their journal article. Their study tested the impact of YouTube game content on language acquisition in children aged 3 to 6 years. The research results highlight the positive and significant impact of YouTube gaming content on children's language acquisition, cultivating a diverse and broad vocabulary while improving language skills.

Conclusion

An educational game serves as a multimedia platform designed to consolidate knowledge, enhance user understanding, foster creativity, and stimulate cognitive faculties such as concentration and problem-solving. Most of these games employ English as the medium of instruction and communication, capitalizing on its status as an international language accessible to diverse audiences. Proficiency in English necessitates a robust vocabulary base. Among various methods, educational games stand out as a potent tool for vocabulary acquisition. Through these games, users indirectly assimilate novel vocabulary. In the realm of English language education, vocabulary plays a pivotal role in honing linguistic aptitude. Proficiency in language skills like listening, speaking, reading, and writing hinges on a firm grasp of vocabulary. Inadequate vocabulary impedes the holistic development of language skills. Consequently, continuous vocabulary enrichment remains imperative. This premise aligns with prior research and the author's investigations, revealing the influence of educational games on English vocabulary acquisition. It's important to note, however, that the efficacy of language acquisition in children varies based on factors such as gender, age, language proficiency, family dynamics, nutrition, experiences, game preferences, and learning objectives. As such, while educational games present a powerful means for fostering vocabulary growth, a comprehensive understanding of individual circumstances is essential to optimize their impact on language acquisition.

Acknowledgment

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