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Increasing Phonemic Awareness in Kindergarten Students: Using iPads in Language Arts Centers

Michelle Harrison

Dominican University of California

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Increasing Phonemic Awareness in Kindergarten Students:
Using iPads in Language Arts Centers

Michelle Harrison

Submitted in Partial Fulfillment of the Requirements for the Degree

Master of Science in Education

School of Education and Counseling Psychology

Dominican University of California

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Phonemic Awareness Using iPads in Language Arts 2

Signature Sheet

This thesis, written under the direction of the candidate's thesis advisor and approved by the Chair of the Master's program, has been presented to and accepted by the Faculty of Education in partial fulfillment of the requirements for the degree of Master of Science. The content and research methodologies presented in this work represent the work of the candidate alone.

Michelle Harrison
Candidate

May 1, 2015
Date

Madalienne F. Peters, Ed.D.
Thesis Advisor

May 1, 2015
Date

Elizabeth Truesdell, Ph.D.
Program Chair

May 1, 2015
Date

Phonemic Awareness Using iPads in Language Arts 3

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Table of Contents

TITLE PAGE	1
SIGNATURE SHEET	2
ACKNOWLEDGMENTS	4
TABLE OF CONTENTS.....	5
ABSTRACT.....	8
CHAPTER 1 INTRODUCTION	9
STATEMENT OF PROBLEM	9
PURPOSE STATEMENT	10
RESEARCH QUESTION	10
<i>Definition of Terms</i>	10
THEORETICAL RATIONALE.....	11
ASSUMPTIONS	12
BACKGROUND AND NEED	12
SUMMARY	13
CHAPTER 2 REVIEW OF THE LITERATURE	15
INTRODUCTION	15
CREATING A CONTEXT FOR iPADS IN EDUCATION	15
REVIEW OF ACADEMIC RESEARCH.....	15

<i>iPad Apps in the Classroom</i>	15
<i>Professional Development</i>	16
<i>Web Based Tools</i>	16
<i>Technology Integration in the Classroom</i>	16
<i>Barriers in Technology</i>	18
<i>Addressing Multiple Student Needs with Technology</i>	18
SUMMARY	19
CHAPTER 3 METHOD	20
RESEARCH APPROACH	20
ETHICAL STANDARDS	21
ACCESS AND PERMISSIONS	21
DATA GATHERING APPROACH.....	21
DATA ANALYSIS APPROACH.....	21
CHAPTER 4 FINDINGS.....	23
DESCRIPTION OF SITE.....	23
STUDENT GROUPING	23
DATA	24
<i>Pre-Assessment /December-January Results</i>	24
<i>Post-Assessment/ March</i>	25
CHAPTER 5 DISCUSSION /ANALYSIS	27
SUMMARY OF MAJOR FINDINGS.....	27

Phonemic Awareness Using iPads in Language Arts 7

COMPARISON OF FINDINGS TO THE LITERATURE.....	27
LIMITATIONS/GAPS IN THE RESEARCH.....	28
IMPLICATIONS FOR FUTURE RESEARCH.....	29
OVERALL SIGNIFICANCE OF THE STUDY	29
ABOUT THE AUTHOR	29
REFERENCES	31

Abstract

Language arts teachers find that students at any elementary grade show a wide range of abilities, specifically in the area of phonemic awareness. Student abilities are not evaluated accurately using paper pencil tests.

A review of the literature addresses teaching approaches and effective use of technology in an elementary classroom. Implications of the research suggest that student engagement with technology have an impact on their learning (Kearsley & Shneiderman 1998). The research indicates that, if teachers do not monitor progress, students often view the use of iPad apps as games, not educational opportunities. Research findings emphasize that in order for students to become motivated in their learning, they must be engaged.

This is a teacher action research study in which students in a kindergarten class participated in small group instruction using selected iPad Apps that promote phonemic awareness development. After instruction, three days a week for ten minutes each day, with different phonemic awareness applications, the students were reassessed to check for growth in phonemic awareness abilities using school district created benchmarks.

The purpose of the study was to examine the impact of select iPad apps that address phonemic awareness in Kindergarten. This study measured the growth of student abilities in reference to their phonemic awareness with the use of iPad technology. Results indicated that student performance increased following instruction in phonemic awareness using select iPad apps.

Chapter 1 Introduction

During my student teaching, I noticed a lack of participation and excitement in learning when students were not being challenged, and those individuals who were lost as to what the teacher was saying. Paper pencil activities, assessments, and projects have their time and place in education. It is the students that need more scaffolding and to be pushed further that get put on the back burner. Watching students become excited about using new technologies has shown that they are becoming more involved in their own learning.

Phonemic awareness is the idea that a specific sound is associated with a specific letter in the alphabet. When children are able to correlate the sounds with the correct letters, they can then sound out words when reading to decode as well we develop their writing and spelling skills. Phonemic awareness uses peoples audio processing to hear the individual sounds in words to increase and support language acquisition. By using iPad applications in the classroom to increase phonemic awareness, student growth is possible for the above, at, and below grade level ability students.

Statement of Problem

The problem is that many student abilities are not met in a paper pencil environment. In the average classroom student ability ranges from above grade level all the way to below grade level. Simple paper pencil activities and assessments don't provide the range of differentiation to meet the needs of every student. With emerging technology, such as iPads Applications, challenges and scaffolding happens by integrating these technologies.

Purpose Statement

The purpose of the study is to examine the impact of select instructional technologies on student achievement in English language arts, specifically phonemic awareness, in Kindergarten amongst five and six year olds. This study will measure the growth of student abilities in reference to their phonemic awareness with the use of iPad technology. The technology will be used to reach the needs of above, at, and below grade level abilities in the area of language arts.

Research Question

Which iPad apps have an impact on building phonemic awareness skills in young children? What is the effect of using iPad apps on student performance using school district created benchmarks for identifying consonant and vowel sounds, isolating the beginning and ending sound of words, and blending and segmenting words into sounds.

Definition of Terms

iPad Apps

Apps are interactive learning tools where students have an opportunity to practice discrete skills

Phonemic Awareness

The concept of phonemic awareness refers to the relationship between letters and the sounds they make.

Student performance

Students demonstrate their proficiency on the discrete skill of phonemic awareness

Benchmarks

Benchmarks are small goals related to student performance on academic standards. These standards are based on average student performance at different time periods in the school year.

Theoretical Rationale

Kearsley and Shneiderman (1998) described engagement theory, one where individuals were more involved with their tasks when technology was incorporated. Shneiderman saying that, “Engagement Theory specifically promotes student activities that “involve cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation” in which students are “motivated to learn due to the meaningful nature of the learning environment and activities”. An important case that Kearsley and Shneiderman (1998) made for technology increasing engagement was that it was not simply having the technology in front of the subject, but rather the fact that these technologies allowed interaction with the student.

The study conducted by Kearsley and Shneideran (1998) included a group of students that were being observed in multiple categories that promoted engagement involving technology. These categories included creating, problem-solving, reasoning, decision-making, and evaluation. Their main goals were to see what motivated the students to stay involved in these activities and what the motivating factors were related to technology use. A major finding in this study was that students’ engagement was increased with technology not only because they had the technology access, but the fact that the technology was an interactive tool between the machine and the students.

With the constant change in resources used in the classroom and the vast increase in technology, Steve Jobs took Kearsley and Shneiderman's (1998) engagement theory to a new level. The reigning king of Apple, Steve Jobs provided seven schools in the Netherlands with iPads for all students to replace texts.

Assumptions

Increasing growth in new technology allows room for many assumptions. Assumptions include the realization that technology facilitates student growth. Certain technologies provide student engagement, such as iPads. Technology is not 100% fool proof, which increases teachers being fearful of technology because they are not comfortable. There are budget constraints with technology, which leads to the assumption that all schools are not provided with the same technology and technology tools are not created equally.

Background and Need

In the 21st century classrooms, there is an increased focus on student engagement. Students today are living in a world dominated by screens keeping them stimulated 24/7. Knowing this, teachers need to transfer the skills that students have at home with iPad and computer usage in their classroom. By understanding this need, educators must find a way to appropriately incorporate technology in an effective manner in order to engage students in their own learning and continue to expose them to the concepts they are learning in the classroom.

A study conducted by Reyes (2014) looks at the advantages as well as the challenges that come with using technology in the classroom. Reyes (2014) conducted a research study that in-

cluded a small research group of twenty-eight 2nd and 3rd grade students in an afterschool program. The students used a multiple range of iPad applications to try and increase their literacy skills. The results of this study concluded as follows,

“These percentages of improvement demonstrate that the iPad apps based instruction contributed to overall growth in literacy achievement. The amount of improvement is directly related to how much time the student spent engaged in learning using the iPad apps” (Reyes, 2014, p. 55).

The students who used the iPad applications on a consisted basis showed greater overall improvements in their literacy development. This research drives my initial inquiry of wanted to know which iPad applications can help increase phonemic awareness skills in Kindergarten students.

Summary

Looking at the effects of student engagement, as Kearsley and Shneiderman (1998) have done, important factors that come into play when looking at student success and the new technologies. Having personal interaction with students is important, and new interactive technologies are being looked at to help fill the void of paper pencil learning. Gone are the days of filling in a bubble marked A, B, or C. Research has indicated the need for student involvement and interaction in schools because of the high stimulation they are receiving from devices such as television, computer screens, and iPads at home.

This all being said, the goal and purpose for this study is to examine the impact technologies on phonemic awareness development. What types of programs and applications are out there

that educators can use with their students to help them develop and increase their letter sound recognition, sound isolation, blending, segmenting skills, and so much more? By focusing on previous research, specifically the research conducted by Reyes (2014) pertaining to developing literacy skills, and conducting my own research I hope to find such applications. Technology is always evolving, along with student ability to apply skills to their daily lives.

Chapter 2 Review of the Literature

Introduction

A review of the literature addresses a range of issues on teaching approaches and effective use of technology in an elementary classroom. Research topics include the following: Creating a Context for iPads in Education and Review of the Academic Research.

Creating a Context for iPads in Education

Jacobs (2013) writes, “The initiative is run by O4NT, a Dutch foundation advocating a one-on-one student to iPad education model to cultivate individual strengths and prepare children for a future supported by technology” (para. 2). By providing these students with interactive devices, they were able to increase collaborative group work as well as individual student engagement.

Review of Academic Research

iPad Apps in the Classroom

Reyes (2014) examined the advantages as well as the challenges that come with using technology in the classroom. Reyes’ (2014) study included a small research group of twenty-eight 2nd and 3rd grade students in an afterschool program. The students used a multiple range of iPad applications to try and increase their literacy skills. The students who used the iPad applications on a consistent basis showed greater overall improvements in their literacy development.

Professional Development

Professional learning communities is to have collaboration amongst a staff in order to better enhance students learning. To be in compliance or agreement with others is just the basic sense of truly having a role in a learning community. Importance is stressed that as an educator and a leader to share ideas and visions to help the school grow. There must be an establishment of a trusting learning community in order to allow free inquiry. In a professional learning community, there must be supportive and shared leadership, collective creativity, shared values and vision, supportive conditions, and shared personal practice (Hord, 1997).

Web Based Tools

Web based tools allow for not only additional assessment opportunities, but also allow for more project based learning and collaboration. Student motivation and engagement became an important factor to base off which tools were best to be used by students (Holzweiss, 2014). The research concluded that by using technologies in the classroom students have more of an opportunity to question, evaluate, communicate, create, and the ever important, collaborate with each other.

Technology Integration in the Classroom

Thirty classroom teachers were surveyed on their use of technology in the K-12 classrooms. Findings concluded that teachers found it difficult to integrate technology successfully into their classrooms. Difficulties teachers faced included technical difficulties with the equipment not working correctly 100% of the time and not all of their students had access to the technology. (Bauer & Kenton, 2005). What was found was that even though these teachers

were thought of as technologically advanced, they weren't incorporating technology into every lesson they did during they school day.

Researchers looked at the usefulness of technologies in education among twenty teachers in the state of Georgia who were teaching an online technology, graduate level course. In this study, the authors goal was to find the views of these teachers about what type of technology that was most helpful to integrate. Teachers' willingness to find the technologies useful was an important factor when considering whether successful technology integration was possible. This was a qualitative study that focused on the patterns and common themes in the data collected regarding the teacher's beliefs about technology. The findings of this study concluded that the subjects chose mobile technologies as most likely to be desired and game-based technology as least desired because of the negative connotations associated with gaming (Hodges & Prater, 2014).

A study conducted at two elementary and middle school classrooms in a large district. In this study, English Language Learners were given all day access to iPod touch mobile devices to help with their language acquisition. The devices also helped facilitate their learning by differentiated instruction as well as continue the learning outside of school when taking the devices home to use at the end of the day. The research indicated that it crucial for these students to have access to these kids of technologies to provide the proper "comprehensible input" that the students needed on a regular basis. Although the teachers that were included in this study found the technology to be a positive resource for their students, they found challenges in appropriate applications and managing the devices (Min, Navarrete & Wivagg, 2014).

Barriers in Technology

Researchers Keengwe, Onchwari, and Wachira (2008) conducted a study that pertained to the use of student technology as well as the barriers that teachers and students face using said technology. The findings concluded that there were several factors that lead to an increase of issues surrounding the technology integration. Such factors included there not being enough devices for all students to use. Another factor looked at educators feelings about technology and their comfort level implementing lessons that included technology. Keengwe ,Onchwari, and Wachira (2008) stress the need for teachers to feel comfortable using the technology as well as other instructional strategies and materials to provide the best possible learning outcomes for students.

Addressing Multiple Student Needs with Technology

Examining language acquisition of English Language Learners and the benefits that iPad use could have on English Language Learners who were also special needs students is another area explored by Rivera, Mason, Moser, and Ahlgrim-Delzell (2014). Teachers and researchers looked at the impact of the use of iPad Book software on vocabulary development of these students. Findings concluded that students became engaged in their learning when using technologies. Technologies used included smart boards and other whole class instructional materials. Findings, however, concluded that the one-to-one interaction of the students and the iPad technology fostered student engagement as long as the teachers knew how to use the technologies in their teaching.

Davies (2011) examined three areas in his research; teacher and student access to technology, student technology use for instructional purposes, effective teacher use of technology to facilitate student learning. Findings of this study concluded that teachers and students must have increased access to proper training on how to effectively use the technology in teaching and learning.

Summary

Key points in the research literature include support that student literacy increases with the use of specific iPad applications in language arts. Implications of the research suggest that iPad apps in the classroom. Educators have access to technology in the form of web based tools that help facilitate student learning. The sources have to be credible and educators need the time to find and evaluate the use of the tools. In order for students and teachers to master technology use in the classroom, teachers must be provided with proper professional development designed to familiarize them with the tools and how to use the technologies instructionally. Students need to be taught basic use of the technologies provided by the school and technologies needed to be vetted for proper educational use. There are a plethora of education technology tools for teacher and student use at low or no cost. Educators need to familiarize themselves with the tools that match educational needs of students.

Chapter 3 Method

Research Approach

This study was a mixed methods teacher action research. The researcher was involved in instruction and assessment.

For students in Kindergarten, the goal at the end of the year is to have students recognize and identify letter sounds and the sounds in words. It is important for young children to identify initial, middle, and ending sounds as well as blending sounds in order to read and decode words in the English language.

Using the district created school wide kindergarten assessments, the researcher will take students who are meeting, above, at, and below grade level benchmarks in phonemic awareness during center rotations. In these rotations, groups of four students at a time will actively participate in 10 minutes of phonemic awareness iPad applications. These applications will provide continued exposure to letter sounds and beginning, middle, and ending sounds in words.

The students will participate in the iPad application rotations three days a week during a four-week period. At the end of the four-week period, the researcher will re-assess the students based on the March benchmark standards for letter sound recognition, blending sounds together to form words, identifying all sounds in a single word, and identifying the beginning, middle, and ending sounds in words. The benchmark assessments are instructionally aligned between what they students are being taught and what is being evaluated.

Ethical Standards

This paper adheres to the ethical standards for protection of human subjects of the American Psychological Association (2010). Additionally a research proposal was submitted and reviewed by the Dominican University of California Institutional Review Board for the Protection of Human Subjects (IRBPHS), approved and assigned number #10353.

Access and Permissions

Parents were notified through means of paper newsletter sent home informing them of the study and are able to receive results at their request. The principal of the school was notified through a letter informing him of the study to take place and the rationale in order to consent to the study.

Data Gathering Approach

Qualitative and quantitative data were obtained through observation and recording results from pre and post assessment. Data were gathered from oral phonemic awareness assessments and documented by the teacher/ researcher by means of oral and auditory recording. Students were shown a series of pictures and letters of the alphabet to look at and orally recite the given letter or word. The results of the tasks were recorded via paper pencil then compared from the benchmark assessments.

Data Analysis Approach

The researcher examined the phonemic awareness growth of the students in a mainstream classroom. Students were assessed on their letter sound recognition skills in December 2014/ January

2015. Students were reassessed on the same benchmarks in March 2015. Scores were compared and student progress was analyzed to monitor their progress.

Chapter 4 Findings

Description of Site

Students were taught in a whole group setting how to use the different iPad apps, ABC Magic 6 Phonics and Reading Raven, by the researcher. Using the document camera, the researcher projected the screen's image onto the whiteboard projector. The teacher/ researcher modeled what student tasks were for each app. In the whole group setting, students worked together to complete examples for each app. The teacher/ researcher checked for understanding through observation. During small group rotations, students were instructed to go to the iPad that had their name on it to complete the app, four students at a time. Once students were finished with the task or after a ten-minute time span, they closed the iPad and went to their next rotation.

Student Grouping

Students were grouped based on their consonant sound assessment results from previous data collected throughout the year. They were put in four groups of five ranging from what is considered 'low', or below benchmark, to 'high', or meeting/above benchmark. The four groups were labeled on paper as 'low', 'medium low', 'medium high', and 'high'. These labels and groupings determined what iPads the students were at.

For the ABC Magic 6 Phonics app, students on average completed the 15 different tasks within 5-7 minutes. When using the Reading Raven app, because of the multiple step lessons and tasks, students spent all 10 minutes working on the tasks asked of them.

Data

Pre-Assessment /December-January Results

	Consonant Sounds	Short/Long Vowel Sounds	Beg. Sound	End Sound	Blending	Segment
CC	-	-	-	-	-	-
MB	15	3	8	8	10	8
RP	16	4	8	-	10	-
LB	14	3	5	-	3	-
KW	17	4	8	8	8	8
SC	11	3	8	-	10	-
AM	18	4	8	-	9	-
MD	15	2	8	-	10	-
EB	18	3	7	8	9	8
HS	14	2	8	-	10	-
AR	17	5	8	-	10	-
AD	19	5	8	8	10	-
JV	18	3	6	6	10	8
CB	18	3	8	-	4	-
SG	20	4	8	8	10	-
BB	21	5	8	8	10	8
HB	21	5	8	8	-	-
EX	21	5	8	8	10	8
LO	21	5	8	8	9	8
WH	18	2	8	8	10	8

Results of the pre-assessment data indicate that vowel sound identification shows 2% of students meeting all five short vowel sound recognition. Not all students were assessed for isolating the last sound in words due to not being a December/ January Benchmark during that time of the year. The results indicate that 35% of the students did not meet the benchmark for blending sounds into words.

Post-Assessment/ March

	Consonant Sounds (16)	Short/Long Vowel Sounds (5 total)	Beg. Sound (8)	End Sound (8)	Blending (10)	Segment (8)
CC	14	3/4	7	1	0	3
MB	16	3/5	8	8	10	8
RP	16	4/5	8	8	10	8
LB	17	4/5	8	7	7	2
KW	17	4/5	8	8	10	8
SC	18	5/4	8	8	10	8
AM	18	4/5	8	8	9	8
MD	19	3/5	8	7	10	7
EB	19	3/5	8	8	10	8
HS	19	4/5	8	7	10	8
AR	20	5/5	8	8	10	8
AD	19	5/5	8	8	10	8
JV	20	4/5	8	8	10	8
CB	19	4/5	8	8	10	8
SG	21	5/5	8	8	10	8
BB	21	5/5	8	8	10	8
HB	21	5/5	8	8	8	8
EX	21	5/5	8	8	10	8
LO	21	5/5	8	8	10	8
WH	21	5/5	8	8	10	8

Ninety-five percent of the students were able to meet the district benchmarks in isolating the beginning sounds in basic words. 90% of the students met the benchmark of blending sounds together to create words. 85% of the students met the benchmark of segmenting a simple word into multiple sounds. 100% of the students met the benchmark of identifying five long or short vowel sounds. This was a great improvement from the December/ January assessments. The task of identifying all 21 consonant sounds is still a work in progress, but the benchmark stated that students at this point in the year are only required to know 16/21 sounds. Although students had

made improvements in this area, not all students met the benchmark but the growth showed great promise for the future assessment to take place in April.

Chapter 5 Discussion /Analysis

Summary of Major Findings

Through this study, the findings concluded that based on the amount of exposure the students had using the iPad apps, their phonemic awareness understandings have grown. The greatest area of improvement for student growth was in letter sound identification of both consonants and vowels. The study found that students using iPads and their apps that focused on phonemic awareness, were engaged. Students were able to decipher how the apps worked and what they were being asked to do. At the beginning of the study, there were multiple questions at the small group rotation. Questions from students decreased as the study continued. At week 2, students were instructed to find another student on their 'group iPad' and to instruct them to start their iPad word. By week 3, students knew which iPad to go to, how to open the app, and started without help from the teacher/ researcher.

Comparison of Findings to the Literature

Teacher/ researcher exploration of the different apps prior to implementation allowed for better student understanding. Having the technology working properly and the teacher knowing how to navigate the apps allowed higher probability for student growth. Classroom management strategies already put in place allowed for easy technology integration into the students' everyday learning model. The specific apps chosen met specific benchmark needs in letter sound identification, blending, and segmenting words.

Limitations/Gaps in the Research

The limitations in the research included the amount of focus and time each student had on the iPads. Some students were able to finish their daily 'lesson' in a shorter amount of time than others based on their abilities, while other students took longer and had more difficulty focusing on the activities. Limitations also included the exposure the students had to the use of iPads before hand. Several students with fine motor difficulties had a hard to turning on the iPad and using enough pressure to swipe open the applications and move the manipulatives on the screen to their proper place. Two of the students were placed in the Reading Intervention through the school because of their assessment scores for December and January. This could have increased their exposure to phonemic awareness by means of other materials other than iPad apps, such as Lexia computer program and phonics card activities.

During this study, two new students were brought into the class. They had varying ranges of exposure to phonemic awareness, and continued with the class at the place all other students were at. Along with exposure, some students were absent for more than one day in a row, allowing them to only have one or two iPad sessions per week rather than all three. Lastly, the researcher had to record the results of the assessment during school hours along with completing everyday instruction. A limitation in the research was the timing of the assessment and that not all students were assessed and recorded at the same time under the same environment, i.e. some students were assessed during the morning, some after recess, some after lunch, some during Art or Physical Education.

Implications for Future Research

Implications for future research suggest that more information about app design and implementation be discovered. More research needs to be conducted on the design and use of educational apps. It is suggested that educational apps move away from being considered gaming apps and more toward tools to help improve student learning in multiple subject areas. Apps with the capability to monitor student progress shows educators more information about their student's learning that those apps without progress monitoring.

Overall Significance of the Study

This study has brought to light the impact that technology has on education and children. We live in a world that is constantly changing and evolving. This being said, I have greater appreciation for the working with children and their ability to be engaged based on the changing world around them. Teachers need to use multiple resources, especially varying technologies, to help increase students' knowledge and skill in phonemic awareness. Students feel empowered when they improve and are encouraged to try new things. Through this study, I also found my overall teaching practice and take the time to research more tools to help increase my students' educational experience. The significance of the study also gave myself more resources to share with other colleagues and the parents of the students.

About the Author

I grew up in Danville, California with my mother, father, younger sister, younger brother, and dog. I was a division 1 soccer player for 13 years, playing club soccer, and a division 1 collegiate scholar-

ship athlete. My family and myself have spent many summers working as volunteers at the summer Special Olympics in Northern California. I have worked at multiple children's sports camps and have worked side by side with families and children of all needs. I graduated from Sonoma State University with a B.A. in Liberal Studies and a concentration in Human Development. I received my Multiple Subject Teaching Credential at Dominican University of California where I am continuing my education by getting a Master of Science degree in the field of education . I am an elementary school teacher in Northern California who enjoys working with children in the primary grades.

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