



RESEARCH PAPER

Exploring Teacher's Perspective on Usage of Scratch JR on Creativity of Students in Grade 4

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ABSTRACT

Teachers play a vital role in the adoption and effective use of educational technologies. This study explores the teacher's opinions about scratch JR and how it's effects students' creativity at grade 4. The main purpose of this study was to identify the integration of technology at primary level specifically assessing teacher's perspective about Scratch JR. The study was conducted only at primary level. The study was qualitative in nature. Sample of the study was primary school teacher from private sector using purposive sampling technique. Data were collected from primary school teachers through semi structured interviews. The findings show that the scratch JR is valuable tool for students creativity because they learn new things practically teachers claim that students make interactive games, stories, even their own dreams in imaginary form with the help of basic coding blocks .This study ensure teachers have strong believe that the technological tools are very beneficial for students in early age. Like scratch JR make student's creative, and promote problem solving skills. This study suggest that the usage of scratch JR at grade 4 is essential because scratch JR help in enhancing students hands on creativity and basic coding skills at grade 4. This study recommended Teachers training because sometimes students doing something extra creative on their own behalf and teachers not meet with their extra effort that's why teachers training are necessary with the passage of time.

KEYWORDS Scratch JR, Creativity, Technology Integration

Introduction

This study investigates the impacts of this digital tool on student's academic performances and what challenges teachers can face or how they overcome these obstacles while practicing this tool in their learning environment. The main purpose of this study is to identify the integration of technology at primary level specifically assessing teacher's perspective about Scratch JR.

Another main purpose of this study is assessing the impacts of this tool (scratch JR) on their own teaching. Integrating digital tools into early childhood education has become crucial in today's technologically advanced world to promote creativity, engagement, and cognitive development. Students in Grade 4 (Reception Year) can use basic coding blocks to create interactive stories, animations, and games with Scratch JR, a block-based visual programming language made for young children. This study investigates Grade 4 teachers' opinions on the usage of Scratch JR use and how it affects their students' creativity. The purpose of the study is to learn how educators view

Scratch JR as a tool for fostering students' creative thinking, problem-solving, and expressive abilities. Creativity is defined as the process of using imagination and skill to invent a unique product or thought (Scott, 1995). This study explores the perspectives of Grade 4 teachers on the usage of Scratch JR and its impact on student creativity. Through a qualitative research approach involving semi-structured interviews, the study gathers insights from educators who have used Scratch JR in their classrooms. The findings suggest that the teachers generally consider Scratch JR an effective and engaging platform that enhances imagination, independence, and problem solving skills in young learners. Moreover, many teachers believe that early exposure to such tools prepares students for more advanced digital learning in later grades.

Teachers play a vital role in the adoption and effective use of educational technologies.

Ertmer (1999) difference between first-order barriers (e.g., lack of resources) and second-order barriers (e.g., teachers' beliefs and attitudes) to technology integration. According to the Technology Acceptance Model (TAM) proposed by Davis (1989), perceived usefulness and perceived ease of use are critical determinants of technology acceptance.

Additionally, Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) framework suggests that successful integration requires teachers to develop overlapping understanding of technology, teaching styles, and content. Without adequate support and professional development, teachers may struggle to incorporate tools like ScratchJr effectively (Ertmer, 2005).

Early exposure to programming is connected to the development of crucial 21st-century abilities including problem-solving, rational thinking, inventiveness, and teamwork (Bers, 2018; Wing, 2006). Wing (2006) unveiled the idea of computational thinking, highlighting its significance beyond computer science to daily problem-solving. Early coding experiences might remove the mystique around technology, hence opening STEM jobs to a wider spectrum of students, including those from historically underrepresented populations (Bers, 2018).

Literature Review

Scratch JR was developed to make coding accessible to young children, using a visual programming language that does not rely on text or reading skills (Bers, Flannery, Kazakoff, & Sullivan, 2014). Children create stories, games, and animations by snapping together programming blocks that represent actions and sequences. The design of Scratch Jr is rooted in constructionist learning theory, which posits that children learn best when actively constructing artifacts that are meaningful to them (Paper, 1980; Bers, 2018).

Research by Strawhacker and Bers (2015) demonstrated that even pre-literate children could grasp programming concepts such as sequencing, loops, and events using ScratchJr, highlighting its potential as an educational tool for early learners.

Several studies have explored how teachers perceive and use ScratchJr in early childhood classrooms:

Strawhacker and Bers (2019) found that early childhood educators, with minimal training, could effectively integrate Scratch Jr into classroom activities. Teachers reported that the app supported narrative development, mathematical reasoning, and sequencing skills. Kazimoglu, Kiernan, Bacon, and MacKinnon (2020) observed that although some teachers initially expressed skepticism regarding the relevance of coding for young children, their perceptions became more positive after witnessing students' high engagement and problem-solving behaviors. Yelland (2018) highlighted barriers such as limited time, lack of alignment with existing curricula, insufficient technical support, and varying levels of teachers' digital literacy. Teachers also voiced concerns about balancing screen time with traditional, play-based learning approaches.

Bers et al. (2014) emphasized that effective professional development is crucial for enabling teachers to use ScratchJr confidently. Teachers who involved in workshops that consider on both technical skills and pedagogical strategies were more likely to implement Scratch JR successfully.

Material and Methods

In this research qualitative research method was applied. Identifying what challenges teacher can faced while implementing technical tools in learning environment and investigating the benefits of technology on their own teaching practice. This research helps in inquiring the effects of scratch JR on student's academic performance. With the help of this method we explore deeper insights of teacher's point of view about scratch JR. Through open ended questions from teachers we assess the activities, engagement and performance of students that how much they are active and enjoying scratch JR program.

Research Design

- Qualitative research approach
- Open-ended questions to gather teachers' perspectives
- Focus on Scratch JR implementation in the classroom

Population

For our research we are selecting private schools teacher who have experience of using scratch JR in their learning environment. They have much knowledge about Scratch their point of views help us to explore deeper understanding of scratch. We maintain the privacy of our respondents.

Sample

In this research the researchers selected 12 teachers for our data collection using purposive sampling technique. Data were collected from private sector teachers for the better understanding of our research (usage of technology) Because in private schools they are using scratch JR at primary level. With the usages of private sector teachers sample we draw better findings and results for our research.

Instrument of the study

We used semi-structured Interviews as a research instrument. We designed a interview protocol for research process.

Data Collection method

Under the selection of our research methodology we used different methods for collecting data from teachers who used technology at primary level methods we used for our research like;

Interviews

The researcher collected data using semi structured interview.

To include open ended questions interviews duration at least 10 to 15 minutes. The interviews were conducted in private and quiet space and depend on participant's availability and preferences. All interviews were audio recorded with the participants consent.

Data analysis

There are various methods or soft-wares for analysis but we are using thematic analysis method for our research with the help of these methods the researcher draw themes of our data and gain deeper insights of the complex points. And ensure the accuracy of findings.

Thematic Analysis procedure:

1. Data understanding
2. Coding
3. Themes finding
4. Themes naming
5. Analysis according to responses

Ethical Consideration

In our research we can ensure our participants Respect and telling truth about what and why we are conducting the research on this topic and provide positive environment for sharing their thoughts or point of view with their own way ensure they are willing or not for sharing their experience or perspectives. Also help And ensure them about their information and personal data.

Results and Discussion

The thematic analysis was used for data analysis because these methods helping in draw the themes and ensure the accuracy of the Findings. In this study we understand the data then finding the theme and then naming the themes, lastly analysis according the responses. This study use proper thematic analysis method procedure for driving the accurate findings. The validity of this research ensure through expert opinion. This study ensures the privacy of participants, and telling truth to their participants about their topic throughout the research.

The findings of this study suggest that scratch JR is valuable tool for students because students inculcating their ideas in imaginary form For example (One teacher claim their students trying to draw their own life stories with the help of this tool).

Also teachers believe scratch JR helps in enhancing students learning outcomes. Scratch JR help students to learn basic coding. It makes students much more creative .Students make games stories on it .They make also their own characters and add sounds behind. Teachers claim this tool is also helpful in their own teaching. Teachers Claim they own learn new things or trying new features with students. They said they learn practically many things .Teachers believe that this tool is also essential for upper level students. Teachers claim that extra intelligent students create their own Program also add voice on it. Students are extra motivated for trying new things. Focusing on benefits and long term effects of scratch JR in this study.

- Teachers believe that the scratch JR is helpful for enhancing students' creativity and boosting their problem solving skills.
- With the help of scratch JR students learning enhance much more and they learn more new things.
- Another finding of this study is that teachers believe scratch JR make students extra creative they make extra creative stories/ Games on it.
- With the help of Scratch JR students learning experiences more enhanced.
- Students are overexcited for trying New Things.
- Teachers claim in interviews their own experience is Outclass with scratch JR they also learn many more things while practicing with students.

Also this study discuss about the impacts and effects of scratch JR students motivation, engagement, critical thinking and multi-task skills.

Discussion

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Also teachers believe scratch JR helps in enhancing students learning outcomes. Scratch JR help students to learn basic coding. It makes students much more creative .Students make games stories on it .They make also their own characters and add sounds behind. Teachers claim this tool is also helpful in their own teaching. Teachers Claim they own learn new things or trying new features with students. They said they learn practically many things .Teachers believe that this tool is also essential for upper level students. Teachers claim that extra intelligent students create their own Program also add voice on it. Students are extra motivated for trying new things. We are focusing on future benefits and long term effects of scratch jr in our study. Also we discuss about the impacts and effects of scratch jr students motivation, engagement, critical thinking and multi-task skills. Yelland (2018) highlighted barriers such as limited time, lack of alignment with existing curricula, insufficient technical support, and varying levels of teachers' digital literacy). Our study found that scratch JR make students creative they make creative stories on it which is consistent with (paper,1980 Bers 2018) who reported that Children create stories, games, and animations by snapping together programming blocks that represent actions and sequences.

Another finding of our study is recommend teachers professional training is needed which is consistent with the findings of (Mishra and Koehler 2006) who reported that Technological Pedagogical Content Knowledge (TPACK) framework suggests that successful integration requires teachers to develop overlapping understanding of technology, teaching styles, and content.

Another author study support our study (Ertmer, 2005) without adequate support and professional development, teachers may struggle to incorporate tools like Scratch JR effectively.

Bers et al (2014) emphasized that effective professional development is crucial for enabling teachers to use Scratch JR confidently. Teachers who involved in workshops that consider on both technical skills and pedagogical strategies were more likely to implement Scratch JR successfully.

The findings of this research explained that the student use scratch JR as an activity , or enhance their Skills.

Which is in line with previous study (Strawhacker and Bers 2019) found that early childhood educators, with minimal training, could effectively integrate Scratch JR into classroom activities. Teachers reported that the app supported narrative development, mathematical reasoning, and sequencing skills.

Similar to previous study (Mishra & Koehler, 2006) Lack of studies on teacher skills development: There is a need for more study on effective teacher professional development strategies for integrating Scratch Jr into early childhood education, our study found that teachers training is necessary because sometimes teachers face obstacle when students are doing something extra creative

Our study found that the future research is needed to explore the impacts of scratch jR and assess the performance of students, which is relatable with (Wing, 2006) study in their study highlights that the Limited understanding of Scratch Jr's effectiveness in promoting STEM education: Further investigation is required on its influence on student knowledge and engagement.

Our study find that the future research is needed to explore also students perspective about this tool, similar with (Strawhacker & Bers, 2019) they said in their that the Lack of studies on Scratch JR's impact on children's creativity and self-expression further study is required to explore how Scratch Jr affects student's creativity and self-expression.

Another previous study support our findings we also found some barriers that may cause in learning like technical support, (Yelland2018) highlighted barriers such as limited time, lack of alignment with existing curricula, insufficient technical support, and varying levels of teachers' digital literacy. Teachers also voiced concerns about balancing screen time with traditional, play-based learning approaches.

Conclusion

This study concluded that the scratch JR is valuable tool for students it helps in their learning. Scratch JR help in promoting creativity and analytical skills in students. The teachers believe that scratch JR is essential tool for students. Teachers believe that

scratch JR is helpful for students because they learn basic coding concept. It was concluded that teachers believe that scratch JR helps in enhancing practical skills.

Recommendations

This study recommended Teachers training because sometimes students doing something extra creative on their own behalf and teachers not meet with their extra effort that's why teachers training are necessary with the passage of time. Also this study recommends the future research focused that the system is properly updated or make sure internet connection because some teachers claim they faced internet problem while working with scratch JR. Another Recommendation is explore the impacts of scratch on students' professional life as well. Further study is needed to assess the performance of students in public sector schools.

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