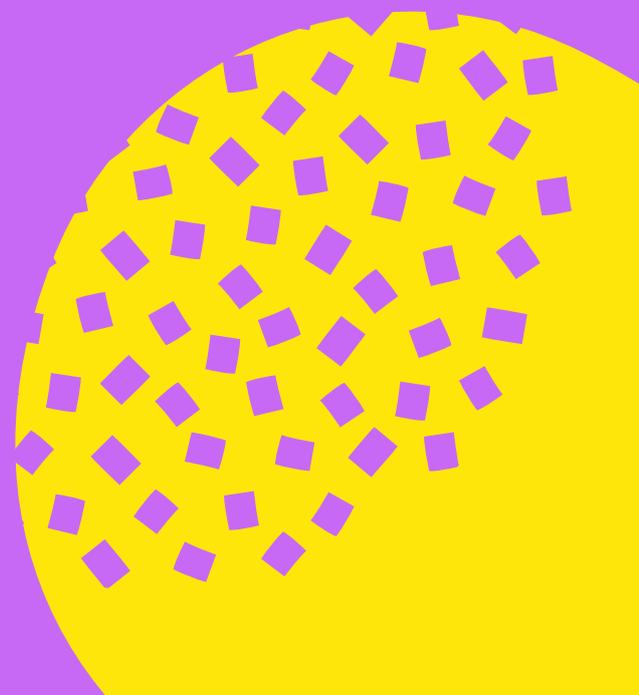
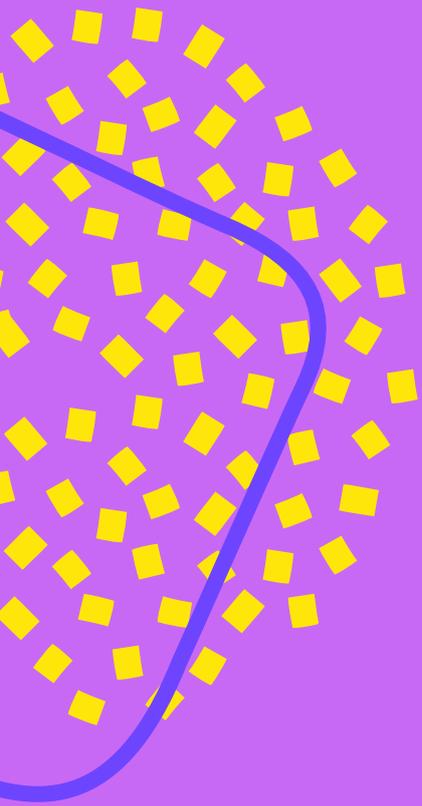


# **Novakid Demonstrates the Benefits of Story-based Curriculum and Gamification to young ESL Students' Learning Outcomes**



# NOVAKID DEMONSTRATES THE BENEFITS OF STORY-BASED CURRICULUM AND GAMIFICATION TO YOUNG ESL STUDENTS' LEARNING OUTCOMES

## ABSTRACT

Novakid's internal data on the gamification elements' effectiveness, students' participation and engagement as well as the learning content performance has been collected and analysed for 6 months from October 2021 to March 2022. The results of the research demonstrate that different elements of the gamified learning environment (games, gamification techniques, design) and storyline have an impressive impact on the students' learning outcomes. Innovative Novakid curriculum, based on Magic Academy game world and storyline, shows a whopping 39% better student learning performance.

## Keywords

Novakid, gamification, story-based learning, English, ESL, young learners, students' motivation, students' engagement.

## 1. INTRODUCTION

Teaching young students in a digital learning environment presents a number of challenges for the education community and for online learning platforms. Promoting deeper engagement with the content, maintaining the students' attention and developing their online learning autonomy are of the utmost importance, as these have a direct impact on the learning outcomes due to the higher students' motivation to learn.

To provide young learners with the opportunity to learn English in an engaging way that results in efficiency and fluency, Novakid, an online ESL platform for children, developed an innovative ESL curriculum based on the storyline features and gamification elements.

The Novakid Magic Academy provides teachers and students between 4 and 12 years of age with an ecosystem of English teaching and learning tools within an online educational story-based Game Universe. The Novakid Magic Academy includes animated comic stories (Novakid Tales), story-linked individual English lessons, mini-games and gamified learning environment (Kids' area) as well as interactive homework activities designed for young learners. English learning happens in all these elements of the story-based gamified learning context combining enrichment with entertainment and suitable for different learning styles.

The purpose of this white paper is to introduce the results of the research conducted by Novakid from October 2021 to March 2022 on the effectiveness of the Novakid Magic Academy ESL curriculum. It addresses the benefits of a story-based curriculum and gamification approach by reporting the direct positive impact on the learning outcomes of the Novakid students between 4 and 12 years of age enrolled at the Novakid Magic Academy story-based English course.

## 2. RELATED WORK: GAMIFICATION AND STORY-BASED LEARNING

Werbach and Hunter (2012) define "gamification" as a teaching and learning method based on applying game elements and game design techniques in non-game contexts. The gamification as a method includes games, game elements and design (Figueroa Flores, 2015). The integration of these elements in a non-game environment is aimed at stimulating students' motivation to learn (Chih-Yuan Sun, Hsieh, 2018).

According to Cristina Muntean (2011), gamification stimulates both extrinsic and intrinsic motivation, thus improving students' engagement by "extrinsic rewards" while intrinsically motivating them "towards the achievement, mastery, autonomy, and sense of belonging in addition to competition, social interaction and cooperation" (Figueroa, Flores, 2015).

Research conducted by Kaplan University in 2014 confirms that gamification is an effective teaching and learning strategy that provides impressive learning outcomes. In their pilot study, gamification software was embedded in the LMS and web applications for one of their information technology courses. "Students' grades improved by 9% and the number of students who failed the course decreased by 16%" (Johnson, Adams Becker, Estrada and Freeman, 2014).

In this respect, psychological perspectives and implications of gamification applied to learning, are strongly related to the motivation studies (Schunk, Pintrich, Meece, 2008). In the study conducted by the researchers of several German universities, 6 main motivational perspectives of different game elements were examined through motivational mechanisms addressed: trait, behavioristic learning, cognitive, self-determination, interest, emotion. Sailer, Hense, Mandl and Klevers (2013) concluded that "players are likely to be motivated if gamification increases positive feelings like sympathy, emotion and pleasure".

At the same time, the narrative environment or storyline is another pillar for building an emotional connection with a young learner, it helps presenting new concepts in a close, familiar and safe way. Story-based curriculum may be aimed at the development of creative and analytical skills as well as the decision-making caused to comply with the story.

A storyline approach in English learning may "adopt many of the features of a story, which is jointly created by the teacher and the students. The teacher initiates the topic, provides the framework and logical sequence for the narrative" (Steingrimsdóttir, 2016). Another way to apply the storyline approach is to create a narrative environment for students to follow and interact with.

One of the main outcomes of applying the storyline approach is that of increasing learners' engagement, which is directly linked to learning outcomes. This has been proven by various studies conducted by Sharon Ahlquist (2021), researcher on storyline method in ESL from Kristianstad University, Sweden.

In one of the studies conducted over 5 weeks, the English lessons of two classes of 11-12 years old students were based on Roald Dahl's Fantastic Mr Fox. Within the framework of the storyline approach, there were several specific language-focused tasks designed for young learners in order to promote their engagement with the story, support understanding and ease incidental vocabulary acquisition. Based on the results of the research, the tasks that the learners appeared most enthusiastic about included a game element or challenge (Ahlquist, 2021).

### 3. NOVAKID MAGIC ACADEMY: BENEFITS OF STORY-BASED CURRICULUM AND GAMIFICATION APPROACH

#### 3.1. Research sample and investigation tools

The research on the first-to-market Novakid Magic Academy ESL curriculum was conducted for the period of October 2021 to March 2022.

The research sample consists of 30,390 Novakid students between 4 and 12 years of age enrolled at the Novakid Magic Academy story-based English course.

For learning performance analytics (3.2.), the sample has been reduced to 18,100 Novakid students taking English lessons at the Level 1 Novakid Magic Academy story-based ESL course.

Internal data on the gamification elements' effectiveness, students' participation and engagement as well as the content performance (3.3., 3.4.) has been collected and analysed.

To evaluate the learning outcomes in key competencies (3.2.) of the Level 1 Novakid Magic Academy students, the data has been collected via interactive mechanics implemented in each lesson of the Novakid Magic Academy English course.

#### 3.2. The story-based ESL curriculum increases the students' performance in key competencies

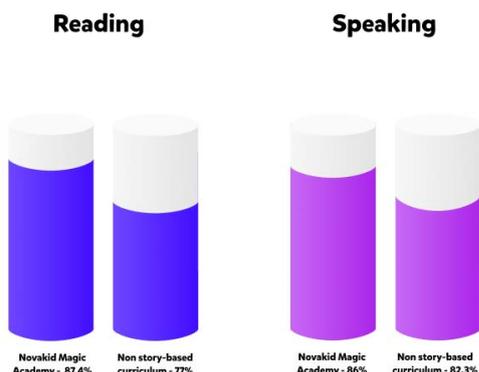
The results of the research demonstrate that different elements of the gamified learning environment (games, gamification techniques, design) and storyline have an impressive impact on the students' learning outcomes.

The data collected during the 6-month period demonstrated the higher level of basic competencies development, with the most considerable impact on students' reading and speaking skills (image 1):

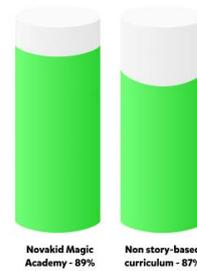
- a.) Students enrolled in the Novakid Magic Academy demonstrate a 46% higher performance in their reading skills (12,6% – average failure rate for those enrolled in the Novakid Magic Academy and 87,4% – average success rate; 23% – failure rate in non story-based curriculum and 77% – average success rate).
- b.) Regarding the speaking skills performance, the outcomes are 21% higher in the curriculum based on gamification and storyline (14% – average failure rate for those enrolled in the Novakid Magic Academy and 86% – average success rate; 17,7% – failure rate in non story-based curriculum and 82,3% – average success rate).
- c.) The listening skills performance is 16% higher (11% – average failure rate for those enrolled in the Novakid Magic Academy and 89% – average success rate; 13% – failure rate in non story-based curriculum and 87% – average success rate).

#### Language competencies development

Based on the students' performance rate.



#### Listening



\*Data source: Novakid Research. Benefits of story-based curriculum and gamification to young ESL student' learning outcomes, 2022.

Image 1. Language competencies development.

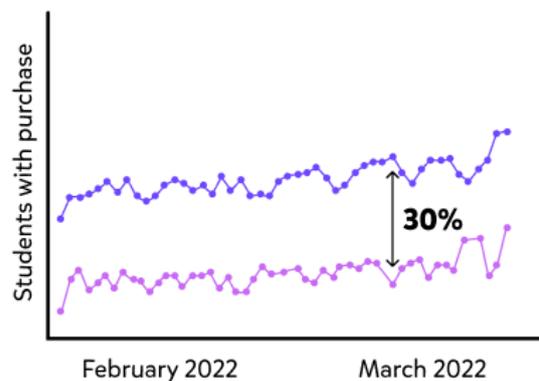
The Novakid Magic Academy curriculum demonstrates a higher level of effectiveness due to the higher level of the students' engagement and motivation to learn (3.3., 3.4.), reaching a whopping 39% better learning performance for students enrolled in the Level I Novakid Magic Academy. The average learning performance rate is 12% higher after at least 4 months of studies.

#### 3.3. The level of students' motivation is directly related to story-based features and gamification elements as well as time spent playing

Students enrolled in the Novakid Magic Academy tend to spend almost 30% of their learning time in the Kids' area where they play games and enjoy the gamified learning environment.

#### Daily share of students with character purchase

● Novakid Magic Academy ● Non story-based curriculum



#### Daily stars income in Kids' area

February 2022

Novakid Magic Academy



Non story-based curriculum



\*Data source: Novakid Research. Benefits of story-based curriculum and gamification to young ESL student' learning outcomes, 2022.

**Image 2. Daily share of students with character purchase.**

The daily share of students enrolled in Novakid Magic Academy with character purchase is 30% higher than the daily share of those enrolled in Classic curriculum courses (image 2). Novakid Magic Academy students earned a higher number of stars than those students enrolled on the Classic curriculum (image 2).

This means that students who enrolled in the storyline curriculum tend to spend more time using different gamification features, and their learning time is increasing, meaning that their engagement rate is also increasing.

### 3.4. Storyline and narrative environment keeps students engaged and positively affects their motivation to complete with other tasks and activities

The statistics show that 92% of students are happy with the content of Novakid tales (comic stories), and these dynamics do not change much over the time. This translates to the fact that the storyline is engaging enough for students to leave feedback and interact with the content.

Students who watch animated comic stories have a higher retention rate than those who do not, representing an almost 30% difference between both groups during February and March 2022.

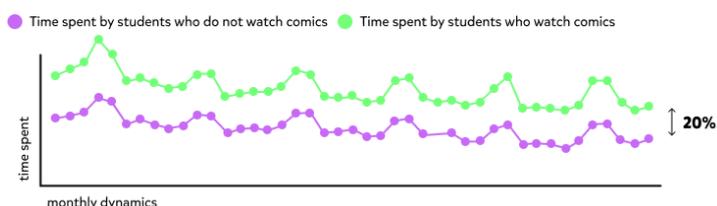
At the same time, students who watch comic stories tend to spend on average 20% more time in games than the ones who do not, although this fact does not affect their in-class participation (image 3).

However, this positive tendency is also observed on the homework activities: the students enrolled in story-based curriculum and the ones who watch comic stories tend to spend 24% more time (image 3) completing their homework tasks than the students who do not.

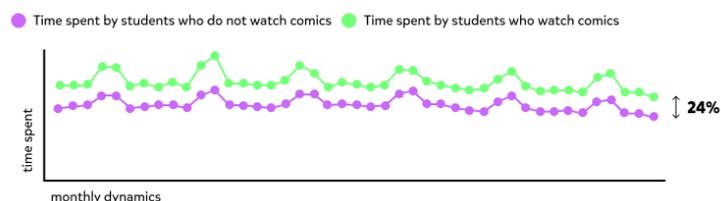
## Storyline and comic stories enhance the students' engagement



### Games



### Homework



\*Data source: Novakid Research. Benefits of story-based curriculum and gamification to young ESL student' learning outcomes, 2022.

**Image 3. Storyline and comic stories enhance the students' engagement.**

The students of Novakid Magic Academy watch comics almost 15% more often than the rest. At the same time, the performance data confirms that the outcomes are better for those students who enrol on the Novakid Magic Academy course. Thus, it can be stated that the comic stories have a positive effect on the students' learning progress.

## 4. CONCLUSIONS

Based on the results of the research on the effectiveness of the Novakid Magic Academy ESL curriculum conducted by Novakid from October 2021 to March 2022, the story-based innovative curriculum increases the students' performance in key competencies: reading, speaking and listening.

At the same time, the level of students' motivation to learn English is directly related to different gamification elements and story-based features. Narrative environment positively affects students' motivation to complete homework and additional ESL activities: the students enrolled in story-based curriculum tend to spend 24% more time completing their homework tasks than the students who do not.

The average learning performance rate is 12% higher after at least 4 months of studies, reaching a whopping 39% better learning performance for students enrolled in the Level I Novakid Magic Academy ESL course.

## 5. REFERENCES

- [1] Kevin Werbach, Hunter Dan. 2012. For the Win: How Game Thinking Can Revolutionize Your Business. Harrisburg: Wharton Digital Press.
- [2] Jorge Francisco Figueroa Flores. 2015 Using Gamification to Enhance Second Language Learning. Digital Education Review, 21, 35–54. <https://dialnet.unirioja.es/servlet/articulo?codigo=5495904>
- [3] Jerry Chih-Yuan Sun, Pei-Hsun Hsieh. 2018. Application of a Gamified Interactive Response System to Enhance the Intrinsic and Extrinsic Motivation, Student Engagement, and Attention of English Learners. Educational Technology & Society, 21 (3), 104–116. <https://www.jstor.org/stable/26458511>
- [4] Cristina Muntean. 2011. Raising engagement in e-learning through gamification. Proc. 6th International Conference on Virtual Learning ICVL.
- [5] Johnson, L., Adams Becker, S., Estrada, V., and Freeman, A. 2014. NMC Horizon Report: 2014 K-12 Edition. Austin, Texas: The New Media Consortium. <https://files.eric.ed.gov/fulltext/ED559369.pdf>
- [6] Schunk, D. H., Pintrich, P. R., Meece, J. L., & Pintrich, P. R. 2008. Motivation in education: Theory, research, and applications. Upper Saddle River, N.J: Pearson/Merrill Prentice Hall. <https://searchworks.stanford.edu/view/6774934>
- [7] Michael Sailer, Jan Hense, Heinz Mandl and Markus Klevers. 2013. Psychological Perspectives on Motivation through Gamification. Interaction Design and Architecture(s) Journal - IxD&A, N.19, pp. 28–37. [http://www.mifav.uniroma2.it/inevent/events/idea2010/doc/19\\_2.pdf](http://www.mifav.uniroma2.it/inevent/events/idea2010/doc/19_2.pdf)

- [8] María Steingrimsdóttir. 2016. Storyline and Motivation. Storyline: A Creative Approach to Learning and Teaching. Cambridge Scholars Publishing, pp. 23–34. <https://books.google.es/books?id=Q7f6DAAQBAJ&dq=storyline+approach+to+education>
- [9] Sharon Ahlquist. 2021. Integrating children's fiction and Storyline in the second language classroom, Education Inquiry, DOI: [10.1080/20004508.2021.1965287](https://doi.org/10.1080/20004508.2021.1965287)