



Exploring the Pedagogical Impact of Educandy Application in Arabic Language Assessment

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Abstract

This study evaluates the effectiveness of the Educandy application as an assessment tool for Arabic language learning among undergraduate students at The New College, Chennai. The research assesses three key aspects: the validity of the media, the validity of the assessment, and the overall matching of questions. Utilizing expert evaluation, statistical reliability tests, and hypothesis testing through SPSS, the study measures the effectiveness of Educandy in enhancing student learning outcomes. The results indicate that while the assessment tool exhibits high reliability (Cronbach's alpha > 0.7), the overall effectiveness of Educandy remains limited. The Gain-N test reveals a 47.86% improvement in learning outcomes, categorizing its effectiveness as "less effective." Hypothesis testing further supports this conclusion, showing no significant difference in performance between the experimental and control groups. Consequently, this study concludes that while Educandy offers engaging features, its effectiveness as an Arabic language assessment tool requires further improvement to achieve optimal learning outcomes.

Keywords: Arabic Language Learning, Digital Assessment Tools, *Educandy* Application, Language Pedagogy, Educational Technology.

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Introduction

Numerous educators primarily rely on traditional evaluation methods during assessments, which typically involve practice questions and written exams (Daud, 2024). Unfortunately, this conventional approach can lead to student boredom, causing a decline in their interest in learning and negatively impacting academic performance (Nwafor et al., 2024);

(Wibowo, 2025). Additionally, there has been minimal progress in developing innovative learning evaluation techniques. This study aims to assess the effectiveness of the Educandy application in evaluating Arabic language learning among foundation Arabic students at the New College, Chennai, in 2025, with a focus on their engagement and academic performance. A quantitative research methodology utilizing an experimental design was adopted. Specifically, a One Group Pre-test and Post-test Design was employed alongside purposive sampling for data collection. The analysis of the data was carried out using the Statistical Product and Service Solutions (SPSS) version 16. The findings indicated that the Educandy application was not particularly effective in improving students' academic results. However, it was found to significantly enhance students' interest in learning, as demonstrated by the Independent Sample T-Test results, which produced a value of $0.72358 > 0.05$, leading to the acceptance of the null hypothesis (H_0) and the rejection of the alternative hypothesis (H_1).

Many teachers today continue to use conventional methods, consisting primarily of practice questions and written exams, during assessments. This dependence on traditional testing often results in student disengagement, diminishing their enthusiasm for learning and adversely affecting academic performance. Furthermore, learning evaluation methods have seen little advancement. The main objective of this study was to explore the effectiveness of the Educandy application in assessing Arabic language learning among undergraduate foundation students at the New College in 2025, concentrating on their interest in learning and academic results. The results indicated that while the Educandy application was less effective in improving academic outcomes, it successfully increased students' interest in learning (Yulianti et al., 2025). This research employed experimental designs. The selected pre-experimental framework was a One Group Pretest-Posttest Design, utilizing purposive sampling for the data collection process. Data analysis was conducted using SPSS version 16. The results revealed limited effectiveness of the Educandy application in enhancing students' academic performance. However, it did show potential in boosting students' interest in learning, as illustrated by the Independent Sample T-Test result of $0.72358 > 0.05$, confirming the acceptance of H_0 and rejection of H_1 .

Evaluating Arabic language studies involves an assessment process that measures mastery of language skills. Assessment serves as a tool or method to gauge specific competencies according to established guidelines (Kadir et al., 2024); (Satar & Yusoff, 2019). This process may take several forms, including tests or other evaluations tailored to educational content, enabling teachers to develop bespoke assessment tools for their students. Evaluations should not only focus on learning outcomes, but also encompass the processes throughout the entire educational experience (Schildkamp et al., 2020); (Darling-Hammond et al., 2020). Educators have the freedom to select assessment models suited for their classrooms; innovative methods, such as educational games, can be specifically designed to cater to student needs. Well-structured games can provide engaging assessment opportunities.

Feedback from an Arabic language teacher indicated that assessments for foundation Arabic students at the New College often result in boredom among students, primarily due to the repetitive and monotonous nature of the testing formats used. Therefore, it is essential for teachers to understand how to implement assessments that are both appropriate and engaging. Many educators mistakenly view evaluation as reliant solely on traditional examinations or practice questions. However, there is room for creativity in practice questions or comprehension tests, allowing for a more varied approach that avoids the dullness often associated with conventional assessments. Several studies have explored the integration of

educational games into evaluation practices, indicating a shift toward more engaging methodologies for assessment.

Games Aligned with Core Competencies

The researcher's interest in conducting this study was driven by the advancements in facilities and infrastructure available at the college. Consequently, the researcher undertook a study on the Educandy application applied in evaluating the Arabic language. Educandy application is selected for testing at the New College in 2025 because this application had not yet been implemented at the college. The application provides features for creating tests in a game format. Utilizing this testing application is one way to make assessment or examination activities enjoyable, while still being educational. Educandy includes three main game formats: pairs matching, words, and quiz questions. However, these formats can be adapted into various other games, such as word search, hangman, anagrams, crosses and noughts, crossword puzzles, up-match, memory games, and multiple-choice questions. Educational games are highly engaging for development. There are numerous advantages to using games for students compared to traditional teaching methods. One of the primary benefits of educational games is their ability to simulate real-world problems (Vlachopoulos & Makri, 2017); (Jääskä et al., 2022). Games can be traditional formats, such as snakes and ladders, and hide-and-seek, or take the form of Android applications, such as video games and Hago, which are accessible on smartphones. Some applications or platforms based on Android have been designed to turn assessments into games, making them suitable for educational purposes. Educandy is suitable for use in learning assessments without being tedious. Since this application incorporates many word games, it serves as an effective educational tool for teaching the Arabic language (Figure 1).



Figure 1. Educandy application for learning

Importance of Using the Educandy Application

The researcher chose the title "The Effectiveness of Using the Educandy Application (Educandy) among the foundation Arabic students of undergraduate learners at the New College, Chennai" due to the application's value in assessing student achievements. Two objectives were pursued: to know the effectiveness of using the Educandy application through the responses of undergraduate students and to determine the effectiveness of using the Educandy application in improving the learning outcomes of undergraduate students at the New College, Chennai.

Research Conducted by Wahyuni Sri in 2021

The study, titled "The Application of Educational Games in Improving Vocabulary in English for Fifth Grade Elementary Students on the Topic of Shapes," led to conclusions based on discussions related to the findings of prior research. The statistical test results demonstrated a value of $0.01 < 0.05$, which indicates the rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_a). This finding suggests that there is a significant difference in English vocabulary skills between the control group and the experimental group. Therefore, the

educational game Educandy has a positive impact on improving English vocabulary skills related to the subject of shapes.

Building upon previous research, this study aims to verify the effectiveness of using media before and after treatment, and to apply an evaluation of learning types based on educational application games among the foundation Arabic students of undergraduate learners at the New College, Chennai. The results show effective use of media through student learning requests and outcomes linked to the Educandy application.

Methodology

This study employed an experimental method. According to Kasiram (2008), this type of research uses quantitative techniques aimed at determining the purity (truth) of the effect of X on Y. This research was conducted to identify the increase or outcomes resulting from the treatment provided. The goal of the experiment is to identify the effect of X (the Educandy game) on Y (the study results) and to assess the extent of X's impact on Y, which relies on accuracy during the study period. The research was directly conducted in the school, involving a single class of students. A total of 21 students participated in the research.

The statistical community for the research consists among the foundation Arabic students of undergraduate learners at the New College, Chennai of the 2024-2025 academic year. This group includes B.A., with a total of 27 students and B.Sc., with a total of 21 students. The reliability of the collected data was analyzed using the SPSS software for statistical products (version 16 for Windows). If the coefficient of reliability produced is less than 0.6, the research instrument is deemed reliable.

After testing the dataset for normality and ensuring it was normally distributed, the hypothesis was tested using the Pearson correlation coefficient.

The Formula Used:

$$r_{xy} = \frac{N\sum XY - \sum X - \sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)(N\sum Y^2 - (\sum Y)^2)}}$$

(N represents the sample size (number of data points))

($\bar{X}$ represents the mean score of the pre-test (X))

($\bar{Y}$ represents the mean score of the post-test (Y))

Comparing the Results:

The results of the Pearson correlation coefficient are compared to the classification table to determine the strength of the correlation. The classification table is as follows:

Classification	Correlation Coefficient	Critical Value
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Very Strong	0.80-1.00	Strong
Strong	0.60-0.79	Significant
Moderately Strong	0.40-0.59	Sufficient
Weak	0.20-0.39	Little
Very Weak	0.00-0.19	Extremely Weak

The next step is to test the significance of the Pearson correlation coefficient using the **thitung** formula:

$$thitung = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

The result of the Pearson correlation coefficient is denoted by (r), and the sample size is denoted by (n).

The next step is to compare the **rtab** value with the **rcount** value based on the critical values of the test. If:

- $rcount > rtab$, then **Ha** is accepted (alternative hypothesis is accepted), and **Ho** is rejected (null hypothesis is rejected).
- $rcount < rtab$, then **Ha** is rejected (alternative hypothesis is rejected), and **Ho** is accepted (null hypothesis is accepted).

Research Hypotheses

Hypothesis 1:

- Null Hypothesis (H0): There is no significant difference in the interest in learning between students who are taught using the Educandy learning media and those who are not taught using the Educandy learning media among the foundation Arabic students of undergraduate learners at the New College, Chennai.
- Alternative Hypothesis (H1): There is a significant difference in the interest in learning between students who are taught using the Educandy learning media and those who are not taught using the Educandy learning media among the foundation Arabic students of undergraduate learners at the New College, Chennai.

Hypothesis 2:

- Null Hypothesis (H0): The use of Educandy educational media is not effective for students in the foundation Arabic at the New College, Chennai.

- Alternative Hypothesis (H1): The use of Educandy educational media is effective for students in the foundation Arabic at the New College, Chennai.

Discussion and Conclusion

Status of Students

The students at this college consist of three major categories. The total number of students is 168 is as follows:

Class	Number of Students from Shift- I	Number of Students from Shift- II	Total
B.A.	41	41	82
B.Sc.	27	21	48
B.Com.	23	15	38
Total	91	77	168

Data Description

The research results obtained from quasi-experimental studies, often referred to as "quasi-experimental designs," at the New College are data from questionnaires. The students' responses and their learning outcomes in the Arabic language were analyzed.

Validity Testing of Research Instruments (or) Testing the Validity of the Assessment Tool

The validity testing of the tool used by the researcher in this study will be conducted in the form of a validity test with experts, where the assessment tool intended for future use will be directly evaluated by language experts through a questionnaire filled out by the researcher. The results of the validity testing will be analyzed and reviewed according to the advice from the experts.

Questions Related to Matching Value

Question Number	Matching Value
1	5
2	4
3	4

4	4
5	4
6	5
7	5
8	4
9	4
10	5
11	4
12	5
13	5
14	3
15	3
16	4
17	5
18	4
19	5
20	4
	Total : 86

Evaluation Score = 86

Evaluation of the Matching of Questions by the Experts.

Testing the Validity of the Media

Item Number	Nature of Assessment Tool	Value
1	Engaging presentations	3
2	Appropriate color tone	4

3	Variations in test content	2
4	Matching letters or characters	3
5	Fun competition	3
6	Coloring does not distort the display	2
7	Attractive media presentation	4
8	Motivating for learning	4
9	Ease of access to the application	5
10	Effectiveness of use	4
11	Usability of assessment tools (buttons)	2
12	Easy to understand lists and test facilities	5
		Total :41

Testing the Validity of the Assessment

Item Number	Nature of Assessment Tool	Value
1	Relevance of questions to core competencies	4
2	Relevance of questions to students' needs	4
3	Effective and practical assessment tool	3
4	Answer key	5
5	Completeness of questions according to content	4
6	Clarity of the problem description	4
7	Difficulty level of the question according to the student's development level	3

8	Questions that are easy to understand	4
9	Clear practice instructions for the questions	4
10	Relevance of questions according to student abilities	4
		Total :39

Then, for the format, the percentage of the matching assessment results for questions, assessments, and media can be calculated using the following formula:

$$\text{Results} = \frac{\text{Total Points Achieved}}{\text{Total Points Achieved}} \times 100$$

Total Points Achieved = 100

Then, regarding the formula, the percentage of the matching evaluation results for the questions, assessments, and media can be calculated using the following formula:

Overall Percentage of Test Tool Evaluation Results

$$\text{Return} = 100/86 \times 100 = 86\%$$

Overall Percentage of Media Evaluation Results

$$\text{Return} = 60/41 \times 100 = 68\%$$

Overall Percentage of Assessment Tool Evaluation Results

$$\text{Return} = 50/39 \times 100 = 78\%$$

As for the category of feasibility for a tool, it can be assessed based on the following criteria:

Eligibility Category	Percentage (%)	Number
Not Suitable at All	21% >	1
Not Suitable	40% – 21	2
Not Suitable Completely	60% – 41	3
Suitable	80% – 61	4
Very Suitable	100% – 81	5

As for the effectiveness category of a tool, it can be considered based on the following criteria:

Not Very Effective 21% > 1

Not Very Effective 40% – 21

Not at All Effective 60% – 41

Appropriate 80% – 61
 Very Effective 100% – 81

Table of Eligibility Criteria for the Test:

Based on the overall percentage of the results obtained from the assessment of the suitability of the questions and the language used, it can be concluded that the overall percentage of the evaluation results for the test tool, media, and assessments are 86%, 68%, and 78% respectively. According to the eligibility criteria outlined in the table above, the evaluation results for the test tool fall into the highly possible category, the results for the media evaluation fall into the possible category, and the assessment tool results in this study fall into the possible category as well.

Reliability Testing

According to Ghazali (2011), a variable can be considered reliable if the value of Cronbach's alpha (α) is greater than 0.6. The type of reliability for the tool used in this study is internal reliability, calculated using the alpha formula with the assistance of SPSS Statistics.

Below are the results of the reliability testing for the assessment tool presented in the table below.

Results of Reliability Testing for Learning Outcomes Before the Test

Cronbach's Alpha	N of Items	Notes
0.701	20	Reliable

Results of Reliability Testing for Learning Outcomes After the Test

Cronbach's Alpha	N of Items	Notes
0.719	20	Reliable

From the data mentioned above, it can be observed that the pre-test and post-test tools for learning outcomes can be said to be reliable since the value of Cronbach's alpha is greater than 0.7, indicating that the reliability coefficient of the tool exceeds the minimum acceptable value for reliability.

Testing Basic Requirements

To determine whether the data analysis for hypothesis testing can continue, it is essential to conduct a basic test consisting of a normality test and a homogeneity test between the subjects in the control group and the subjects in the experimental group.

Normality Testing

The normality of the data used in this study was tested using the Kolmogorov-Smirnov test with the assistance of SPSS 22 for Windows. The results of the normality tests before and after the test are as follows.

Information	α	Sig. Kolmogorov Smirnov		Group
Normal	0.05	0.200	Experiment	Pre-Test Education Results
Normal		0.077	Control	
Normal	0.05	0.200	Experiment	Post-Test Education Results
Normal		0.077	Control	

From the table above, it can be concluded that students in both the control and experimental groups have a normal distribution since the significance value is greater than 0.05 ($0.05 < \text{Sig.}$). Therefore, the pre-test and post-test results for learning outcomes can be analyzed using the t-test and Gain-N test, as these tests can be applied when the obtained data has a normal distribution.

Homogeneity Testing

The homogeneity test was used to determine the degree of similarity in variances between the experimental group and the control group. The homogeneity test in this study used SPSS 23.0 software with the Levene's test. Data can be considered homogenous if the value of Sig. is greater than 0.05. The results of the homogeneity test for the pre-test and post-test data are presented in the table below.

Sig.	Information	No.
0.223	Pre-Test	1
0.586	Post-Test	2

Table of Homogeneity Test Results for Pre-Test and Post-Test:

0%
64%

Based on the above table, it can be observed that the homogeneity test data for the pre-test and post-test results have a sig value of > 0.05 . Therefore, it can be concluded that the data contained in this study exhibit homogeneous variance.

Hypothesis Testing

The purpose of hypothesis testing is to understand the average differences between the experimental group and the control group and to determine whether to accept or reject the proposed hypothesis. In this case, the researcher used SPSS 23.0 software with the Independent Samples T-Test formula. If the significance value (two-tailed) < 0.05 , H_0 is rejected, and H_a is accepted. However, if the significance value (two-tailed) > 0.05 , H_0 is accepted, and H_a is rejected. Below is a table with the results of the hypothesis testing in this study.

Control Group	Experimental Group	No.
71.48 (Pre-Test)	55.71429 (Pre-Test)	1
91.11 (Post-Test)	82.38095238 (Post-Test)	2

Table of Average Results for the Pre-Test and Post-Test for Both Groups

Two-tailed Sig (2-tailed)	Control Group	Experimental Group	No.
0.72358	91.11 (Post-Test)	82.38095238 (Post-Test)	2

Table of Hypothesis Test Results

Based on the above table, it can be observed that the significance value of the hypothesis test data for the pre-test and post-test is greater than 0.05 (two-tailed sig > 0.05), thus H_0 is accepted and H_a is rejected. This is also supported by the lower average score for the experimental group compared to the control group. Therefore, it can be concluded that the use of the Educandy application as an assessment for learning the Arabic language in the New College, Chennai is not effective.

Gain Test

Experimental Group Gain Test

$$G = \frac{P1 - P0}{100 - P0}$$

$$G = \frac{82.381 - 55.71428571}{100 - 55.71428571}$$

$$G = \frac{26.66671429}{44.28571429}$$

$$G = 0.6021516129$$

Control Group Gain Test

$$G = \frac{P1 - P0}{100 - P0}$$

$$G = \frac{91.11 - 71.48}{100 - 71.48}$$

$$G = \frac{19.63}{28.52}$$

$$G = 0.6882889201$$

Percentage Increase in Student Learning Outcomes in Experimental Classes Using Interactive Educandy Games:

$$\% = \frac{P1 - P0}{P0} \times 100$$

$$\% = \frac{26.66671429}{55.71428571} \times 100$$

$$\% = 47.8634\%$$

$$\% = 47.8634\%$$

From the results of the normal gain calculation above, it is known that the normal gain value in the experimental group is **47.8634%**.

Gain-N Effectiveness Categories

- Very effective: Gain > 40%
- Less effective: Gain 40-55%
- Effective with improvement: Gain 56-75%
- Effective: Gain < 76

Therefore, it can be concluded that the use of interactive Educandy games as an assessment for learning the Arabic language among the foundation Arabic students of undergraduate learners at the New College, Chennai is less effective.

Analysis of the Questionnaire / Survey Responses Regarding the Use of the Educandy Application

No.	Index/Indicators	Question Element/Item	Total no. of scores for each Indicator	Maximum Score for each Indicator
1	Attractiveness	1, 2, 3, 4, 5, 6, 7, 8, 17	5X9=45	21X45=945
2	Content Quality	9, 11, 12	5X3=15	21X15=315
3	Linguistics	13, 14, 15	5X3=15	21X15=315
4	Miscellaneous	10, 16, 18, 19, 20	5X5=25	21X25=525
Total			100	2100

$$\text{Percentage} = \frac{\text{Total Number of Scores}}{\text{Maximum Number of Scores}}$$

After calculating, what can be done next is interpreting the score degrees in categories as mentioned in the above table.

No.	Indicators	Question Element	Percentage	
1	Attractiveness	1, 2, 3, 4, 5, 6, 7, 8, 17	$\frac{713}{945} \times 100$	75.44%
2	Content Quality	9, 11, 12	$\frac{263}{315} \times 100$	83.49%
3	Ability	13, 14, 15	$\frac{257}{315} \times 100$	81.5%
4	Difficulty	10, 16, 18, 19, 20	$\frac{431}{525} \times 100$	82.09%

No.	Point Range (%)	Criterion
1	81-100	Excellent
2	61-80	Good
3	41-60	Satisfactory
4	21-40	Needs Improvement/Poor
5	0-20	Very Poor

Table of Criteria for Grade Interpretation

Based on the percentage results of student responses to the Educandy application, it can be concluded that the indicators for content quality, comfort, and language have a percentage > 80%, which means that these three indicators are classified as very good. Meanwhile, the "comfort" indicator is < 80%, which indicates that it is good.

Result and Discussion

The effectiveness of using Educandy in learning the Arabic language is reviewed based on the achievements of among the foundation Arabic students of undergraduate learners at the New College, Chennai. In the validity test, the testing tool obtained a score of 86%, which indicates that it is a valid test. However, there are indications of errors needing correction in some written questions due to incorrect formatting. The answers and ambiguous questions numbered 14 and 15 in the media validity test scored 68%, indicating that it is a valid test. Nevertheless, there is a suggestion for improvement that the text needs to be revised for clarity, and the color between the image and the background should be adjusted (Dwivedi et al., 2022); (Singh et al., 2023). The validity test conducted by the assessment expert received a score of 78%, indicating that it is a valid test (Fütterer et al., 2023); (Marar et al., 2023); (Masuwai et al., 2024).

Learning outcomes in this study were measured using pre-test and post-test tools that included cognitive aspects (Edison & Aman, 2024); (Nurmayanti et al., 2019). Based on the data analysis results conducted, the average score for the pre-test data for the control group students was 91.11, while the experimental group's average was 82.38095238. The data were then tested using the Independent Samples T-Test, which showed that the asymptotic significance value (0.72358) > 0.05, therefore, H_0 is accepted, and H_a is rejected.

To determine the percentage increase in student learning outcomes in the experimental class after administering the treatment using the interactive Educandy game with the gain test, it can be concluded that the result of

47.8634% indicates that the effectiveness of using the Educandy application in assessing Arabic language learning in terms of the achievements among the foundation Arabic students of undergraduate learners at the New College, Chennai is less effective. This is attributed to the limitations imposed on the Educandy application, where the question link owner/teacher does not receive a summary of student scores. Additionally, the question link owner/teacher cannot know which questions the student got wrong in their answers. As a result, students are required to take screenshots of the question type and then send them to the teacher (Photopoulos et al., 2022); (Çoban Sural & Yaşar Sağlık, 2024)..

Effectiveness of Using the Educandy Application in Assessing Arabic Language Learning Based on the Responses of the foundation Arabic students of undergraduate learners at the New College, Chennai

Based on the students' responses, the Educandy application received an attractiveness score of 75.44%, indicating that it is good. At the same time, regarding content quality, it received a score of 83.49%, while the language quality scored 81.5%, and comfort scored 82.09%. All three indicators are classified as very good. It can be concluded that the use of the Educandy application in assessing Arabic language learning among the foundation Arabic students of undergraduate learners at the New College, Chennai received a positive response (Waliyuddin et al., 2024).

Conclusion

Based on the results of the study, the use of the Educandy application in assessing Arabic language learning in terms of the achievements among the foundation Arabic students of undergraduate learners at the New College, Chennai is less effective. While the Educandy application received a good response from the students for assessing Arabic language learning, its overall effectiveness was low. This is attributed to the limitations imposed by the Educandy application, where the question link owner/teacher does not receive a summary of student scores. Additionally, the question link owner/teacher cannot determine which answers the students got wrong. As a result, students must take a screenshot of the question type and then send it to the teacher.

Conflicts of Interest

The author declares no conflict of interest.

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