

The use of a learning platform to face the challenges of the Moroccan university: Case of Rosetta Stone

Abdennour LAMHARCHI¹, Souhad SHLAKA², Samira DLIMI³

1. Faculty of Sciences, Mohammed V University. Morocco.
2. Faculty of Sciences, Mohammed V University. Morocco.
3. ENS, Mohammed V University. Morocco.

Email 1 : abdennour.lamharchi@um5r.ac.ma

Email 2: s.shlaka@um5r.ac.ma

Email 3: s.dlimi@um5r.ac.ma

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Abstract

This study explores the role of digital learning platforms in addressing the challenges of Moroccan higher education, with a focus on Rosetta Stone as a language learning tool. Drawing on active learning theories, the research evaluates how the platform supports personalized, interactive learning while considering local constraints such as massification and language barriers. A quantitative analysis was conducted with 165 university students using a pedagogical questionnaire. Findings reveal that Rosetta Stone effectively applies behaviorist, constructivist, and cognitivist principles but shows limitations in socioconstructivist and connectivist approaches due to limited social interaction and cultural adaptation. The study recommends enhancing the platform through translation options, collaborative tools, personalized feedback, and culturally relevant content to better align with Moroccan learners' needs. Ultimately, the research underscores the importance of adapting digital platforms to local contexts to foster more effective and motivating learning experiences.

Keywords: *educational technology, learning theories, national context, educational platform.*

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1.Introduction

Higher education in Morocco is a pillar of socio-economic development that occupies a central place in national strategies. King Mohammed VI gives strong importance to education and to the use of digital technologies to make it more effective. This includes using digital tools, new technologies, and online resources for teaching and learning. It's an approach aimed at improving access to knowledge, moving towards personalized learning for students, and developing their skills. The King calls for a national mobilization to support digital transformation and train generations in new technologies, so that they can adapt to changes in work and culture (Extrait du message du Roi Mohammed VI, 2001).

Since the 2000s, Morocco has launched several national strategies to integrate technologies into the education system. First, the GENIE program in 2006 aimed to modernize teaching and to train teachers and educators in digital tools. Then, the Emergency Plan (2009–2012) sought to strengthen this process by improving infrastructure and speeding up the use of technologies for teaching purposes. More recently, the ESRI Pact 2030 has focused on integrating digital technology into higher education (Diab, 2025), through the development of hybrid learning and the encouragement of innovative practices.

2.Research problem

The national higher education sector is facing many challenges that slow down the positive effect of different reforms, especially in open-access institutions, which host a very large number of students. These institutions have experienced a gap between the rising numbers of new students and the real capacity of universities. In 2024-2025, the number of students reached 1.300.000 an increase of 5.9% from the previous year (Miraoui, 2024). In addition to massification, the language barrier also makes academic integration harder, since most students enter higher education with Arabic-based education but continue their studies in French, except some specialties. “French as foreign language” is poorly mastered by a large number of students. Moreover, secondary school students enter higher education with some linguistic shortcomings. This situation leads many students to failure in higher education” (Smaili, 2022).

Nowadays, educational platforms play an important role in transforming learning into an interactive process, as they integrate adaptive learning systems that allow for a personalized educational experience. There is a close relationship between the integration of technology in education and active learning theories. Notably, the Connectivist theory; refers to a new educational approach that would adapt to online learning (Chekour et al., 2015, p.5). However, the use of such platforms must be supported by a methodological integration of these theories.

From this problem, two key research questions emerge:

- ✓ How does the educational platform apply the principles of learning theories to support personalized, effective, and motivating learning?
- ✓ What improvements can be made to the platform to enhance language learning and overcome linguistic difficulties?

Our study focuses on analyzing the Rosetta Stone platform as a tool for learning French, highlighting the importance of active learning theories. We assess its effectiveness through user experience and pedagogical criteria. The analysis shows both the strengths and limitations of the

platform, emphasizing the need for improvements to make it more compatible with active learning theories in order to strengthen student motivation and engagement.

3.Theoretical Framework

The theoretical framework of this research is grounded in major active learning theories that place the learner at the center of the educational process by valuing their participation and responsibility in the construction of knowledge.

We begin with Jean Piaget’s constructivist theory, which considers that students learn by experimenting with their knowledge. This is a promising epistemological stance from the perspective of educational technologies. It promotes tools that provide students with great autonomy and allow them to progress at their own pace (Chekour et al., 2019,p.4).

Lev Vygotsky introduced the concept of social learning through his socioconstructivist theory. He emphasized the importance of social interactions in the learning process. These interactions often involve collaborative activities, exchanges, and group discussions.

John Sweller and his cognitive theory focus on managing cognitive load to optimize learning. For cognitivists, teachers are encouraged to use digital technologies that promote strong interactivity with students. This interactivity is shown through active student engagement, immediate quality feedback, and collaborative learning (Chekour et al., 2019,p.3).

After the rise of new technologies in education, George Siemens and Stephen Downes developed the connectivist theory. For connectivists, learning exists outside the individual, highlighting the importance of networks and connections in acquiring knowledge. Learning is not limited to individual activities, but students learn through interactions made possible by networks. According to Siemens (2005), the main principles of connectivism are:

- ✓ Learning and knowledge exist in the diversity of opinions and exchanges between people.
- ✓ Learning can also exist in non-human devices, meaning that knowledge is not only stored in human memory but also in external systems.
- ✓ Learning based on maintaining connections is necessary to support continuous learning.

The combination of active theories and educational platforms leads to an experiential learning approach. According to Edgar Dale’s “Cone of Learning” (which shows the different levels of information retention depending on the learning methods used), active learning practice allows a retention rate of 75% of information (Basu, 2024, p.86). This includes practical activities, exercises, and simulations.

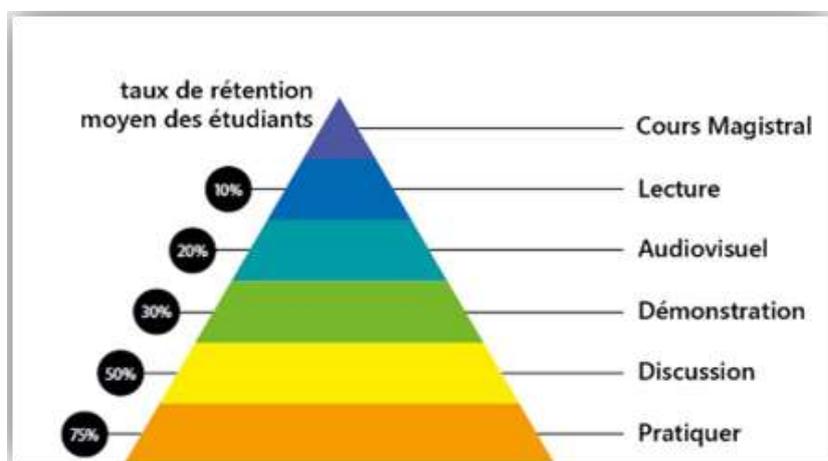


Figure1: Edgar Dale’s cone of learning

4. Research methodology

To address our research problem, we conducted a study adopting a quantitative approach to pedagogically analyze the Rosetta Stone platform. A 14-item questionnaire was administered to a sample of 165 university students who had previously used the platform. The aim was to observe how the platform's practical activities integrate the principles of active learning theories to promote language acquisition while considering the needs of Moroccan university students. The analysis also took into account the researchers' experience with the platform.

5. Rosetta Stone: Multidimensional analysis

The Rosetta Stone platform aims to improve learners' language level through a full immersion method, without using the mother tongue. It offers interactive and adaptive lessons that adjust to the user's progress, providing personalized learning. The goal is to help learners develop their skills in communication, reading, and production at their own pace, with an intuitive and individualized approach. The platform offers two courses:

- ✓ Foundations: designed for levels A1 and A2
- ✓ Fluency Builder: for more advanced levels from B1 to C1+

Access to the content requires a test to identify the learner's real level and to assign the course that matches their level and addresses their language gaps.

5.1. Foundations

The content of this product focuses on the basics of the language and is designed for beginner learners. On the interface, there is a course space made of 20 units covering different topics. There is also a reading space where learners can download stories to read and listen to, a language guide to improve pronunciation, and an audio companion to develop listening skills by hearing native speakers. The Foundations interface fully respects the principle of consistency, which is one of Jakob Nielsen's 10 heuristics for evaluating the effectiveness of user interfaces (Nielsen, 1994). The principle of consistency means that the elements of a system should appear in a uniform way, reducing unnecessary cognitive overload. Language practice is done through an immersive approach, offering activities focused on listening, reading, and writing.

5.1.1. Pedagogical Analysis

5.1.1.1. Behaviorist approach

- ✓ **Stimulus-response association:** the platform offers activities linked to images and answer elements that capture the learner's attention. In the Foundations section, the image is closely connected to the answer elements. (For example: The boy is eating; an expression linked to a person who is eating).



Figure2: Image linked to an action

✓ **Repetition and reinforcement:** During the Foundations activities, we notice that similar activities are repeated, helping the learner to strengthen memory. This repetition is also seen in a feature where, when completing an activity like dragging a label to its answer, the audio instructor repeats the sentence aloud. For reinforcement, the platform provides feedback in the form of a final score to encourage the learner to repeat the activity and achieve a better score.

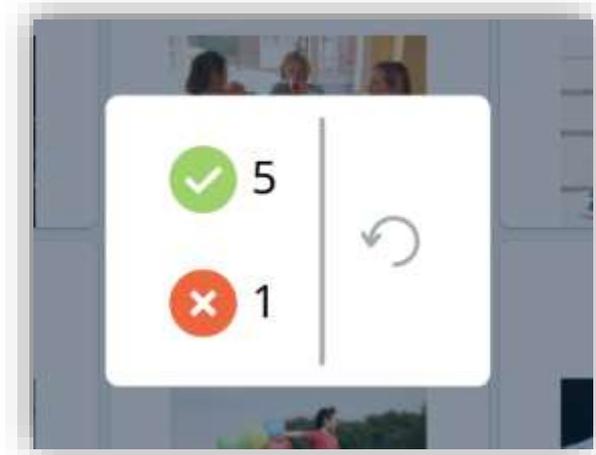


Figure3: Reinforcement by showing the final activity score

5.1.1.2. Constructivist approach

The positive part of Foundations is the variety of activities. First, for constructive learning, the course units allow learners to build knowledge step by step. Stories can be used to create meaning from context, linking the learning of expressions to narrative situations. Second, for active learning, the Foundations section includes a new “socio-constructive” element (live lessons), an important feature that gives learners the opportunity to interact directly and in real time with an instructor. For experiential learning, the Foundations part offers themes related to real-life situations (shopping, traveling, greetings, etc.).

5.1.1.3. Cognitivist approach

The positive part of Rosetta Stone in term of cognitive learning is the use of a multi-sensory approach (images, sounds, typing sentences, etc.). The platform is also well-structured, with topics organized in a gradual sequence of activities, which helps the natural process of information processing.

5.1.1.4. Connectivist approach

The presence of social interactions in Foundations confirms the principles of connectivist theory, especially the importance of connections and exchanges, allowing learners to build knowledge together while maintaining their connections.

5.2. Fluency Builder

The Fluency Builder section is characterized by rich content, covering several domains. Level B1 has 7 units, and Level C1 has 3 units (not counting additional units). A contextual difference between B+ and C1+ is that B+ focuses on common professional topics (for example, simulating hotel services) with terminology related to the specific field. C1+ focuses on more specific and specialized professional topics (for example, negotiating a contract) with vocabulary related to expert domain.

Fluency Builder has a completely different structure from Foundations. The topics are the same across levels but are redesigned for a higher level. This is seen in richer and more contextual vocabulary, including dialogues and more complex expressions. The current platform uses a more interactive approach with real-life situations. The Fluency Builder interface fully respects the principle of consistency.

5.2.1. Pedagogical analysis

5.2.1.1. Behaviorist approach

- ✓ **Stimulus-response association:** The Rosetta Stone platform presents learning activities with images linked to answer elements or dialogues. In this product, the image is initially a neutral stimulus because it has no connection with the answer elements.
- ✓ **Repetition and reinforcement:** During platform activities (for example, one activity from the B2 level unit “Practical Communications”), we notice a listening exercise that repeats. This is the behaviorist principle of repetition, which helps strengthen long-term memory. The more an activity is repeated, the more it is stored in the learner’s memory.



Figure 4: Listening activity



Figure 5: Repetitive activity

5.2.1.2. Constructivist approach

- ✓ **Active learning:** One of the strengths of the platform is active learning through a variety of activities (listening, writing, dragging labels to answers) that help learners avoid boredom.
- ✓ **Experiential learning:** The platform offers realistic learning situations based on context, for example, units related to professional activities (when the learner acts as a store salesperson). This means activities are sometimes grounded in real-life contexts, helping learners transfer knowledge to daily situations.
- ✓ **Autonomous and flexible learning:** The Rosetta Stone platform allows learners to progress at their own pace without time constraints. Users have full freedom to choose units and lessons according to their interests.

The negative part is the absence of *socio-constructive* activities. Unlike Foundations, which encourages exchanges and collective knowledge building through live lessons, Fluency Builder uses a more individual approach without interaction between learners and instructors. It remains more behaviorist rather than socio-constructivist.

5.2.1.3. Cognitivist approach

The Rosetta Stone platform uses several methods to stimulate cognitive processes. First, it uses elements such as images, sounds, and colors to stimulate the learner’s visual perception. Then, it offers a variety of activities to reduce the feeling of monotony. The platform fully supports the cognitive approach by engaging the key mental processes of language learning through:

- ✓ **Active information processing:** The activities present complex information in the form of fast dialogues, texts, and simulation videos. This pushes the learner to react immediately, make quick decisions, and stay involved in the learning process. The combination of audio

and visual elements immerses the learner in real-life situations, where they do not just memorize passively but participate actively in the educational process ("Mieux apprendre grâce à l'apprentissage actif," 2024).

- ✓ **Organization of cognitive schemes:** The Rosetta Stone platform organizes cognitive patterns through an immersive and multisensory approach. This approach aims to immerse the learner in realistic situations using active learning elements, helping them develop their skills in almost real-life contexts (Mazenc, 2024).

5.2.1.4. Connectivist approach

The Rosetta Stone platform, while effective for constructive and individual learning, limits the integration of connectivist principles because of the lack of social interactions and access to external resources.

6. Conclusion

Based on our analysis of the different products and elements of the Rosetta Stone platform, it is clear that it uses an immersive teaching method that combines three main active learning theories. The behaviorist approach is very present through stimulus-response association and repetition. The constructivist approach appears in realistic learning situations and gradual knowledge building. The cognitive approach is also used with visual and audio elements that help learners process and remember information. However, the connectivist approach is missing in the Fluency Builder section and less present in Foundations. The platform focuses on individualized learning but does not give enough space for collaborative work in a socio-constructivist perspective.

In general, Rosetta Stone is a platform that is very strong in immersion and progressive learning design for individual learning, but it could improve by adding more collaborative and interactive learning dynamics, and by reducing the strong behaviorist aspect to provide a more complete learning experience.

- ✓ **A mainly behaviorist approach:** learning relies too much on repetition and stimulus-response, which can make learners feel bored or discouraged because of the excessive repetition, even if the activities are varied.
- ✓ **Strictly immersive approach:** the activities use only immersion, without any translation help. This can be a problem for learners who need more understanding.
- ✓ **Completely learner-centered design:** the lack of social features, especially in Fluency Builder, can make learners feel isolated, which goes against the socio-constructivist theory that sees social interaction as essential for learning.
- ✓ **Limited feedback:** feedback is mostly text-based or scores, without detailed explanations of mistakes or suggestions for improvement.
- ✓ **Cultural sensitivity:** in some learning situations, we noticed the use of terms that do not match the cultural references of Moroccan learners, which can make the learning experience less relevant to their cultural reality.

6. Recommendations

Based on the limits observed in the two Rosetta Stone products, we propose some suggestions to improve the platform's performance:

- ✓ **Applying multidimensional learning approaches:** the platform could include different learning strategies and avoid relying too much on the behaviorist theory, so that learners do not feel stuck or bored with repetitive and monotonous activities.

- ✓ **Dynamic adjustment of difficulty:** the platform could offer levels of difficulty that automatically change according to each learner's skills, ensuring faster progress during moments of stagnation when repetition is still present.
- ✓ **Making immersion more flexible:** the platform could allow learners to turn on subtitles or translations when they need them.
- ✓ **Developing social learning:** the platform could add social features such as discussion forums, exchange groups, etc., to encourage interactions between learners of different levels and promote collaborative learning.
- ✓ **Improving feedback quality:** the platform could provide more detailed and personalized feedback, explaining mistakes and suggesting ways to improve.
- ✓ **Adapting content to the cultural context:** the platform should provide content that matches the Moroccan cultural context, adjusting vocabulary and topics to the real level of Moroccan learners.

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