Proposal for a Transformation Project in Higher Education to Reinforce Foreign Languages Using the Design Thinking Method

Mounia Amazian, Jalila Ait Soudane, Maryem Rhanoui and Kamelia Amazian

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M Amazian[1], J Ait Soudane[2], M Rhanoui [3] and K Amazian[4]

[1] Research Laboratory in Management Sciences, Mohammed V University of Rabat, Morocco
[2] Research Laboratory in Management Sciences, Mohammed V University of Rabat, Morocco
[3] Meridian Team, LYRICA Laboratory, School of Information Sciences, Rabat, Morocco
[4] Higher Institute of Nursing Professions and Health Techniques-Fez/Laboratory of human pathology, Biomedicine and Environment, Faculty of Medicine and Pharmacy, Fez, Morocco

E-mail: mouniamazian@gmail.com

Abstract. In this new civilization marked by uncertainty and competition, transformation has become a new rule. It provides new solutions which integrate digital technology and change the way things are done. It is in this context that we propose a project of transformation, or even innovation, in the academic environment and more particularly in Moroccan universities. It is about presenting a solution to a problem encountered in higher education, which is the difficulties in foreign languages, that negatively impact the whole learning process. Through this work, we present a creative project based on the design thinking method, with the development of a digital platform solution, based on Artificial Intelligence for the profit of students. Throughout the apprehension of this project, the design thinking method allowed to bring out new ideas to improve the student's experience in the field of foreign language training. Several tools were developed: use case map, value proposition canvas, teast and learn card; etc. A prototyping is in progress with several steps including the introduction of the project to stakeholders; a campaign for student involvement and the conception of a digital platform for foreign language training. Our project can be of over-reaching importance. For Moroccan universities, through an increase in the abilities of their students, and consequently a greater international influence. The gains will also be numerous for the students currently in difficulty ; a boost to their language level and a success in their academic career and later in their professional career.

Research Contribution: This work adopts an innovative scientific approach based on the use of artificial intelligence in strengthening foreign language proficiency. In practice, our research will contribute to improving the academic level of Moroccan students; and at the same time strengthen the influence of the Moroccan university and its competitiveness.

Keywords: *transformation, design thinking, Moroccan students, foreign languages, digital platform*

1.Introduction

In a context where innovation is progressively imposed in almost all fields and in all types of organizations, the academic field is no exception. Higher education and research institutions are called upon to evolve their practices and meet the new aspirations of Generation Y. The current challenges essentially consist to the appropriation of new teaching methods based on innovation and artificial intelligence. Higher education is confronted with fundamental new trends, particularly those related to the integration of digital practices.

It is in this context that our project takes place. It is an innovative approach in the academic context of higher education in Morocco, its objective is addresses a deep need of the university; which is Moroccan students' struggle with foreign languages.

Many creative methods could be mobilized to develop and manage this project. The Design Thinking method stood out because it combines creativity and proposal of a solution in prototyping logic [1]. Thus, this work presents the stages of the project and the contributions of this approach (Design thinking) from the analysis of a real experimentation with Moroccan university students. It is about experimenting, around a project, the Design Thinking method, to solve differently [2]

The problematic addressed in this research is the following: Why should we conduct a transformation project in the Moroccan university? What exactly do we want to solve? To which extent can the design thinking method help us to carry out this transformation project?

In order to answer these questions, the article is structured in two parts. The first part presents the context of the project, and exposes a problem experienced in the academic environment, which are the difficulties in foreign languages. The second part presents the project process based on the design thinking method.

2. Context of the project

It is about observing the field we want to explore, analyzing the problems and identifying the blocking points, while identifying the resources that will allow us to go further and propose an innovative solution.

2.1 A transformation project in the academic field

Let's start by defining what a transformation project is; it is not a personal transformation project (career development, change of jobs, development of new skills), nor a simple change in management (adaptation to new software, change of offices, reorganization of the service). It is rather "*a transformation of the business model, of the activity or of the way of doing business*"[1].

Our transformation project will be carried out in an academic environment, that is, the Moroccan university environment where the majority of students are confronted with difficulties in foreign languages, in particular French, the main language of instruction. Faced with these problems of comprehension and especially of communication encountered by the students within the frame of their learning, an upgrade is essential.

In order to approach the problem, an interview was conducted with students of the economics/management branch of the Faculty of Legal, Economic and Social Sciences of Agdal, Mohammed V University of Rabat. The results of the study revealed that the source of the problem can be traced back to a failure in the learning of foreign languages during primary, middle and high school. The learning of French begins in the third year of primary school and the amount of time devoted to it is insufficient. It should be noted that the situation is even more unfavorable for English, which is not taught until high school. The sample of students we interviewed came from public schools. These students have received all their education in Arabic. Now at the university, they switch completely to learning in French. As a result, they face daily obstacles in their classes. They risk encountering great difficulties, even failure in their search for an internship and first job. This has a negative impact not only on the student's academic career and subsequent professional career, but also on the success rate and reputation of the university.

Difficulties in foreign languages are therefore a real obstacle and even a handicap for university students.

Therefore, in the framework of this project, our transformation challenge is how to encourage students from their first admission to the faculty to the importance of foreign languages in their academic and professional careers.

2.2 The five whys method

The "five whys" tool is the basis of a problem-solving method. It allows the identification of the root causes of a problem. It was invented in the 1930s by Sakichi Toyoda[2].
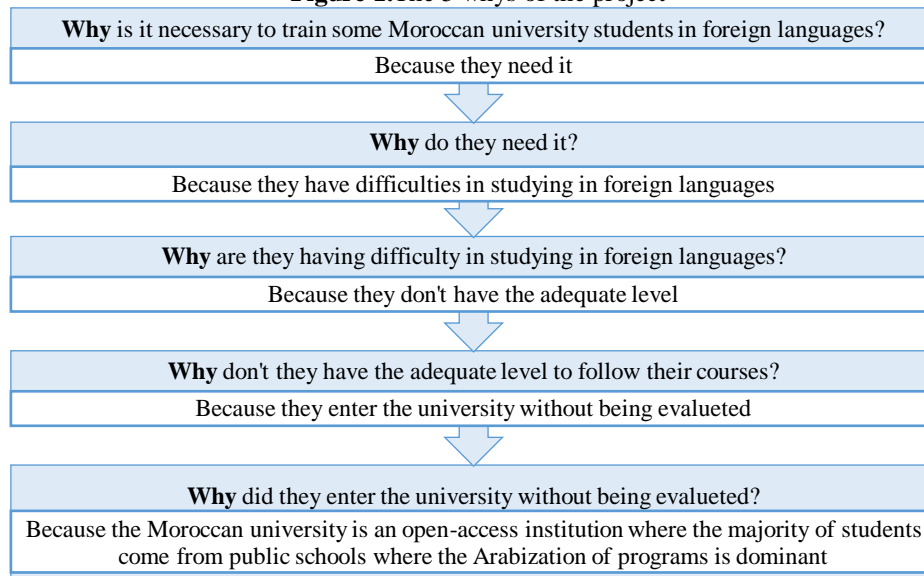
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[1] By Dejoux and Gréselle-Zaïbet during a workshop about a transformation project in his company, CNAM Paris (2022).
[2] The founder of Toyota.

According to Taiichi Ohno[3], the 5 Whys method is "*The basis of Toyota's scientific approach is to ask yourself five times why each time you encounter a problem... By repeating why 5 times, the nature of the problem and its solution become clear*". It consists of asking the question why 5 times to get to the source of any problem and find an appropriate solution. This method, which was originally developed for the optimization of industrial processes, is proving to be useful in all other fields.

In figure 1 below, we will apply the method of 5 to the problem we wish to solve, namely the difficulties in foreign languages experienced by Moroccan students.

Figure 1. The 5 whys of the project

Why is it necessary to train some Moroccan university students in foreign languages?
Because they need it

Why do they need it?
Because they have difficulties in studying in foreign languages

Why are they having difficulty in studying in foreign languages?
Because they don't have the adequate level

Why don't they have the adequate level to follow their courses?
Because they enter the university without being evalueted

Why did they enter the university without being evalueted?
Because the Moroccan university is an open-access institution where the majority of students come from public schools where the Arabization of programs is dominant

Source: Authors' elaboration

3. Process: Innovating with Design thinking

Design thinking [3] has been the subject of much reflection and theoretical work [4]–[6]. Although it is not a new concept, it is only recently that it has found its place in the management science literature.

Simon in 1996 was the first author to introduce the concept of Design as a way of thinking [7]. According to him, "*Design Thinking is a process for practical, creative solution of problems or issues that looks for an improved future result*" (Simon, 1996, p.55) cited by [2]. The popularity of the concept of Design Thinking is consistent with the emergence of concepts such as "open innovation" [8] and "user-driven innovation" (Von Hippel, 1988) cited by [3]. Design Thinking has developed in particular to respond to the complex and open-ended challenges faced by contemporary organizations [4]. Indeed, it is a problem-solving and human-centered innovation method that articulates analytical and intuitive thinking [6]. It thus allows learning by doing and requires understanding the motivations, needs and context of the actors involved [2].

While traditional project management is a linear process that emphasizes planning and is punctuated by the decisions of a steering committee, design is, an iterative process, which emphasizes creativity and consists the production of an abundance of field-tested solutions [9]. It allows the manager to think differently, to learn new ways of thinking, to discover creative tools, to follow other views, to dare to suggest and test unfinished solutions [10]. Let us recall that in this research, Design Thinking is mobilized within the framework of an innovation project in the Moroccan university, the objective of which is both to reflect collectively and in a project team, around the problem of foreign language difficulties encountered by students but also to find a solution.

3.1 Observing with empathy

Design Thinking aims to organize its solutions around humans, whether they are users or consumers. Because of this, it is essential to empathize with them, to observe them and put yourself in their shoes, in order to see things

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[3] Father of the Toyota Production System

from their point of view, to think about how the proposed solutions can be concretely integrated into their daily lives [10].

To do this, several tools can be used: empathy map, mental matrix, place-links-cluster, user journey map (experience map) and identification of pain points (blocking points), storytelling, storyboard. For our project, we will rely on the empathy map, which allows us to put ourselves in the shoes of the user to understand their current experience and the context of the problem. In our case, it is about putting ourselves in the student's shoes. For each section of the map, the project team answers empathy questions, each idea is noted with a keyword. It then synthesizes the problems and needs of the user.

Figure 2. Empathy Map

Source: Author's elaboration

3.2 Thinking about the solution: ideating

"*To have a good idea, you must first have many* ideas[4]."

At this stage, we will generate as many ideas as possible to solve the problem, moving from "how to do" to "why to do" [10]. For this, we will use the Value Proposition Canvas (VPC), use case map and business model canvas.

3.2.1 Value Proposition

The Value Proposition Canvas (VPC) is used to select the most promising ideas in order to define the most appropriate solution to overcome the challenge. The VPC was first created by Yves Pigneur with the goal is to teach entrepreneurs to develop product offerings that match consumer (user) expectations [11].

The value proposition canvas is broken down into two blocks:

-The consumer profile - where we need to clarify our understanding of consumer/user needs.

-The value map - where we need to describe how we will create value for consumers/users (students in the case of our project).

Thus, the Value proposition canvas of our project is as follows:

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[4] Linus Pauling, Nobel Prize in Chemistry, 1954

Figure 3. Value Proposition Canva
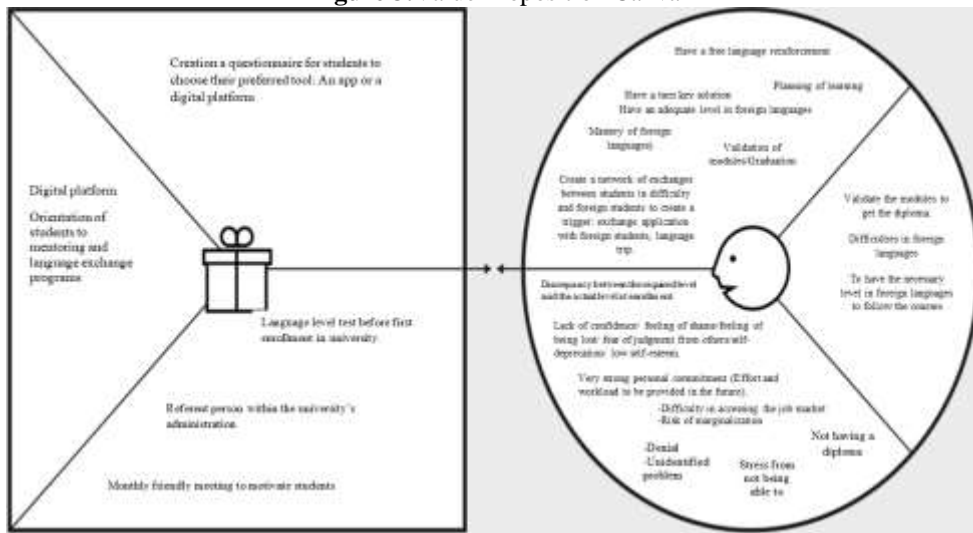
Source: Author's elaboration

3.2.2 Use Case Map

Always in a logic of ideating and thinking about solution, the use case map allows to consider the scenarios by the users in order to identify what it is necessary to put in place. It allows to reason about the potential undesirable interactions of the various elements of the main scenario in normal case) and alternative (in case of a technical problem for example). Each use case is represented by a sequence of simple steps, starting with the user's objective and ending when this objective is reached. The Use case Map presents the solution step by step to a potential tester for feedback. The diagram can be presented as a tree, a story board, a timeline…

Figure 4. Use case map of a digital language learning platform
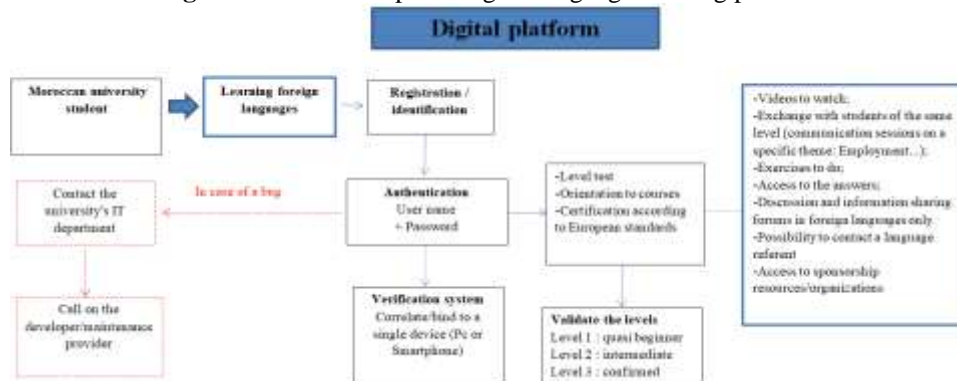
Source: Author's elaboration

The solution we propose is an online foreign language learning platform, which provides free language courses to Moroccan university students in the form of games, scenarios, videos and a part in the metaverse. It is therefore a digital solution, fun and free, partially inspired by Artificial Intelligence, whose instructions are easy, simple and the interface is intuitive, easy to access and use both on the smartphone and computer, where students will learn without realizing it an entertaining way. In addition, they will have the opportunity to exchange with each other and with foreign students in the framework of university sponsorship. And this, in a collective dynamic.

At the end of the training, they will receive a certification according to European standards, which grades their acquired level.

The use of the platform will include four important steps:

✓   Authentication: allows to prove and establish the identity of the student user, which is done by inserting his username and password.

✓ Level test: after authentication and a brief presentation of the platform, the student will be directed to a level test in order to know their level French for example, the levels will be as follows
Level 1: quasi beginner
Level 2: intermediate
Level 3: advanced
After taking the test, the student is directed to the course that corresponds to his level.
✓ Course follow-up: this is the phase that corresponds to the training, where the student will be asked to do grammar and vocabulary exercises, watch videos, exchange with students of the same level, and have the possibility of contacting a linguistic referent. In addition to access to resources/organizations that offer mentoring.
✓ Evaluation and certification: The last step of the course is a progressive evaluation towards certification. The language teachers, who teach in the sections of the Moroccan students concerned, will be directly informed in an Excel table of the evaluation of the new level of these students in question.

3.2.3 Business Model
It is about transforming the value proposition into a business model. It is a tool that enables us to describe the economic model, or business model, in a clear and simple way. The method was developed in the book "Business Model New Generation" by Alexander Osterwalder and Yves Pigneur. It allows to represent in a single page, through a canvas, the entire business model. Once completed, it allows to define the priorities by showing the needs, the steps to be taken and the areas for improvement. This tool is an answer to the questions: How did you analyze your needs to make your project feasible? What are the elements necessary for the transformation?

Table 1. Business Model

Key Partners	Key activities	Value Propositions	Customer relationships	Customer segments
-Teaching Staff -Department Heads -Developer (application/platform provider) - Referring person -Maintenance provider: Maintenance company -IT service (interface between the university and the provider: identify problems) -Master and PhD students with advanced level (tutoring) -Ministry of Higher Education, Scientific Research and Innovation -Ministry of Digital Transition and Administration Reform -Ministry of Labor and Professional Integration -CNRST -ANAPEC -North-South partnerships -International donors (United Nations, European Union, UNESCO, AFD) -Banks (national and international)	Foreign language learning via digital tools	-Digital platform -Orientation of students to sponsorship and language exchange programs	-Awareness -Communication -Accompaniment and follow-up by the university (Guarantee the progress of the students on the platform / follow their progress) -Mentoring (coaching) -Referent person: intermediary between the student and the university / spokesperson of the university. -Support of tutors: punctual support by master and phd students	Moroccan university student
	Key resources		**Channels** -University	

	-Computer science license -Educational resources: course materials, videos, quizzes, MCQs, bibliography -Collection of investment funds: banks, organizations		website -Social networks -Information emails and reminders -Forums -Conferences -Convivial meetings -Induction (integration) meetings -Media -Press -Flyers/Posters	
Cost structure -Creation of the platform -IT maintenance of the platform			**Revenue streams** Non-profit activity	

Source: Authors' elaboration based on Strategyzer[5] canvas

3.3 Prototyping the solution

The fourth step of the Design Thinking method is rooted in experimentation, with prototyping, in order to test the feasibility of the collectively imagined idea *[10]*. This involves prototyping, sketching, mocking up, modeling or building, which accelerates the progress of the project and allows for the exploration of several ideas in parallel. To this end, we are going to identify what we are going to do to make the prototype. To see how to validate our prototype in the best conditions and in the shortest time. We will use the the Progress Board, which is a good tool for visually planning and tracking experiments - testing and validating hypotheses - so that decisions are made on validated information, rather than on untested assumptions

We would like to point out that this is not a real prototyping, but rather an apprehension, a prototyping scenario.

Table 2. Progress Board

Business hypotheses	**Backlog**	**Build**	**Measure**	**Learn**
H1 : To make our transformation project work, we will need to identify the needs of students in foreign languages.		Dissemination of survey results	Analysis and treatment of the survey data	Survey conducted among students
H2 : In order for our project to be successful, we will need to discuss with the sponsoring organizations	Meetings with the said organizations			
H3 : For getting our solution to work, we will need to define the content of the training	-Professor meetings -Meetings between professors and students			
H4 : For the solution to work, it will be necessary to define the appropriate outreach medium	-Sending a questionnaire to students by SMS or Mail			

[5] Firm founded by Alexander Osterwalder; Swiss author and entrepreneur. With Professor Yves Pigneur, he co-authored the book Business Model
Website: https://www.strategyzer.com/canvas/value-proposition-canvas

H5 : For the proposed solution to be successful, the awareness campaign will need to be well prepared prior to its launch	- Creation of the flyer, the informative poster of the platform, the band for the university's website			
H6 : To make our project work, we will need to design the digital language learning platform and request detailed quotes	-Calling on a development service provider -Calling upon a web designer			
H7 : For the project to work, it will be necessary to have a sample of students test the platform and observe their interactions with the proposed tool	-Observation technique -Recording reactions and interactions between students			
H8 : In order for our project to be successful, we would need to collect the problems encountered during the simulations as well as the students' suggestions.	During the test, complete the Scrumblr and AnswerGarden			
H9 : For our project to work, we need to define the areas of improvement in order to validate the feasibility of the project	Organization of focus groups			

3.4 Experiment with solution

When a prototype is tested, the comments and reactions of users or consumers provide information that can be used to imagine new, unsuspected uses that are much more promising and profitable.

It is in this sense that the Test & learn card tool allows you to test and collect feedbacks to adjust and adapt your solution to the greatest number of people. It allows you to answer the key question: does our solution solve the initial problem? Is our solution viable?

To do this, you need to fill in the hypotheses that you want to confirm or refute through the test.

Table 3. Test and Learn Card

HYPOTHESES AND TEST PREPARATION **During the test, we want to verify the following hypotheses:** - That the students do not have any authentication problems to rule out purely technical problems, - That the students navigate the interface easily, - That the platform is easy to access and use, - That the instructions are easy to understand, - That the students understand what they have to do, - That they find pleasure while being present on the platform. **To do this, we will ask the tester the following questions:** - How do you find the platform's interface visually? - How do you find the platform on the functional level? - How easy is it to authenticate yourself? - Is the application easy to use? - Are the instructions clear? - Is the interface intuitive? - What kinds of exercises are you most comfortable with? - Which exercises do you prefer? - Is the percentage of games on the platform sufficient? - Would you like to see more conventional exercises (e.g. fill-in-the-blank)? - Did the platform help you acquire new vocabulary? - Do you feel more comfortable with grammar and conjugation now? - Did you use the lexicon?

3.5 Realize (embark to transform)

This step is fundamental. It is a result of the previous steps. We have brought all the actors around the table from the beginning of the process. Once we have obtained a prototype and it has been tested, it is ready to be produced and used. Indeed, from the ideation stage, all the actors - from the user, to the supplier, to the collaborators, designers and producers - have thought together about the solution through these five stages.

The "Engagement Plan" tool identifies the involvement of project stakeholders, based on their needs, expectations, interests and potential power and impact on the success of the project.

Table 4.Engagement plan

Engagement stakeholders	Potential impact	Power	Interests	Expectations	Needs
University professors	Pedagogical follow-up	Proposing the content of the training	Helping students and getting them to succeed	Assistance in developing awareness-raising content	Consciousness of the student's pedagogical progression by level on the platform until certification.
Heads of Departments	Follow-up of the project	Organization of conferences, meetings and awareness sessions	Discovery of the investment of the young people in the project: the students learning in bachelor + the master students.	Collection of student certification results at the end of their training	-Success of the sensitization campaign -No student resistance to change -The training takes place in good conditions
Presidency of the University	Monitoring of awareness and choice of information channels.	-Ensure cooperation with other French universities. -To put in contact and control the services concerned by the project.	-improve the level of students enrolled in the institutions affiliated to the University . - International cooperation	-Increase the success rate of university students -Decrease the dropout rate -Allow for an increase in student skills -Potential inter-university cooperation -Increased reputation of the university	-Consciousness of the impact of the project on the success of the students involved -Impact on the reputation of the university
University IT Service	Budgetary follow-up	Intermediary with the platform's provider	Addressing technical problems	-No connection problems -No technical problems	Easy manipulation of the interface by the students
Ministries/agencies	Monitoring results	Give approval to launch the project	National and international partnerships	Enhance the level of higher education	Consciousness of the impact of the project on the success of the concerned students

Source: Author's elaboration

4. Conclusion

The present research is based on a transformation project, in Design Thinking method, intended for Moroccan universities around the problem of difficulties in foreign languages encountered by students. Throughout this article, we have presented the different stages of the project that allowed us to carry it out in the field.

As academics, our role is to accompany the students towards fulfillment and success, to mentor them to become good actors of tomorrow. So we thought about developing a simple, efficient and internal solution, free, fun and accessible wherever you are, with adapted learning levels: a linguistic platform that will lead students to an internationally recognized certification.

Cooperation with foreign universities within the scope of a sponsorship will have a great added value for a sustainable implementation of the program. These partnerships will also allow the progressive inclusion of other foreign languages in the platform.

The gains will undoubtedly be numerous for the students currently in difficulty, namely: a free reinforcement of their level in foreign languages, a validation of the modules/obtaining a diploma; a successful academic career and the possibility of continuing long studies; a better socio-professional integration; an easier opening to the professional integration; an easier opening on the international scene.

Also, the project will be of great importance for the academic institutions because that will be an increase in student competence and a better success rate. This new situation will contribute to the influence of the university and a greater competitiveness.

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