

*Unheard Voices: A Narrative Exploration of Moroccan Science Learners' Experiences
With French-Medium Instruction Policy*

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Abstract

Claiming the 'failure' of the Arabicization policy adopted a few years after independence, the Moroccan Ministry of Education decided in 2019 to officially reintroduce the French language as a medium of instruction (FMI) for science subjects. This decision ignited a tense debate about languages in the country especially among politicians. In this very polarized political debate, the educational facet was eclipsed and learners' and educators' voices remained largely 'silenced'. This study seeks to break this silence by giving students a voice. Taking a narrative approach, it aims to reveal how language beliefs shape students' experiences in FMI science classes. To that end, fifteen high school students were asked to write narratives about their experiences of learning science in French. The dataset was analysed using inductive thematic analysis. Three central intertwined themes were identified: (a) ambivalent language ideologies; (b) FMI as opportunity; and (c) FMI as hurdle. The results indicate that students are ambivalent about their experiences with FMI policy, in that, they see it as both an occasion to hone their language skills, but also as a barrier to learning science. The study concludes with implications for language policy decision-makers and educators.

Keywords: Language Policy, Narrative Inquiry, Experiences, Beliefs, Language Ideologies, French-Medium Instruction

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Introduction

Recently, Moroccan Ministry of Education has claimed that the Arabicization policy, which was implemented since the 1960s, has ‘failed’. This claim was substantiated by a series of educational reports and evaluations. In 2014, the Higher Council for Education, Training and Research (CSEFRS) conducted an assessment of the implementation of the National Charter for Education and Training¹ (NCET) and it concluded that the public education system still suffers from several serious dysfunctions. Ambiguity in language-in-education planning was identified as one of these persistent problems. Based on the results of this report, CSEFRS (2015) proposed another reform named “A Strategic Vision of Reform 2015-2030” (SV). Echoing the Charter, the SV proposed a new language policy called ‘Language Alternation’ as a new strategy to promote the acquisition of foreign languages. The new policy recommends teaching scientific and technical school subjects through French as a medium of instruction (FMI). Despite the heated debate instigated by this language policy, it was eventually turned into a law in 2019, known as the Framework Law 51.17.

As is the case with most language policies in Morocco, FMI policy took a top-down approach to educational reform. The voices of the major stakeholders, such as students, were not integrated into the decision-making process. Instead, their *voices* were monopolized by ideologically motivated political agendas. Students’ readiness and proficiency were not evaluated, nor were their language beliefs gauged before implementation. Learners’ beliefs about medium of instruction (MoI) are generally investigated to highlight the impact of the medium used on learning (e.g., Macaro & Akincioglu, 2018). They are also utilized as a lens to gain insight into the process of language policy implementation (LP) and sometimes to uncover the language ideologies held by learners (e.g., Sung, 2022).

Grounded in the conceptualization of language policy as *experiences* (Shohamy, 2009), the present study explores how Moroccan science students’ experience the FMI policy in public secondary schools. It takes a narrative approach to data collection and uses thematic analysis as an analytical tool (Braun & Clarke, 2006). Ontologically, this study is underpinned by a critical realist understanding of reality (Maxwell, 2012; Willig, 2021) and an experiential orientation to data interpretation to preserve the meanings ascribed by students to their experiences. The study attempts to answer the following research questions:

1. How do Moroccan public secondary school science students experience FMI policy?
2. What beliefs and language ideologies do they hold regarding FMI policy?

Theoretical Framework

1. The Construct of Beliefs

Beliefs have emerged as a pivotal area of focus in educational research because of their explanatory potential in relation to various aspects of the teaching and learning processes. Fenstermacher’s prediction that beliefs will become the “most significant construct in educational research” (Pajares, 1992, p. 329) has, indeed, come true. A growing interest in demystifying both teachers’ and learners’ beliefs yielded scholarly insight into a multitude of education-related phenomena, such as motivation, comprehension, and self-efficacy to name but a few. Beliefs, however, are defined in different ways. Still, as Skott (2013) notes, most

¹ National Charter for Education and Training (NCET) is a reform document that was drafted in 1999. Its objective was to overcome the crisis in the education system.

definitions of beliefs share “a common core”. In his oft-cited article, Pajares (1992) defines beliefs as “an individual's judgment of the truth or falsity of a proposition” (p. 316). Richardson (1996) states that beliefs are “psychologically-held understandings, premises or propositions about the world that are felt to be true” (p. 103). Beliefs are also defined as “relatively stable, value-laden, mental constructs, which carry a subjective truth value” (Skott, 2013, p. 548). Of interest to us here is the common denominator of these conceptualizations of beliefs, i.e., the assumptions individuals make about the world of experience are *subjective* in nature. It is worth noting that language beliefs and language ideologies are used interchangeably in this study.

2. Language Policy as *Experiences*

In the present study, language policy (LP) is conceptualized as ‘*experiences*’ (Shohamy, 2009). This approach foregrounds the way individuals experience the effects of language policies in their daily lives (Shohamy, 2009). Research taking a similar approach to LP is now abundant and methodologically diversified (e.g., Johnson, 2009; Tollefson, 2006). Following Ricento’s (2000) three-phase account of language policy and planning (LPP), LP as ‘*experiences*’ approach can be contextualized within the third phase of LPP’s theoretical trajectory. This third ‘*wave*’ (Johnson, 2016) shifted focus to language practices at the micro-level and highlighted the experiences of local agents at the bottom of the LP structure. The concerns in this new humanist tradition are social justice and linguistic rights.

According to Shohamy (2009), shedding light on the experiences of policy subjects is one way to uncover the ideologies that undergird LP, and in so doing “prevent unjust applications of LP within societies” (p. 187). Achieving this goal means that “valid” LPs can be formulated and, therefore, more “linguistic victims” are saved (Shohamy, 2009, p. 188). The value of such an approach resides in its ability to bring the human dimension to the fore in LP design and make the *muted* voices of local agents dwelling at the bottom of the LP structure heard. Shohamy (2009) notes that personal experiences went unnoticed in earlier LP research. She writes:

Personal experiences have rarely been viewed as part of the domain of language policy, which has traditionally maintained a bureaucratic blindness to, and a detached perspective on, how people experience policies driven primarily by political, national, educational and economic ideologies. The human and personal dimensions have been overlooked or ignored, as though language policies occurred in a personal vacuum. (p. 185)

By taking this approach, Shohamy postulates, researchers will be able to highlight the tension between policy and practice.

Review of the Literature

Research on learners' beliefs about MoI has been conducted in diverse contexts and educational phases. Studies have employed a range of perspectives and methodologies to investigate these issues. In the context of higher education, various beliefs regarding foreign MoI, such as English, have been identified among learners. Both positive and negative beliefs have been reported. For example, learners believe that English-Medium Instruction (EMI) can enhance their English language proficiency (Lee et al., 2021; Macaro & Akincioglu, 2018; Rowland & Murray, 2020). Conversely, other studies have reported that while students

are satisfied with EMI classes, they do not believe that such instruction significantly improves their English language proficiency (Kym & Kym, 2014). Other studies found that foreign MoI is perceived to enhance future work and study opportunities abroad (e.g., Jiang & Zhang, 2019).

In the context of secondary education, although foreign MoI is claimed to impede the acquisition of scientific knowledge (Pun et al., 2022), highly motivated students typically hold positive beliefs about L2 MoI and are generally unconcerned about any potential disadvantages (Paulsrud, 2016). These students view the use of L2 medium as an opportunity not only to learn but also to have fun (Paulsrud, 2016). Limited proficiency in MoI, however, can hinder classroom interaction (An & Thomas, 2021; An et al., 2021). This explains why less proficient students usually express the need to integrate L1 as an instructional strategy since they believe it can reduce anxiety and help overcome comprehension difficulties, particularly in science classrooms (An & Macaro, 2022). Yet, they are aware that L1 integration should be used in controlled amounts (Pun et al., 2022).

In the Moroccan context, we could not identify any studies that operationalized the notion of ‘experiences’ to examine science learners’ language beliefs and ideologies. Instead, previous studies either focused exclusively on language attitudes or used the concepts of attitudes and beliefs indistinctively, overlooking the fact that they are theoretically dissimilar (e.g., Fishbein & Ajzen, 1975). Recent empirical studies that investigated language attitudes in Morocco are reviewed below with a focus on the French language.

Marley (2004) found that although Moroccan students preferred bilingual (Arabic-French) education, they still viewed French as a ‘vital’ language for its instrumental benefits. Similarly, Bouziane (2020) reported that both tertiary and high school Moroccan students had positive attitudes towards all languages, mainly for instrumental and integrative motives. Moroccan students tended to associate French with modernity and openness, showing the ideological nature of their attitudes (Chakrani, 2011). Social factors such as class were also found to influence learners’ attitudes as upper- and middle-class students showed a preference for French to the detriment of other national languages (Chakrani & Huang, 2014).

Research shows that the French language in science disciplines poses problems for Moroccan learners. For instance, Bouziane & Rguibi (2018) found that French was the major reason why freshmen science students switched to literary streams. French is also found to cause content comprehension problems. In this regard, kaddouri (2018) reported that over 85% of BIOF² students found difficulty in understanding content taught in French. This was mainly due to science students’ limited technical language repertoire (Lahlou, 2018). Moreover, although the use of French in the science classroom exposed learners to scientific discourse, many students failed to produce and master discipline-specific discourses (Ait Sagh, 2022).

The studies discussed so far have used mainly quantitative methods and none of them explored learners’ *experiences* with MoI policy through narratives. This study aims to address this conceptual and methodological lacuna by prioritizing students’ personal experiences with FMI in science classes. By doing so, it aims to provide a deeper

² BIOF: International Baccalaureate-French Option (Baccalauréat International- Option Français) is a stream of study that was introduced to high school back in 2013-2014 school year.

understanding of Moroccan high school science students' language beliefs and show how they affect their views about FMI policy.

Methodology

1. Participants

Moroccan High school science students (N = 15) participated in this study. All students belonged to the same high school and they were recruited randomly. They belonged to the same age group (16–17-year-old) and were all at the same school level (1st-year Baccalaureate). Students were briefed about the aims of the research and their consent for participation was obtained. The names used in the analysis to refer to participants are all pseudonyms.

2. Data Collection

The narrative approach was used as a data collection method. Participants were asked to write a narrative account about their *experiences* with FMI policy. To make the writing process less daunting, no page limit was imposed. The following prompt questions were provided to help students produce their written accounts:

- What are the challenges that you face in studying science subjects in French?
- What is the positive/negative impact of FMI policy on your studies?
- How do you evaluate your overall experience of studying science in French?

In this study, we use the term *narrative* in a general sense, i.e., an account of a lived experience “written in essay form” (Polkinghorne, 1988, p. 13). Initially, it was not part of the design of this study to make students produce narratives that display a clear “organizational scheme expressed in story form” (Polkinghorne, 1988, p. 18). Put differently, most of the written accounts produced did not have a clear ‘plot’, however, some of them did have a temporal structure within which students’ experiences were framed.

3. Data Analysis

Thematic analysis (Braun & Clarke, 2006, 2022) was used to analyse students’ written accounts. The accounts were coded using NVivo software and an inductive approach was taken to the process of coding. First, students’ productions were open-coded to develop initial codes. Afterwards, developed codes were collated and examined for potential themes. At an earlier stage in theme development, five themes were developed. Later, these themes were reviewed and reduced to three major themes that we believed best capture students’ experiences with FMI policy.

Results

This study reports three major themes (see Figure 1). (a) Ambivalent language ideologies: the set of mixed language beliefs students’ have about the languages they encounter in the school domain. (b) FMI as *opportunity*: the positive beliefs students hold about the use of French as MoI in science classes. (c) FMI as *hurdle*: the negative beliefs students hold about being instructed in science in French.

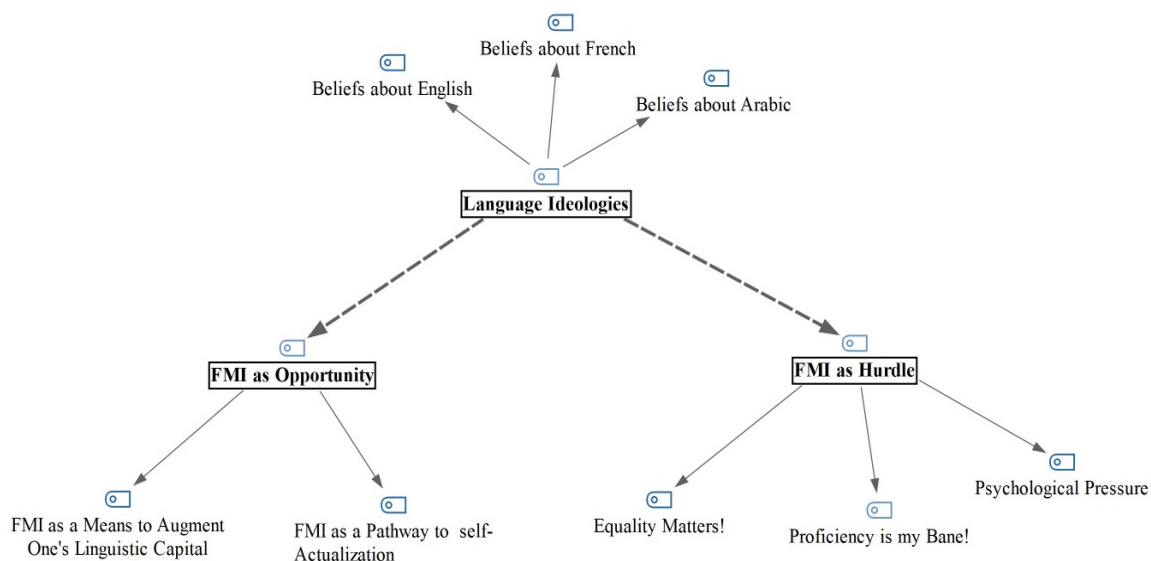


Figure 1: The final themes developed in this study.

1. Ambivalent Language Ideologies

In the sections that follow, we describe the theme of ‘ambivalent language ideologies’ through a discussion of its three main subthemes: (a) Beliefs about French; (b) Beliefs about Arabic; and (c) Beliefs about English.

1.1 Beliefs About French

Students believe that French is a ‘*complex*’ language. This belief may have been developed from the fact that although they have spent years learning this language, they still encounter serious problems in its mastery. Such a dismissive view of French as an intrinsically complicated language is also due to students’ positive experience in learning other rival foreign languages such as English. For example, participant Sarah, writes, “French is not a science language and it is a *complex* language. English is a good alternative; it is easier” [emphasis ours]. Likewise, Oussama declares that he finds scientific French ‘complicated’. He writes, “It is hard to memorise scientific concepts in French and I find them complicated...” As evidenced by these cases, students’ beliefs about general and scientific French conflate to strengthen their negative attitude toward it.

Viewing French as an ‘essential’ language is a recurrent belief in the dataset. The majority of students deem learning French as a major goal that one must achieve. The ‘essentiality’ of French is sometimes stated explicitly and more often implicitly in students’ written accounts. Lobna writes, “[French] is an *essential* language...it is good for communication and writing” [emphasis ours]. As implied by this statement, French is viewed as being equal if not superior to other national official languages. This belief rests on the status of French in the education system where it is taught as a subject and used as MoI for a sum of hours that exceeds that allocated to an official language like Arabic. Moreover, the selection of French as MoI for science made it even more prestigious. Also, the fact that French is mandatory in science instruction strengthens this belief. In this respect, Doha writes, “French was selected to teach scientific subjects and it is *obligatory*. ‘Obligatory’ here means ‘very important’ and this attests to the fact that French is a *de facto* official language.

1.2 Beliefs About Arabic and English

Students generally believe that Arabic is an easy language. This belief is reinforced by the difficulties they encountered in FMI science classes. Lobna writes, “I used to study in Arabic...the lessons were easy...I did not face any difficulty.” As for English, it is viewed as an international language, the language of science, and relatively easier than French. Students believe that EMI is the right alternative to FMI. English is also a source of self-satisfaction for some students. One of the students writes, “English is, and will always be an open gateway...it makes me feel self-satisfied...I gave all my love to it!”

2. FMI as an Opportunity

Some students believe that the FMI policy is a timely solution to remedy their accumulated French language problems and ultimately achieve academic success. They divide their language learning experiences into two distinct phases: an initial phase marked by anxiety and apprehension, and a second one during which they believe they could overcome the challenges, albeit, not entirely. In the ensuing sections, we elucidate the overarching theme of ‘FMI as an opportunity’ through its two salient subthemes: (a) FMI as a pathway to self-actualization; and (b) FMI as a means to augment one's linguistic capital.

2.1 FMI as a Pathway to Self-Actualization

Students' instrumental orientation is evident in their efforts to overcome proficiency problems in French. FMI is perceived as an opportunity to enhance self-confidence and, therefore, to achieve more. Douae, for instance, states that FMI policy enabled her to “face up to the difficulties, especially the *phobia* of speaking in French” while in the class. Also, future-oriented goals such as getting a good job, pursuing higher studies and studying abroad are believed to be attainable if one masters French. Talking about higher studies, Said writes:

I believe that teaching science in French has more advantages than disadvantages...because it will help me in my higher studies and... it will also enable me to study abroad without taking the pain to learn French again.

French mastery is, thus, construed as an enabling attribute that leads to academic and professional success and, ultimately, to self-actualization.

2.2 FMI as a Means to Augment One's Linguistic Capital

Some students believe that increased exposure to the French language input in these classes facilitates language development. For instance, the acquisition of vocabulary is a recurring theme in students' narratives. Students affirm that FMI enables them to acquire new vocabulary and broaden their existing lexical repertoire. In this regard, Aida states that FMI classes helped her “accumulate a modest vocabulary asset”. Similarly, Mohammed asserts that his FMI science classes enabled him to “learn new vocabularies” which he now uses “to express” himself. Moreover, in addition to general French vocabulary, students believe that FMI also facilitates their acquisition of scientific terminology. Said confidently declares, “I have now acquired scientific knowledge that I can explain in French.” Although these examples indicate that FMI can help learners reinforce and enrich their general and discipline-specific vocabularies, it also shows their restricted definition of language acquisition as simply the activity of *picking up* terminologies.

3. FMI as Hurdle

While students show positive beliefs about FMI policy, they also express their frustration with the difficulties they encounter as learners of science through a foreign medium. FMI policy is construed as a *hurdle* to successful learning. This section delves into the theme of 'FMI as hurdle' and describes its three identified sub-themes: (a) Proficiency is my bane; (b) Psychological pressure; and (c) Equality matters.

3.1 Proficiency is my Bane!

Students encounter several challenges stemming from their limited proficiency in French. Comprehension is one key problem. Yahya, for example, highlights that he “started facing difficulties in understanding” scientific concepts after the implementation of FMI policy. However, the level of difficulty in lesson comprehension varies across disciplines. Some students identify Life and Earth Sciences (LES) as the most challenging science subject to comprehend. Doha, for instance, notes, “I faced problems in FMI science subjects and mostly in LES.” Similarly, Said admits, “I find it difficult to understand what the teacher says, especially in LES because, unlike other subjects, it is taught only in French.” Students’ limited comprehension of subjects such as LES necessitates their reliance on rote memorization as a coping strategy. Aida's experience is a testament to this, she explains, “I face a great difficulty in studying LES in French...so I just memorize without comprehension.” Moreover, these comprehension issues negatively impact students' overall performance in science subjects, particularly in tests. One of the students writes, “I now try to understand test questions instead of finding the answers, and most of the time, I hand in my paper with nothing on it but my name!”

3.2 Psychological Pressure

The adoption of French as MoI for science subjects has made the workload students already struggle with even more substantial. Despite making concerted efforts to adapt to the new situation, many students report experiencing immense psychological pressure due to the work they have to cope with. Hanane, for instance, states, “I kept struggling with this *problem*...I made an effort.” The accounts reveal that FMI policy induced fear in some students, Chaimae, for instance, writes, “I had and still have a fear of studying maths in French.” The policy also affects students’ self-esteem. Mohamed's experience is a good example, he recounts, “I passed (to the next level), but my success was with a feeling of unworthiness...” Predictably, demotivation and self-exclusion emerged as the result of the psychological pressure students face. Sarah succinctly summarizes this; she states, “I noticed a change in a lot of my friends who used to get good grades, and now they sit at the back seats in the classroom because they cannot cope with the lessons which have become even more challenging.” These cases demonstrate that FMI policy places significant emotional pressure on students and, therefore, affects their ability to learn science.

3.3 Equality Matters!

A medium-of-instruction policy can be used as a means of exclusion (Shohamy, 2006). It can deny learners epistemological access (Morrow, 2009). Students’ written accounts show that they are aware of the exclusionary role French plays in their science classes. For instance, Mohamed complains that French “doesn't allow” him “to learn much knowledge” because he finds it “hard to learn new information in this language.” As such, FMI policy creates

educational *inequality* by denying learners with limited proficiency access to scientific knowledge in the language they are proficient in, especially the students who come from socio-economically disadvantaged backgrounds. Sarah, as a peculiar case, demonstrates awareness of this particular fact. She writes, “I believe the decision was wrong and hasty. It neither took into account the conditions of ‘the sons of the people’³ nor their proficiency in this language”. These statements, then, attest to students’ awareness of the role of FMI policy in reproducing social inequality and restricting access to knowledge.

Discussion

Drawing on the view that language policy is best understood as *experiences* (Shohamy, 2009), this study examines science students’ beliefs regarding FMI policy in public secondary schools. Adopting a narrative approach, the primary aim of the study is to highlight how these learners experience studying science in a foreign medium.

The findings of the study suggest that students hold ambivalent language ideologies about French when used as MoI. While they believe that French is a complex language that hinders their learning of science, they also acknowledge its importance as a de facto official language for achieving various instrumental and integrative goals. Instrumental goals include accessing higher education, securing a job and gaining social prestige. As integrative goals, they perceive learning French as a means to forge stronger social connections and know other cultures. FMI policy is, thus, seen as both an opportunity and a hurdle. On one hand, students believe that it is an opportunity to overcome their lack of proficiency in French and, consequently, increase their chances of academic and professional success. On the other hand, and quite *contradictorily*, students view the policy as a ‘barrier’ to their learning due to its negative impact on their comprehension of science concepts and the substantial psychological pressure it places on them. Additionally, they think it contributes to social inequality and hinders access to knowledge.

As highlighted in the literature review, a wide discrepancy characterises the results of the studies on students’ beliefs regarding MoI. This fact is attributed to the *essential* nature of beliefs which are most of the time inconsistent (Pajares, 1992). The results of this study support this fact as they reveal that students generally hold inconsistent beliefs about FMI policy. In line with other studies (e.g., Jiang & Zhang, 2019; Macaro & Akincioglu, 2018), this study found that MoI is believed to improve learners’ language skills, especially vocabulary acquisition. Comprehension difficulties, however, seem to persist mainly due to foreign MoI (Hellekjær, 2010). On the other hand, and in congruence with the findings of Rowland & Murray (2020), this study found that students believe that FMI classes are an opportunity to practice and improve their L2 skills. Furthermore, in line with studies in the Moroccan context, the study highlights students’ belief in French as an ‘essential’ language (Marley, 2004) that facilitates access to higher studies (Bouziane, 2020) and knowledge of other cultures (Chakrani, 2011).

These noticed inconsistencies in students’ accounts about their experiences with FMI is attributable to the fact that they hold two opposing beliefs. On one hand, they strongly believe in the prestigious status of French and, at the same time, they believe that their proficiency in this language is low. This unresolved conflict between a firm conviction in the

³ This is a literal translation of the phrase in Arabic. The phrase is used to refer to people who belong to the lower strata in society.

dominance of French in the social, educational, and professional domains and their dissatisfaction with their language skills frames their experiences in FMI science classrooms. This also explains why in spite of the language difficulties students encounter, the majority of them readily accept to take the challenge of studying science in French. This confirms the pervasive influence of beliefs and their profound impact on the interpretation of personal experiences. Moreover, it is evident that students' language ideologies and beliefs about FMI policy reflect those already circulating in their society.

The findings of the present study imply that it is a prerequisite for the success of any MoI policy to first understand students' language ideologies, gauge their beliefs about the medium used and assess their proficiency prior to implementation. In Shohamy's (2006) terms, students are the '*consumers*' of language policy and, therefore, their opinions matter. In this respect, Shohamy (2006) states that those "who use or resist the languages dictated to them from the top down, have something to say from the bottom up: their voices need to be heard and incorporated in the formulation of policy" (p. 188). The study also implies that L2 acquisition should not be attained at the expense of content learning as this produces educational inequalities. Indeed, denying learners, especially those with limited language proficiency, access to knowledge in the languages they master clearly encroaches on their linguistic rights.

Conclusion

This study explored Moroccan high school students' experiences with FMI policy and looked at their beliefs about its implementation in science classes. The paper was theoretically framed by Shohamy's (2009) conceptualization of language policy as *experiences* and took a narrative approach to data collection. Analytically, the study used thematic analysis (Braun & Clarke, 2006) to identify the major themes present in the written accounts produced by students. The results of the study indicated that students have ambivalent views about FMI policy, construing it as both an *opportunity* and a *hurdle*. That is, while FMI is believed to improve language skills, it is also believed to impede content comprehension and produces educational inequalities.

Based on the findings of this study, it is recommended that decision-makers in the field of education take a participatory approach to language-in-education policy. Integrating the 'voices' of those who 'consume' LP such as learners is a decisive factor for the success of educational policies. Also, to democratize education, science courses should be offered both in Arabic medium instruction (AMI) and FMI and enrolment in each should be optional as this will make students responsible for their choices. In the case of FMI, we suggest offering French for specific purposes (FSP) courses alongside science courses to equip learners with the necessary science technolact. Pedagogical *translanguaging* should also be allowed as a strategy that can mitigate the negative impact of FMI policy. Future research may look at the other contextual factors that influence Moroccan science students' beliefs about media of instruction. This study, however, has some limitations such as the small sample investigated and the fact that all participants belonged to the same level and the same school. Thus, the findings are by no means generalizable.

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