

Values Ascribed to Subjects in Algerian Secondary Schools: Students' Experiences of Educational Pathway Choices

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Dedication

For my father, of course

Acknowledgement

I am grateful to God for giving me the courage and patience to endure this journey of seeking knowledge.

I would first like to express my greatest appreciation to my supervisor, Prof Jim Ryder, for his valuable guidance and generous support. This research would not have been possible without his guidance. I also would like to thank my supervisor, Dr Lou Harvey, for her insightful suggestions and constructive comments.

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Abstract

The Algerian subject curriculum in the pre-tertiary sector has long been described as hierarchical in structure, with one set of school subjects typically accorded higher value and socially and academically recognised as more important than another (Fetouhi, 2014; Kadri and Ghouati, 2016).

Through a qualitative study, this thesis explores the perspectives of different stakeholders (students and pathway advisors) regarding the educational pathways in secondary schools in Algeria, namely, the science pathway and the literary pathway, alongside their experiences of these pathway choices. Data include audio recordings of three narrative interviews with 12 students from both pathways at two secondary schools (urban and sub-urban schools) and interviews with four pathway advisors. Analysis draws upon thematic analysis and narrative psychology.

Findings largely identified instrumental values, with little emphasis on intrinsic values, with students predominantly placing emphasis on the instrumental values rather than the intrinsic. The pedagogic counsellors took a more instrumental and pragmatic view of pathway values, rarely referring to their intrinsic values. Pathways' *relative values* represented a significant outcome of the study with the majority of students and pedagogic counsellors ascribing higher value to the science pathway.

The study draws on two theoretical perspectives – Bourdieu's theory of social reproduction, and narrative psychology – which foreground the influence of structural factors on reproducing existing patterns of hierarchy of school subjects' values and students' choices and provide useful analytical lenses to gain a deep understanding of how available social discourses and school streaming policies, including attainment-based practices around pathways, set the scene for the ongoing construction of students' agency when choosing which pathway to study.

The thesis closes with recommendations for policy and practice, like the need for more attention on the impact of institutional and social structures in constructing and sustaining subjects' (relative) values in the research literature.

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Introduction

Educational values has always been a critical, debatable issue across the world. There is a significant amount of existing scholarly literature that shows that curricula are often regarded as untouchable and unquestionable documents; however, numerous other scholars argue that in our rapidly changing world, curricula should also adapt to keep pace with the swift advancements in human evolution and revolutionary developments.

Much of such scholarly work, which has influenced different approaches to curriculum development and implementation, agrees that curriculum choice focuses on knowledge, societal needs and learners, and seeks to develop forms of curricular provision which would be more appropriate to the economic, social and, indeed, political conditions of the twentieth century (Kelly, 2004; Walker and Soltis, 2004). In this regard, the educational aims are considered the framework for shaping the subjects taught in schools; therefore, questions that are often considered at the institutional level by educationalists, curriculum theorists and policy makers when creating curriculum content include ‘What is the most valuable type of knowledge and school subjects?’ and ‘What types of knowledge should be included or excluded?’ (Kelly, 2004). Their answers to these questions are influenced by the ideological orientation they associate with education, and at the core of these considerations lie different values for school subjects.

However, in spite of the wide range of scholarly work on education and curriculum values, surprisingly little empirical evidence exists exploring individuals’ perspectives on values in relation to different school subjects (in particular, arts, humanities and social sciences). There is however a large body of research that looks at how educational choices are mostly framed around sciences and STEM with little focus on choices in non-science/STEM subjects.

This study wishes to contribute to the research into the values attributed to different school subjects (science and literary pathways) in Algeria by referring to secondary school students who study them and pathway advisors who stream these students into these pathways. This thesis addresses and works to fill this evidence gap, exploring the purpose of this study by examining the perspectives of key stakeholders in the Algerian education system – namely,

secondary school students and pathways advisors – on the values of educational pathways. Here, the science pathway is used to reflect the natural sciences and STEM fields, while the literary pathway reflects the humanities, and social sciences.

Chapter 3 offers details of the research focus, but, for now, the attempt is only to present the research questions. In light of all of the above, this study was set out to explore the following questions:

1. What values do different stakeholders hold in relation to pathways in Algerian secondary schools?
2. What factors underline educational pathway values in Algerian secondary schools?
3. How do educational pathway values in Algerian secondary schools influence students' pathway choices?

Structure of the thesis

Chapter 1 provides an overview of the education and policy context for this study in order to understand the wider context shaping both school practices and students' pathway choices. The chapter describes the structure of Algerian education, moving to the national curriculum in secondary schools to outline the educational pathways, both science and literary, before the landscape of choices available to students at the end of middle school is described.

Chapter 2 defines the theoretical orientation of this study by situating it within the existing literature in the fields of educational aims and values and students' subject choice. The first half of this chapter tries to answer the question regarding the aims education should serve through shedding light on two main perspectives of educational aims. The first is the subject-driven approach based on considering subjects for their intrinsic features (for intellectual development) or instrumental features (satisfying social needs). The second perspective focuses on the balance and harmony between society and the individual while representing school subjects in a way that does not take priority as an aim of education but focuses on other prior aims, such as allowing human potential to flourish. The second half of this section outlines the theoretical concepts that explore how students negotiate their choices within social and institutional systems of power that constrain choices through constructing narratives around pathway values. A review of empirical studies relevant to the focus of this research is

also presented alongside a review of where these fields overlap and how the present study addresses gaps in the literature.

Chapter 3 introduces the methodological decisions involved in designing this study, outlining the research paradigm, data collection stage, sampling method, and data analysis procedures. However, this chapter offers more than a report on field activities, as it includes a reflection of the researcher's journey of conducting research during COVID-19 and in what ways this had changed her design.

Chapter 4 presents the results of analysing students' views, conceptions and beliefs about secondary school educational pathway values, namely, the science and literary pathways. This chapter is divided into two main parts with the first presenting the instrumental pathway values that were predominant in students' data, and the second the less prominent intrinsic pathway values. The findings also provide insights into the ways students frame statements about the different pathways' values.

Chapter 5 presents the findings of analysing the main factors influencing pathway values, which are mainly institutional (related to some education policies and practices) and societal (related to the ongoing discourse around pathways in the students' social networks).

Chapter 6 presents the findings of analysing students' constructions of their choice narratives in relation to the values they hold regarding pathways, providing insights into how pathway choices are performed, the meaning they ascribe to their choices, and how they position themselves and others in them. This chapter presents how students' choices were negotiated and informed by their social and cultural settings and highlights how the institutional practices and social discourses around the pathways' values set the scene for students to construct and reconstruct their choice narratives.

Chapter 7 presents the pedagogic counsellors' findings. These are key stakeholders in introducing students to educational pathways and providing them with a roadmap for choosing the pathway suitable for them. The findings in this chapter reflect the values the pedagogic counsellors' hold in relation to secondary school pathways, and then move to present the factors underpinning these values, before ending with a discussion around how students' agency when exercising their pathway choices is constrained by external factors.

Chapter 8 discusses the main findings identified from the results presented in Chapters 4 to 7, explaining the relevance of the findings when considering the literature presented throughout this research study, answering the research questions and presenting the contributions of the research.

Chapter 9 concludes the thesis by summarising its key reflections, examining its implications for practice and methodology, discussing the limitations of the study and making recommendations for future research.

Chapter 1. Study context

This chapter provides an overview of the education and policy context for this study. It begins by outlining the structure of the education system in Algeria, moving to the national curriculum in secondary schools in Algeria as it relates to the science and literary educational pathways. A description of the landscape of choices available to students at the end of middle school (ages 15-16) is then provided. The chapter is closed by discussing some streaming policies that have shaped the landscape of educational pathway provision in secondary schools and assessment and future choice opportunities. This background section will enable an understanding of the wider context shaping both school practices and students' pathways choices.

1.1 Education policy context

The educational system in Algeria is composed of three main cycles – namely, primary, middle and secondary (Bulletin officiel, 2008) – with the management of these three levels entrusted to the Ministry of National Education (Bulletin officiel, 2008), which is in charge of education regulation, study programmes, teaching methods, examinations, school timetables, and inspections. This includes the school curricula that are both devised and standardised by the Ministry of National Education and apply to all schools nationwide. While the Ministry of National Education regulates all Algerian primary, middle and secondary schools, the Ministry of Higher Education and Scientific Research is responsible for the higher education sector.

First, primary school is composed of five years (previously six years) of study (Bulletin officiel, 2008). Primary education in Algeria lasts five years (grades 1-5) and is intended for children from ages 6-7 to 11-12. As in most countries in the world, the major goals of primary education in Algeria are achieving basic literacy and numeracy (Ministère de L'Éducation nationale, 2016) with pupils usually studying ten subjects: namely, Arabic language, French language, Islamic education, civic education, history, geography, mathematics, ¹science, physical education and art² (Ministère de L'Éducation nationale, 2016). Nevertheless, by the end of the fifth grade,

¹ The term that is used in Algeria for biology is science, only when at university does the subject start to be called biology.

² In 2021, English was incorporated into the primary school curriculum.

pupils pass a national test in three core subjects only that allows transition to middle school: mathematics, French and Arabic. Previously, pupils used to sit for all the subjects, but in 2006 the government changed the policy, reducing from ten to three subjects only.

Second, middle school takes four years, during which students are exposed to a range of subjects: mathematics, Arabic, Islamic studies, science, physics, chemistry, history, geography, civics, French language, English language, art/music and physical education (Ministère de L'Éducation nationale, 2016). These school subjects differ in terms of time allocation and the weighting system. They are implemented in the official national curriculum; however, the inclusion of what is called foundation subjects, such as art and music, seemed to be negotiable in some local schools. For example, some schools teach either art or music, while others teach neither.

At the end of their fourth year at middle school, students sit for the national test (BEM). It is regarded as a prerequisite for secondary school access and requires a minimum mark of at least 10 points in a written examination. Students who get at least 10 out of 20 move to secondary school. However, the Ministry of Education provides students who obtain a grade of less than 10 with a second chance to be accepted into secondary school, taking their previous year's academic performance into account: (BEM test result + fourth year academic

| Scale | Grade Description | Grade |
|---------------|-------------------|-------|
| 16.00 - 20.00 | Very Good | A+ |
| 14.00 - 15.00 | Good | A |
| 12.00 - 13.00 | Rather Good | B |
| 10.00 - 11.00 | Satisfactory | C |
| 0.00 - 9.00 | Insufficient | F |

Table 1.1: The grading system in Algerian education (Ministère de L'Éducation nationale, 2016)

results)/2 = 10 or more is a pass. Unsuccessful pupils whose grades went below 10/20 may retake the grade again (Ministère de L'Éducation nationale, 2016).

Third, secondary schools are three years in length and compromise a first, second and third year. The previously mentioned subjects become categorised into two main pathways: the literary pathway, and the science pathway. Each pathway is composed of a set of literary subjects as well as scientific subjects (see table 1.2).

| Studied subjects in the literary pathway | Studied subjects in the science pathway |
|--|--|
| <ul style="list-style-type: none"> - Arabic language - Islamic studies - History and Geography - Mathematics - Art/music - French language - English language | <ul style="list-style-type: none"> - Science (biology) - Physics and chemistry - Mathematics - French language - English language - History and geography - Islamic studies - Art/music - Arabic language |

Table 1.2: The subjects studied in the science and literary pathways (Ministère de L'Éducation nationale, 2016)

The first year is a foundation year in which students study one of the two general pathways (science/literary); however, at the end of their first year, they have to choose a further sub pathway under the general discipline to be followed for the final two years. Table 1.3 provides a detailed illustration.

| Literary Pathway | Science Pathway |
|--|---|
| <ul style="list-style-type: none"> - Literature and philosophy - Foreign languages | <ul style="list-style-type: none"> - Mathematics - Experimental sciences - Management and economy - Mathematical technique <ul style="list-style-type: none"> ▪ Electrical engineering ▪ Civil engineering ▪ Mechanical engineering ▪ Process engineering |

Table 1.3: Sub-disciplines of the science and literary pathways (Ministère de L'Éducation nationale, 2016)

1.2 Streaming process: transition from middle school to secondary school

The Ministry of Education published a document in 2008 about streaming fourth-year students in middle school into educational pathways during their first year of secondary school. The publication mandates that school streaming occupies a key role in the reform of the Algerian educational system and is characterised by transparency and follows the model of fairness for all students (Ministère de L'Éducation nationale, 2008). It is considered one of the most important psycho-pedagogical services provided by the school advisers and vocational streaming counselling for helping enhance students' future potential according to their qualifications, abilities and inclinations, and what they can achieve using their self-perception and adaptation to their surroundings (Ministère de L'Éducation nationale, 2018).

The Ministry of Education mandates that coordination should take place between the educational organisation interests of the Directorate of Education and the head of the general secondary school in order to manage the number of educational cohorts that can be opened in the receiving institution as well as the number of pathway allocations that can be made

available in each pathway. All secondary education institutions are obligated to open the two educational pathways, as this has become a requirement for reforming the educational system, a policy that has been implemented since 2008. However, some secondary schools nowadays in Algeria only have science pathway groups. For instance, In this study, one of the schools did not have literary pathway groups until 2019, and when it finally did, one literary pathway was launched as opposed to five science pathway groups. The Ministry of National Education document set forth the arrangements to be adopted when streaming fourth-year students who wish enrol in one of two educational pathways for the first year of secondary school. The following arrangements need to be made.

1.2.1 Informative session

Informative sessions are carried out yearly in middle schools to inform students and their parents of the structure of secondary school pathways and streaming mechanisms, and they are implemented starting from the third year of middle school. Their objective is to allow the students to make a mature choice based on knowledge and awareness of their capacities in relation to the educational pathways and their requirements (Ministère de L'Éducation nationale, 2008). Streaming is meant to help students practice an objective choice, independent of the social perceptions of streaming (ibid.).

1.2.2 Orientation card

This document (Ministère de L'Éducation nationale, 2008) states that expressing preference is a decisive step that students take in their educational and career paths, and it is necessary therefore to make them aware of its importance and help them deal with it seriousness and responsibility with the help of their parents. The card is placed within reach of the pupils to be filled out, and they can consult with their parents during the third semester of the third year. This initial expression of preference constitutes the grounds from which the student can build their '*their personal project*' (Ministère de L'Éducation nationale, 2008). These cards are distributed to students periodically starting from the third year of middle school until the end of fourth year of middle school, and pedagogic counsellors follow the students throughout this period and provide guidance when needed (Ministère de L'Éducation nationale, 2008).

1.2.3 Two groups of subjects for pathway streaming

The two groups of pathway subjects for the first year of secondary education consist of the following subjects, accompanied by subject weighting as follows:

| Main subjects literary pathway | | Main subjects in the science pathway | |
|--------------------------------|-------------------|--------------------------------------|-------------------|
| Subject | Subject weighting | Subject | Subject weighting |
| Arabic language and literature | 5 | Mathematics | 4 |
| First foreign language | 4 | Physics and Chemistry | 4 |
| Second foreign language | 3 | Science (Biology) | 4 |
| History and Geography | 2 | Arabic language and literature | 2 |
| Total | 14 | Total | 14 |

Table 1.4: Two groups of subjects for pathway streaming (Ministère de L'Éducation nationale, 2008)

1.2.4 Calculating the average of formed subjects for the two pathways

The calculation of the grade of each of the subjects that make up the two streaming groups is based on the results obtained in the course of the third and fourth years on average, as follows:

- The first mark (M1) is the average for the subject in the third year in middle school
- The second mark (M2) is the average for the subject in the fourth year (4), including the three semesters.

It is calculated as follows:
$$\text{Subject average} = \frac{(M1) + (M2 \times 2)}{3}$$

3

The student average for each of the two streaming groups is calculated by adopting the subject weighting assigned to the materials formed for each of them.

1.2.5 Implementing the streaming process

The document issued by the Ministère de L'Éducation nationale (2008) mandates that *'the role of pathways streaming is to create an equilibrium between students' preferences and their academic results. It should also meet the requirements of the educational paths for the post-compulsory education stage on the one hand and the requirements of economic and social development on the other hand'*. The document explains this point by clarifying that students' streaming to pathways for the first year of secondary education is based on their preferences as it is intended to meet their needs as long as this is managed by the pathways allocations in the host institutions. Additionally, another sub-aim of the document is to consider the importance of national economics.

The document emphasises the necessity of rational reconciliation between the requirements of educational planning and the capabilities of reception and supervision, on the one hand, and the preferences of students and their real potential, given the requirements of the educational pathways concerned, on the other (Ministère de L'Éducation nationale, 2008). However, it is noticeable that the document did not state how many allocations were to be assigned to each pathway.

In this regard, school authorities are required to enable students to review their ranking in the two groups of pathway subjects, as the lists containing this arrangement are attached at the district level of streaming, which helps to avoid the submission of unfounded appeals (Ministère de L'Éducation nationale, 2008).

1.2.6 The organisational procedures of re-streaming in secondary schools

When students are streamed along either the science or literary pathways and spend a year in secondary school in those assigned pathways, some students may want to change them. For this reason, the Ministry of Education issued a document named 'Re-streaming in secondary schools'. The re-streaming process is concerned with students who have studied a full academic first year in a pathway without success and wish to review their choices within the framework of building their personal projects. It was stated that *'organisational procedures are to be adopted in this regard, which will promote the achievement of equal opportunities among pupils by correcting the imbalances that may occur in the process of their*

guidance and suggesting another course of study adequate to their abilities and qualifications' (Ministère de L'Éducation nationale, 2018).

Streaming is considered a continuous process that accompanies students throughout their academic schooling during which amendments should be made whenever necessary, according to students' achievements and the recommendations of their pedagogic counsellors and teachers. It was also stated that streaming should not be understood as a final procedure, but rather one to be decided during admission by the guidance board, before review during the appeal process. It is very likely that the student will change their previous choices. In this case, the school and vocational guidance advisors should understand the reasons for this change and assist the pupil in building a new school choice by making the student aware of their qualifications and abilities (Ministère de L'Éducation nationale, 2018).

Criteria of re-streaming: students may get re-streamed according to the following basic criteria:

- Students expressing a preference to be re-streamed after consulting with parents, whereby the concerned student fills out the attached petition form (Exhibit 1) provided to them by the pedagogic counsellor, who collects the data in coordination with the head of the secondary school before the meeting of classes board for the third semester within the prescribed deadlines
- Students' abilities, qualifications and academic results and the extent to which they are adequate for the demands of the pathway, along with the results obtained by the students in the basic subjects of the desired pathway they wish to be streamed into
- The number of places available in the desired pathway
- Remarks by pedagogic counsellors and teachers regarding the pedagogical follow-up of the academic study course of the concerned student

Parents will be notified about the decisions related to their demands through third-semester transcripts as an obligation and via all information and communication means. The decisions of the board of admission and guidance, in the case of re-guidance, are final and unappealable. The categories of the pupils concerned with re-streaming are as follows:

- Students who repeated their first year in secondary school

- Students admitted in the second year

Pathways of possible re-streaming

| Students concerned with re-streaming | Re-streaming pathways | |
|--------------------------------------|-----------------------|---------------------------------------|
| | Educational pathway | Pathway to be re-streamed to |
| Repeating the first year | Science pathway | Literary pathway |
| Admitted for the second year | Science pathway | Literature and philosophy sub pathway |
| | | Foreign languages sub pathway |

Table 1.5: Pathways of possible re-streaming (Ministère de L'Éducation nationale, 2008)

1.3 Subject hierarchy in the Algerian secondary school curriculum

The primary document governing the curriculum for secondary schools in Algeria, known as the Ministère de L'Éducation nationale, provides an overview of how students progress from middle school to secondary school. It outlines the structure and organisation of different pathways available during the three years of secondary education. An overview of the streaming policies suggests a hierarchy among subjects. For instance, some policies explain that first-year science students are allowed by the Ministry of National Education system to change their pathway to a literary one; however, literary students do not enjoy the same privilege. Moving to the postsecondary sector, science students can still enrol on any university programme, including literary ones. However, literary students' programme enrolments are exclusive to literary fields. It is therefore reasonable to think that secondary school pathways, and before that school subjects, do not possess the same value. It seems that the science pathway is given more importance in value than the literary pathway. This situation in the Algerian education system calls into question whether both students on both

pathways have equal access to different educational opportunities and even the local labour market. This in turn raises the question whether a degree in the sciences is worth more than a degree in humanities. One may think that the inequality of these two educational pathways outcomes would affect students' choice experiences, and future job opportunities.

Now that the research context has been presented and clarified, the next chapter discusses the literature that guided this research.

Chapter 2. Literature Review

This study explores the processes and values experienced by students when making pathway choices at secondary schools, and this chapter introduces the reader to a review of the literature that informs this study. First, section 2.1 reviews the philosophical conceptualisation of values and outlines the main distinction between what is good as a means and what is good as an end. Second, section 2.2 presents an account of how important educational aims have been in the thinking of philosophers and theorists and gets right to the heart of the ongoing debate around different conceptions of education. These conceptions of education incorporate beliefs about what education is and what it is good for. Following this, section 2.3 discusses the theoretical framework that could be used to explore students' choices of educational pathways. After discussing the review of theoretical frameworks, the last section, section 2.4, presents empirical studies on students' educational choices, exploring the empirical work upon which the framework of this study is based.

2.1 Philosophical conceptualisation of values

Although there are many theoretical and empirical studies of values, there is still huge disagreement about this concept with different philosophers and theorists having takes on the term, meaning that the idea of values is still undifferentiated and vague (Halstead, 1996; Sutrop, 2015). Broadly construed, values are described as 'desirable objects or conditions, ideas about worth, emotional commitments, things that promote human well-being, virtues worth having, or principles, i.e. fundamental convictions that generally guide behaviour' (Sutrop, 2015, p.6). Many theorists used different labels for value: 'instrumental value', 'intrinsic value', 'extrinsic value', 'non-instrumental value', 'value as an end', 'final value', etc. (Dorsey, 2012). However, the most commonly used dichotomy is intrinsic and instrumental. Becker and Becker (2001) express the following:

Value in general, may best be glossed as that which is worth having, getting, or doing. So glossed, to say that something has value (is valuable) is to say either that it is a thing or a property that is itself worth having, getting or

doing, or that it possesses some property or properties that make it (Becker and Becker, 2001, p.1745).

In this quote, the concept of value is used in two contrasting senses, which are the intrinsic and instrumental. The quote describes values as objects which are considered 'good' in themselves. For instance, loyalty, happiness, and truth (Halstead, 1996), or *'good because they are in relation to a living being's well-being'* (Sturop, 2015, p.6). For example, money is not intrinsically valuable because it is not worth possessing for its own sake, but it is valuable in terms of the ends it helps humans to achieve (Gatley, 2021). Many philosophers have explicitly or implicitly claimed intrinsic value.

Intrinsic value represents the features that an object or an entity has in terms of for what it is and as an end; instrumental value represents the value that an object has as a means or tool to achieve a desired end (Becker and Becker, 2001; Gatley, 2018, p.6). For example, Korsgaard (1986) summarises this standard view in philosophy: *'a thing is intrinsically good if it is valued for its own sake, that being the obvious alternative to a thing's being valued for the sake of something else'* (p.170). This standard view opposes intrinsic value and extrinsic value and equates the meaning of the latter to instrumental value, while in some of the literature, the meaning of intrinsic value is equated to the final value (ibid.).

Adherents to this view (see Moore, 1951) described intrinsic value in two related senses (Kagan, 1998). The first sense holds that intrinsic value is objective and cannot be subjective because the value resides in the object itself (Bradley, 2002; Dorsey, 2012). According to this view, intrinsic value exists in an object even if it is completely isolated and is the only one existing in the universe (Bradley, 2002; Kagan, 1998). This value stands on its own; it is non-relational as it depends on its internal nature only (Kagan, 1998). Moore (1951, p. 260) defines intrinsic value as follows:

To say that a kind of value is 'intrinsic' means merely that the question whether a thing possesses it, and in what degree it possesses it, depends solely on the intrinsic nature of the thing in question.

Many researchers (Dorsey, 2012; Kagan, 1998; Korsgaard, 1986) do not find this definition satisfactory, with Kagan (1998) questioning '*whether anything at all does have intrinsic value in this... sense*' (Kagan, 1998, p.287). They believe that a thing's intrinsic value can depend on its extrinsic properties. The intrinsic value is relational in the sense that it might change if it is in a different situation or if it is isolated (Hurka, 1998; Kagan, 1998; Korsgaard, 1986). Kagan (1998) and Hurka (1998) called it '*conditional intrinsic value*'.

The second concept of intrinsic value holds that an object or an activity has intrinsic value if it leads to an end or for its own sake. This view equates intrinsic value with final value. Zimmerman assumes that the final value of an object supervenes on its intrinsic values (Perrine, 2018). According to this view, these two concepts are used interchangeably. Other authors use other terms to refer to this kind of value, including '*intrinsic value*', '*intrinsic goodness*', and '*final goodness*' (Perrine, 2018, p.2). Although most philosophers have held that ends must be intrinsically valuable and irrelevant to people's interests, arguments have been presented against collapsing the two distinctions. For example, Korsgaard (1986, p.173) points out, '*You might value something as an end because of its intrinsic goodness or in response to its intrinsic goodness, but a thing's possession of intrinsic goodness is quite independent of whether anyone cares about it or not*'. The final value is determined by each individual rather than by the nature of the activity valued (Gatley, 2021).

Korsgaard (1986) distinguishes between four types of values. She made a distinction between final and instrumental value and a distinction between intrinsic and extrinsic value. In her view, the expression of something as intrinsically good does not mean it is valued for its own sake, but it possesses goodness in itself regardless of the context. While the former refers to the way a thing is valued, the latter refers to the location or the source of goodness. Korsgaard (1986) clarifies that extrinsic value is the natural contrast to intrinsic value, and that it holds regardless of the context. From this account, the term intrinsic value is ambiguous as it is used to refer to both final value (as opposed to instrumental value) and intrinsic value (as opposed to extrinsic value) (Gatley, 2021). Korsgaard (1986) puts forward the argument that intrinsic value and instrumental value are not oppositional but '*belong to two different distinctions*' (p.170). The contrast of instrumental is an object that is valued for its own sake or as an end (ibid.).

In summary, a clear and definite demarcation of value distinction is still contested and has not yet reached a consensus yet in philosophical debates. However, in the educational debate, the concept 'values' has often been used in two opposing senses: instrumental and intrinsic.

2.2 Educational conceptualisation of values

Education has always been conceived as an expression of goodness. Hadorson (2012, p.9) expresses that '*Education is a purposive activity that aims at an improvement of some sort*'. However, it has also been described as a contested concept, and the different conceptions are manifestations of this contest (Winch, 2002, p.102). Educational theorists have been engaged in heated debates over what values should guide schools, what aims are really essential, what is marginal, and what has no appropriate place within the school's curriculum (Eisner, 1996). Different attempts at education conceptualisation provided by different educators and theorists are reflections of their systems of beliefs and values, which lead to different curriculum aims and, eventually, practices (Halstead, 1996; Sturop, 2015). Hence, it is impossible to answer the question of educational purposes without bringing value or a set of values into play, and the sum of these beliefs constitutes an ideological view of education (ibid.). Schiro (2013) maintains that different curriculum visions have their own value systems, purposes of education, and meanings for words. This suggests that everything included in the curriculum, such as knowledge contents, subject selection, teaching styles, materials, assessment and learning outcomes, is based on subjective value judgments of those groups who are interested (Sutrop, 2015). As Kelly (2004) claims further,

These different views of education will lead to quite different forms of educational provision ...different kinds of content, different school subjects, and even to different views on the place of school subjects in education, and...also different structure to our educational system. (p.29)

From this account, in order to analyse the aims education should serve, a concept of education based on a subject-driven perspective (section 2.2.1) and human flourishing (section 2.2.2) is presented. The first perspective embeds notions of intrinsic and instrumental value. The second perspective brings back balance and harmony between society and the individual

while representing school subjects in a way that does not take priority as an aim in education but focuses on other prior aims, such as human development.

2.2.1 The subject-driven approach to curriculum

This section discusses the curriculum content approach, one of the oldest ideas in the theory of education, in which curriculum is planned with an emphasis on curriculum content (e.g., school subjects). It justifies a conventional curriculum built around ‘*disciplines*’ or ‘*subjects*’ (Priestley and Humes, 2010). This umbrella approach is composed of two sub-perspectives of education theorising. Some tend to focus on subjects for their intrinsic features, explaining that school subjects are to help students develop their intellectual capacity or transmit one’s culture. Others, use subjects as building blocks of curriculum to achieve instrumental purposes.

2.2.1.1 The intrinsic aim of school subjects

Adherents to this view broadly categorise conceptions of education as philosophical and cultural; they advocate for such aims as the acquisition of knowledge and the transmission of culture (Kelly, 2004; Priestley and Humes, 2010; Walker and Soltis, 2004). This approach includes notions of intrinsic values, or the worthwhileness of pursuing certain kinds of knowledge, and understanding of activities for their own sake (Wringe, 1988, p.117).

2.2.1.1.1 Knowledge acquisition and cognitive value

From ancient Greece to the present, the question of what to include in the curriculum content has been relevant to the question ‘*what is knowledge?*’ (Kelly, 2004; Reid, 1998; Taylor and Richards, 1985; White, 2000; Winch and Gingell, 2008). When we look towards the absolutist philosophy of human knowledge, knowledge is absolute and universal (Bleazby, 2015; Kelly, 1986, 1999; Taylor and Richards, 1985). At the heart of this notion of human knowledge is Plato’s philosophy of worthwhile knowledge. Taylor and Richards (1985) describe this epistemology as follows:

Plato’s epistemology asserts that knowledge is organised in subjects; that knowing is the acquisition of the ordered information within these subjects; that meaning is acquired from an understanding of the principles which

govern ways of ordering the information within specific subjects.....Moreover, the best kind of learning is that which requires depth and comes from the study of a few subjects. (p.7)

Plato believes that the aim of education is the development of the human mind. In order to achieve this, a school curriculum should seek the intrinsic worth of certain types of knowledge (Kelly, 2004). This epistemology of education influences the relative value of different school subjects and academic disciplines. Bleazby (2015) describes, from the Platonian perspective, that subjects associated with abstract reasoning and acquisition of universal truth such as mathematics and philosophy³, were the most important, while subjects related to concrete experiences and practicality such as trades and crafts were less important. She claims that:

the more abstract, theoretical, cognitive, objective, universal and certain a subject's content appears, the higher is its status; while the lower end of the curriculum hierarchy has always been dominated by subjects associated with concreteness, practicality, corporeality, subjectiveness and, thus, contentiousness. (p.677)

Plato's epistemological view of education and knowledge attracted many theorists of education throughout the 1960s and 1970s (Kelly, 2004). This is evident in the work of the philosopher Richard Peters (1966) who, in his book *Education and Ethics* provides a justification for a traditional curriculum composed of school subjects and academic disciplines. As in the Platonian philosophy, Peters (1966) believes education aims to rest on the intrinsic value of the pursuit of truth, and it involves passing on knowledge that has more than instrumental value (MacAllister et al., 2013). He distinguishes between the instrumental and intrinsic value of education, either as a means to an end or for its own sake, and in his approach, the real value of education should revolve around those intrinsically worthwhile subjects whose inclusion in the curriculum is for their own sake as opposed to those subjects whose inclusion is justified by what they are intended to lead to, like career acquisition, economic enhancement, and academic achievement (Kelly, 1986).

Unlike Plato, Peters argues for a broader view of knowledge/school subjects. He (1966) answers the question '*what does it mean to be educated?*' by arguing that certain bodies of

³ Physical sciences were in their infancy (Bleazby, 2015).

knowledge or subjects which enjoy high intellectual content should be included in the curriculum and that a person knows what worthwhile activities to pursue by asking, '*why do this than that?*' (p.154). Following his argument, a person will pick up subjects whose intrinsic value is higher than that of other activities. He explains that the pursuit of theoretical activities such as '*science, history, literary appreciation, philosophy, and other such cultural activities*'⁴ (p. 160) provide broad cognitive content; therefore, they are worth being '*pursued for the sake of values intrinsic to them rather than for the sake of extrinsic ends*' (ibid.). Similarly, in his account of liberal education, Hirst (1974) claims that a curriculum should consist of forms of knowledge that are intrinsically worthwhile and develop the individual's rational mind. These are mathematics, physical science, human science, history, philosophy, literature, the fine arts, moral knowledge, and possibly faith, and every discipline has its own distinct ideas and standards about constitutes truth (ibid.).

Plato and Peters take the same view of education as being intrinsic. A point of difference between the two philosophers is that Peters (1966) took a broader view of perceiving types of knowledge, arguing that cognitive and aesthetic activities are worthwhile, but he makes it clear that his argument does not justify all aesthetic activities like music (White, 1973). For him, this form of knowledge does not emphasise theoretical and cognitive enquiry. Intrinsically worthwhile knowledge is the truth-focused knowledge of cognitive understanding rather than the (instrumental) knowledge of practical and maybe instrumental skill, for instance (Carr, 2003, p.4). Hence, he shares a similar perspective to Plato in that knowledge or a practical subject are not deemed to have intellectual and cognitive value. His transcendental argument was criticised for being in favour of certain theoretical and cognitive subjects, such as the sciences and literature arguments, and not others (White, 1973). Many researchers (e.g., Reid, 1998; White, 1973) criticise the limited view of the nature of knowledge in Peter's and Hirst's arguments for providing a narrow definition of knowledge and advocating for a variety of forms of knowledge to include its practical forms.

Another interesting idea discussed in this argument, and somewhat related to the previous point, concerns the debate around whether curriculum content centres on the distinction between "*knowledge*" or "*training*". For instance, Peters' (1966) approach shows that being

⁴ The word "activities" refers to a school subject or knowledge.

educated involves having a broad range of worthwhile knowledge. This entails that education rejects any narrow specialisation, and requires initiation into a wide variety of different subjects (Hadorson, 2012). For him, educated individuals are not *'blinkered specialists in one such domain but understand the broader perspectives that these disciplines cast on other fields and on human life more generally'* (White, 2016). In this account, Peters distinguishes between people who are trained in some skill or knowledge from those who are broadly educated (MacAllister et al., 2013), calling the former training and not education. Carr (2010) states:

such broad initiation should be a matter of depth as well as breadth: it should not be simply a matter of shallow acquisition of 'mere' facts, but of some understanding of the 'reason why' of things to this extent. (Carr, 2010, p.6)

As a result, this analysis raises a long educational debate around the concepts of education as broad initiation or driven specialism, considering how much knowledge an individual needs to be described as educated (Sarid, 2018). Although Peters (1966) has produced a stream of influential thoughts over the years, many educational thinkers oppose his views, arguing that a persons' education is not necessarily measured by the breadth of knowledge they acquired.

we may regard people as educated on grounds other than broad initiation. Thus, it seems reasonable to regard someone who has an in-depth knowledge of poetry and literature (say), but little else as better educated than the 'know-all', who is a mine of shallow information. (Carr, 2003, p.210)

Carr (2003) objects to the idea that to be educated is to have undergone broad initiation into a range of forms of knowledge of intrinsic worth. He describes it as excessively rigid as in today's world of growing specialisation, many people whom we might consider to be educated would find it difficult to achieve this standard (Carr, 2003). White (2011) reiterates a similar point when he explains that Peters' view implies that students should develop an intrinsic interest in a wide variety of useful knowledge rather than a particular subject. This would entail that all students show an intrinsic interest in a variety of subjects, not just, say, science. White (2011) argues that this places much psychological strain on them as few students undoubtedly love everything they learn. But why expect everyone to have an intrinsic interest in every kind of understanding? Similarly, Kelly (2004), on the other hand, criticises a

conception of education that is built only around the intrinsic value of certain subjects that approach knowledge itself rather than how the students experience it. Kelly continues to contend that values in education are like beauty residing '*in the eye of the beholder*' not '*in some sense in that which is beheld*' (Kelly, 2004, p.64). Thus, a curriculum should be planned with reference to its potential influence on students rather than its content (ibid.).

White (1973) wonders how Peters establishes this understanding that the value of education holds universality in it, arguing that there are many intrinsically valued activities and wondering on what basis it is decided that students pursue some intrinsically worthwhile activities rather than others in the curriculum. Therefore, he rejects the argument that limits the number of intrinsically valuable pursuits that constitute school curricula and provides a different approach. In his book towards a compulsory curriculum, White (1973) provides a different approach regarding the inclusion and exclusion of certain forms of activities and subjects in a compulsory curriculum. He contends that compulsory curriculum should comprise a 'basic minimum' of core subjects including pure mathematics, the physical sciences, philosophy and art appreciation and excluding activities such as foreign languages, organised games and cookery or 'creative aesthetic activities'. He argues that the former set of subjects are the basic minimum, those that cannot be understood without engaging in them while the latter set form a part of voluntary provision on offer to, but not compulsory for young people. In the second category, White places foreign languages, cookery, woodwork, and organised games. He suggests that children should be introduced to such activities and indulge in them if they so desire, but they should not be compulsory. Planning a curriculum in this way will '*lead a person in the end to the awareness of the good: that the person alone is in a position to determine the good for himself*' (Taylor and Richards, 1985, p.25). White tries to combine the students' freedom of choice and disciplinary knowledge, putting a set of subjects that do not have the same worth, being divided between core and elementary, as a stepping stone for students to choose their own version of good. White's approach is meant to introduce students to the full range of activities they might value (Gatley, 2021), in which schools' aims should include equipping students to enjoy self-selected worthwhile activities throughout their lives (White, 2016, p.8). He does not agree with Peters that a fixed number of intrinsically valuable pursuits constitute an education nor that an educated person should have breadth in all forms of understanding (Gatley, 2021).

2.2.1.1.2 Culture transmission

Another similar approach to justifying the choice of a subject-centred perspective of education derives from a view that curriculum planning should reflect the culture of a given society (Kelly, 2004; Priestley and Humes, 2010). Society has ensured that valuable human knowledge has been accumulating over the centuries; therefore, the aim of education is to ensure this important culture is transmitted from one generation to another. It should be passed onto and taught to individuals in society (Schiro, 2013; Taylor and Richards, 1985). Subjects may be chosen to reflect the important aspects of society's cultural, literary and artistic heritage if the aim of the curriculum is to transfer that heritage to the future generation (Winch, 1996, p.46). For example, Durkheim claimed that education is a process of cultural transmission (Winch and Gingell, 2008). Lawton claims that the essence of education is '*the common cultural heritage*' (Kelly, 2004). Following this account, many educationalists describe this process of handing on knowledge, needs and values as socialisation (Kelly, 2004; Sarid, 2018) and stress a definition of education aims that involves upbringing or preparation for adult life (Winch and Gingell, 2008). Biesta describes the socialising function of education as follows:

Education inserts individuals into existing ways of doing and being and, through this, plays an important role in the continuation of culture and tradition – both with regard to its desirable and its undesirable aspects.
(Biesta, 2009, p.8)

In general, this perspective of viewing education as a socialisation of individuals, transmitting social values and socialising individuals to carry out the cultural values of their society, has many questionable features. First, the term socialisation appears to exclude various types of self-directed and personally driven educational processes inconsistent with common understandings of the notion of '*cultural transmission*' (Sarid, 2018, p.3). Second, holders of this view of curriculum cultural content believe that due to their struggle for decades to develop their knowledge and their culture, these are too precious to change; they have been subjected to much criticism by those who value how things change (Walker and Soltis, 2004, p.22). Societies are dynamic and fluid rather than static, meaning that culture is fluid and subject to development (Kelly, 2004). Therefore, it is the job of the school to be a proactive change agent and be more open to reshaping individuals and society according to a certain

conception of the 'good' person or society (Sarid, 2018) beyond socialisation and cultural initiation. Students should be prepared for the idea of change and handling this change, and even exercising a certain degree of control over it (Kelly, 2004). Finally, some scholars refer to this view as instrumental as it is not concerned with the intrinsic nature of education as many liberal educators claim, but it perceives education as a means to an extrinsic aim, which is in this case '*maintenance of cultural tradition*' (Winch and Gingell, 2008). Kelly (2004) argues that holders of this perspective fall for the fallacy that what is valuable in the culture is valuable not just because it is a part of the culture but because it has some inherent value that justifies its position and supports its inclusion in the curriculum. Therefore, the values become "timeless", and constitute a cultural heritage, which is the heritage of humanity in general rather than of one particular nation. On grounds such as these, many would want to argue for introducing students to certain subjects over others because they are thought to be part of a cultural heritage that belongs to humanity as a whole rather than just one specific nation (Kelly, 2004, p.67).

To sum up, difficulty arises for those who base education aims on consideration of the social culture or knowledge acquisition when one tries to answer the question: by whom? The body of human knowledge is enormous, so is the cultural heritage. It is impossible to teach all of it, and therefore, subject selection should be made; however, the question will remain: by whom? (Priestley and Humes, 2010). Despite attempts to define valued knowledge and essential culture, many questions and doubts remain regarding what kind of worthwhile knowledge should be included in curriculum planning and organising (Marples, 2010). Most importantly, on what basis are words like 'worthwhile', 'cognitive' and 'intellectual development' defined and presented in the school curriculum (ibid.). In general, the cultural factor tends to work toward the selection of subjects that are thought to have greater prestige, and many thinkers consider such decisions as fundamentally political and ideological (Priestley and Humes, 2010). A further difficulty arises when an attempt is made to answer the question, for whom? (Priestley and Humes, 2010). In today's world, there is no one high culture as most societies are pluralist in nature (Kelly, 2004). For example, Matthew Arnold's conception of '*high culture*', which he defines as '*the best that has been thought and said*' was built around artistic and literary forms of knowledge and eliminated other forms of knowledge such as craft traditions (Winch and Gingell, 2002). In this view, the hegemony of high culture was heavily

criticised for its elitism because only the elite could benefit from this type of education while the majority were fated to a second-class education (ibid.). Some educationalists argue against this view as it is culturally based. It has been criticised for not putting enough consideration into the plurality of today's culture, and it supports the universal over the particular, elevating the universal above the particular, and thus the collective above the individual (Kelly, 2004, p.26). This leads to the second reason, which is centred around the issue of educational equality. It is believed that this traditional curriculum generated inequality among students, as it led to neglecting and alienating many students' interests, especially those with a lower intellectual ability (Kelly, 2004).

Therefore, while Peters (1965) and Hirst (1975) perceive education as a way to develop the intellectual mind of the students through pursuing a limited set of forms of knowledge upon which school subjects are situated, other educationalists like Ivor Goodson whose name is linked to social construction of curriculum and the reification of school subjects (1983, 1985). He argues that this approach takes the aim of the curriculum as given. In his work, he highlights how school subjects are far from being objective and eternal entities that are based on a set of distinct forms of knowledge like Hirst (1975) and Peters (1966) argue. Goodson (1983, 1985) argue instead that most of these academic disciplines and school subjects are social-constructs of a particular social, political and historical time, and present the interests of those in power.

2.2.1.2 The instrumental aims of education

Besides the intrinsic aim of school subjects, a further view has been long discussed that considers using subjects as the building blocks of a curriculum to achieve instrumental purposes. As opposed to liberal educators such as Peters, who regard education as a means to reside in its intrinsic features and valuable for its own sake, proponents of instrumentally oriented education believe that education is a means to instrumental aims (Winch and Gingell, 2008). Mainly, these instrumental aims are translated into 'serving the economic needs of society'. One of the main questions that education and curricula try to answer is what is important to a given society (Standish, 1999). This approach believes that the aim of education is to meet the needs of society by training students to function as future contributing citizens (Schiro, 2013). Many society-centred attempts have been sustained to make the curriculum

more technical by looking to the practices and norms of society to decide on what to include in the curriculum (Walker and Soltis, 2004). This approach speaks '*the language of production*' (Eisner and Vallance, 1974, p.24). Therefore, competency, training, workpower, and terminal objectives are substantive features of this approach (Eisner and Vallance, 1974).

Many educationalists claim that this line of thinking is based on the doctrine of behaviourism as curriculum development is viewed in terms of an observable change and comparing this change with the listed objectives and learning activities (Pinar, 1978). It relies on a narrow interpretation of the aim of education in a way that it turns curriculum into a mere '*production model*' governed by behaviouristic rules (Hlebowitsh, 1992). Additionally, it simplifies the process of education as a complex entity and treats it as a simple explanation of an input of 'students as raw materials' and output of 'students as products' (Dobson and Dobson, 1987). Kliebard (1970) takes a similar stance when he argues that it:

will always stand as the model of curriculum development for those who conceive of the curriculum as a complex machinery for transforming the crude raw material that children bring with them to school into a finished and useful product. (p.270).

The students' value resides in their competency and ability to perform the functions needed for social productivity (Schiro, 2013). Society's needs are fulfilled through what is called the terminal objectives, and students' role is to meet the terminal objective of curriculum adherence to fulfil society's needs (Schiro, 2013).

This line of thinking clearly indicates a shift of ideology towards an instrumental view of schooling, and is criticised for excluding other conceptions of education (intrinsic value of education). As opposed to Peters' analysis, this view ignores and even rejects any conceptual distinction between education and training, instruction or teaching (Kelly, 2004). The educational purposes of the curriculum take pride of place; content is selected not for its own sake (e.g., the development of the individual) but for its presumed efficacy at enabling us to achieve those purposes. The organisation is similarly designed with these objectives in mind, and evaluation is framed so as to assess how far those objectives have been achieved (Kelly, 2004, p.32). This perspective of educational aims continues to influence the way curriculum is

handled in our schools today (Walker and Soltis, 2004). The next sections will shed more light on this issue.

2.2.1.2.1 Economic aims for school curricula and hierarchy of school subjects

In today's context, the focus of schools has moved from cultural transmission or knowledge acquisition to getting young people ready for future careers, and meeting the demands of the modern economy (Kamens and Benavot, 1992). The emergence of human capital theory in the 1960s paved the way for economic factors to increasingly influence policymaking. By viewing education as a driver of economic growth, Human capital theory has encouraged increased interest and participation from economic powers in the field of education (Marginson, 1997). The increasing dominance of economic modes of thinking in educational policy was further solidified during the 1980s with the rise of neo-liberal ideologies (Gilead, 2017). Education began to be evaluated according to its effectiveness in producing value for money (Marginson, 1997). Many decision-makers considering the purpose of education find it is still based on content, but this subject-based approach is not justified by reference to knowledge or culture; rather, it is a result of considerations of utilitarian reasons such as economic growth, increased productivity, higher wages, acquiring knowledge for job purposes and enhancing social status (Kamens and Benavot, 1992; Kelly, 2004; Robeyns, 2006). Robeyns (2006) states that this view:

...cannot explain the behaviour of someone who wants to spend her [sic] time studying something without any prospect of economic returns from this education.....human beings act for economic reasons only. (p.72)

Due to the central educational aim of economic productivity and industrial growth, curriculum-making results in the kind of worthwhile and intellectual subjects that would promote those economic needs (Kelly, 2004). A school subject presented in the curriculum is only valued as far as it directly or tangentially increases anticipated economic productivity (Robeyns, 2006). The school subject that is most likely not economically useful such as comprehending poetry or a particular ancient culture has no worth as an investment from this perspective (ibid.). On the other hand, achievements in mathematics and science are seen as the foundation of economic growth and societal advancement, perhaps more so than in other curricular subjects. These subjects are referred to as essential knowledge in the modern

world, and their importance constitutes a significant component of the curricula in many nations (Kamens and Benavot, 1992). As a result, while the societal standing of mathematics, sciences and of literacy (in the case of PISA, 1990, 2016) status are rising that of the humanities, arts and social sciences is declining (Morris, 1995).

Another very noticeable example of this phenomenon can also be seen in the international projects for assessment of learning like the Programme for international student achievement (PISA) (OECD, 1999, 2016), Trends in Mathematics and Science Study , and the Progress in international reading literacy study (Biesta, 2009). For example, PISA is a programme for International Student Assessment launched in 1997 by the OECD (OECD, 1999, 2016). On the face of it, this programme aimed to assess 15-year-old students' performance in the core school subjects of reading, mathematics, and science in order to evaluate the level of readiness of these youths for adult life in a modern society (OECD, 1999, 2016) and to inform educational policy (OECD, 1999); however, it is also driven by *'an emphasis on economic priorities, and the drive to create efficient education systems, offering value for money, and producing quality output'* (Eivers, 2010, p.95).

One effect of measuring students' performance is prioritising some school subjects over others. For example, looking at the education system in the UK, one of the principal functions of the English Baccalaureate (Ebac) is to measure students' performance in five high-status subjects which are: English, mathematics, at least two sciences, history or geography, and a modern or classical language, and they would need GCSEs (Education Committee, 2011, p.5). The hierarchical nature of this type of curriculum is strengthened by achievement measurement that is focused on elite curriculum content (Bleazby, 2015). The rise of the measurement culture in education has profoundly impacted educational practice, from the highest levels of educational policy at national and supra-national levels down to the practices of local schools and teachers (Biesta, 2009, p.3). The relationships between assessment, economic values and education are explored, narrowing the curriculum by requiring students to focus more on reading, maths, and exam preparation. As a result, less time is available to other subjects that are equally needed to national success in the twenty-first century (Berliner, 2009).

Another important issue resulting from this instrumental perspective on education is that the exclusive focus on these economically-centred subjects has consequences that play out

differently for different groups of students. As Robyns (2006) puts it, *'not everyone has the same rate of return on education... not every child or adult will to the same degree be able to use this education for income-generating activities'* (p.73). To explain, this educational system makes these scientific subjects accessible to young individuals who have the *'ability'* (Taylor and Richards, 1985). This means that all students will be introduced to the same worthwhile subjects that would develop their intellects, however only the deserving students (the elites according to Plato's designation) whose performance is good at the so-called worthwhile subject knowledge are privileged as they meritocratically proved that they are able to support the economics of their countries (Kelly, 1990, p.31). This suggests that those individuals whose abilities and interests do not match with the instrumental needs of their societies has not necessarily held in high regard as, according to this view, they do not have much to contribute to the economic development of their societies (Kelly, 1990). Consequently, many scholars claim that this view of education created a strong sense of elitism, meritocracy and educational inequality (Kelly, 1990, 2004; Marples, 2010) for it is based on the principle that in order to provide educational equality, education should be provided for all individuals regardless of their race, origins and social background, provided that students should display the ability to perform well in the *'superior forms of human activity'* (Kelly, 1990, p.31).

The sections so far have focused on the subject-driven approach to curriculum that focuses on subjects for their intrinsic (for intellectual development) or instrumental features (satisfying social needs). In the next section, the focus will be on the perspective that brings back balance and harmony between society and the individual while representing school subjects in a way that does not take priority as an aim in education but focuses on other prior aims, such as human development.

2.2.2 Flourishing: education for personal growth and social development

In the twentieth century, the American philosopher John Dewey wrote *Democracy and Education*, in which he described a form of education that would serve as the prime fashioner of individual growth and a progressive democratic society (Walker and Soltis, 2004). Dewey used the term growth to mean *'ones power and possibilities'* (Taylor and Richards, 1985, p.20), or *'intelligence'* (Eisner, 2002). This quality is not only subject to genetics only but developed through culture and social interaction (Eisner, 2002; Taylor and Richards, 1985). For Dewey,

education unifies the individual nature of students and social demands, and his proposed curricula involve children working on topics and problems which interest and challenge them. Hence, an educated individual is someone who *'could think for oneself, make decisions, cooperate with others and participate equally as a member of a democracy'* (Taylor and Richards, 1985, p.20).

Consistent with Dewey's view, many contemporary thinkers support the idea that education aims can be served without submerging individual flourishing in social expectations or liberating individuals at the expense of social balance (see Brighouse, 2006; Kelly, 2004; Noddings, 2007; Reiss and White, 2013). They argue that education must be good for something beyond itself; the curriculum should not be only about the transmission of knowledge and merely satisfy societal needs, but also contribute to the well-being of those on the receiving end (Kelly, 2004; Reiss and White, 2013; White, 2013)

Tying to answer the question about what education is good for, Reiss and White (2013) advocate for an aim-based curriculum as opposed to a subject-based one as a starting point for curriculum planning. They claim that the aim of curriculum and education is to lead students to a life that is personally fulfilling, and to help others to do so. The former aim is concerned with the students' good, the latter with society's good. However, these two aims are interlinked. 'A person's own flourishing revolves around all kinds of valuable relationships and activities. All of these relationships, and very many of the other activities, further other people's wellbeing as well as one's own' (Reiss and White, 2013, p.8). These two simple stated aims unfold into further sub-aims. First, leading a flourishing personal life includes meeting basic needs (e.g., shelter, food, health) and psychological needs (e.g., recognition, security, respect) should be met. It also includes developing personal qualities such as appropriate judgment, a measure of confidence and self-esteem, fortitude in dealing with reversal, and determination. Second, helping others to lead flourishing lives involves moral, civic and economic aims (Reiss and White, 2013; White, 2013). Moral education develops morality in learners in terms of respecting others' autonomy, being cooperative, helping others reach their goals, etc. Education for citizenship means engaging the learners to be active and informed citizens and cultivating their interest in order to take part in political issues in order to contribute to the general good of their society. Education for work involves helping students to make informed choices about the variety of vocational options so that they can contribute

to the general well-being of themselves and others through work (Reiss and White, 2013). These aims cannot be prioritised over the personal flourishing of students and should be harmonious with the flourishing all (White, 2013).

Similarly, Brighouse (2006) reflects on the aims of education and articulates a set of principles centred around promoting human flourishing. Brighouse's (2006) education should provide students with the opportunity to examine the varied ways of living. They should be given the right to be free, autonomous and capable of self-determination, even if this includes rejecting the path of their parents. Second, Brighouse argues that education should furnish students with the skills to be self-sufficient members of the economy as integration within the existing economy is vital for flourishing. However, Brighouse (2006) criticises those who place the interests of society and the economy before those of students. Third, education's role is also to enable students to live flourishing lives away from economic participation: a flourishing life in the sense that it provides conditions for a good life in which students can be happy. Brighouse contends that though this principle is very important, it has been neglected for the past 20 years in favour of standardised testing and accountability, claiming an academic curriculum can promote one's well-being but should not be the only source of flourishing. He spoke about incorporating life skill issues in the curriculum besides traditional subjects. These life skills include learning about family life (parenting and emotional development), work life balance, and financial literacy (investing, saving, budgeting, etc). (pp.54-55). Fourth, he states that education is about creating future citizens who are effective in the way they live together in society and how they take part in public decision-making.

Using different terms but sharing the same meaning, Biesta (2009) discusses notions of well-being in education that encompass three different purposes: the qualifications, society and individual. First, qualifications refer to the transmission and acquisition of knowledge and skills which enable individuals to become qualified either in the terms of qualifications or becoming qualified to live in complex modern societies. Second, socialisation refers to a set of practices, values and norms through which individuals are inserted "into existing ways of doing and being" (p.7) for the continuation of culture and tradition. Last, subjectification refers to the ways in which individuals can exist as subjects and become more independent and autonomous (Biesta, 2009, p.7). While qualification and socialisation functions are presented

as within the subject-driven approach of curriculum, subjectification whose role is the flourishing of the individual seemed to be debatable (ibid.).

2.3 Theoretical framework of educational choice

This section aims to introduce some of choice theories that are relevant to students' choice process. Research on students' educational choices has been conducted in relation to various fields such as sociology, psychology and economics, offering a conceptual foundations for the study of behaviour and choice (Paulsen, 1990). Three theoretical perspectives were used to inform the interpretation of this study. They are Eccles model, Narrative psychology and Bourdieu concepts of reproduction. These theories provide a lens to interpret how the science pathway and literary pathway students negotiated their pathway choice with an emphasis on the role of pathways values.

It, therefore, begins by discussing literature on an expectancy value model (section 2.3.1), highlighting the core assumptions of the Eccles model. The model proposes that expectations and values directly influence achievement choices and performance but are themselves influenced by a number of other social and psychological factors. The following section, 2.3.2, provides an overview of Bourdieu's conceptual framework, specifically, presents his key concepts (habitus, field, capital and practice). Within the discussion of habitus, there is an explanation of how institutions are viewed as a particular social site of reproduction in which an individual's habitus of particular choices could be formed.

2.3.1. Rational choice: Eccles' expectancy-value theory

Owing to the complexity of subject choices, many theories have explored the individual, psychological, contextual, and societal factors at play in the complicated process of subject choice, seeking to investigate relationships between these variables (Bøe and Henriksen, 2013; Regan and DeWitt, 2015). One of the most prominent frameworks which describes students' motivations for educational choice is Eccles et al.'s expectancy-value model (Eccles, 1993, 2009; Eccles and Wigfield, 2002; Wigfield and Eccles, 2000).

This framework is founded in social psychology, and incorporates social psychological, and cultural aspects that influence students' motivational behaviour (Bøe and Henriksen, 2013). It integrates many factors into a model that defines the relationship between students' expectancy for success at a task in relation to the value of the task (interest, utility value, attainment value and cost) (Eccles, 2009; Wigfield and Eccles, 2000). The fundamental tenet of the expectancy-value theory is that people's decisions can be explained by their expectations for their performance in various activities and how highly they value those activities.

A prominent strength of this theoretical model involves two components that influence students' expectations of success and subjective values. First, a psychological component includes individual characteristics such as abilities, perceptions of competence, self-concept, self-schemata, previous experiences, expectations and interpretations. Second, the sociological component is related to social variables such as socialisers' beliefs, cultural stereotypes and gender (Eccles, 2009; Eccles and Wigfield, 2002). It offers a comprehensive framework for analysing the various factors influencing students' considerations concerning educational choice (Henriksen, 2015). Expectancy value theory divided values into four components (Wigfield and Eccles, 2000): interest-enjoyment (intrinsic value gained from doing the activity), attainment (the importance of doing well on a given activity), utility (usefulness of the activity for future plans), and cost (the negative cost of engaging in an activity in terms of time and effort). There are two belief systems that are closely tied to the idea of human agency; an individual belief about their chances of achieving success and the significance they place on the choices they perceive as being available.

2.3.1.1 Agency-related components

Expectancy of success: as individuals' beliefs about how well they will do on upcoming tasks, either in the immediate or longer-term future (Eccles and Wigfield, 2002, p. 12). In the expectancy-value model, Eccles and Wigfield (2002) state that, theoretically, ability beliefs are broad beliefs about competence in a given domain, in contrast to one's expectancies for success on a specific upcoming task. However, they claim that these two concepts are not distinguishable empirically as individuals do not mark any difference between them. Eccles and Wigfield (2002) claim that people's competence beliefs relate to their subjective task

values, and influence the development of task values. They find that changes in secondary school students' competence beliefs over a semester predicted change in children's interest much more strongly than vice versa (Eccles and Wigfield, 2002). Similarly, in his earlier work, Wigfield (1994) proposes that young people's competence and task-value beliefs are likely to be mostly independent of each other. Over time, young people may begin to attribute more value to subjects in which they do well due to two reasons: first, through classical conditioning, the positive effect one experiences when one does well becoming attached to the successful subjects; and second, lowering the value one ascribes to difficult subjects which is likely to be an effective way to sustain a positive global sense of efficacy. Thus, competence-related beliefs and values might become positively related to one another (Wigfield, 1994).

Interest: In general terms, interest can be defined as '*the mind-set characterised by a need to give selective attention to something that is significant to a person such as an activity, goal or subject*' (Regan and DeWitt, 2015, p.69). While some researchers conceptualise interest in terms of value (Eccles and Wigfield, 2002), others conceptualise interest as a development (Hidi and Renninger, 2006; Renninger and Hidi, 2016). Interest is defined by Eccles and Wigfield (2002) as the enjoyment and intrinsic value gained from doing the activity, while others distinguish between interest and enjoyment describing enjoyment as associated with feeling pleasure and interest as linked to the desire to learn more. People who have a deep personal interest in a subject, however, will feel both of these simultaneously (as in Renninger and Hidi, 2016). Hidi and Renninger (2006) conceptualise interest as development. They describe a four-phase-model of interest development, in which they divide interests into 'situational' and 'individual' categories. While situational interest is brought on by a stimulation and may or may not disappear after it has passed, individual interest, which is independent of stimulus, is the propensity for a person to participate in a particular activity (Hidi and Renninger, 2006). Both could be considered to involve two phases; for situational interest situations, the first phase is a trigger, and the subsequent one is a maintenance phase. For individual interest, the first is an emergence of the interest, and the second is a demonstration that this interest is well developed. An individual can move through all four phases consequentially, moving their interest from situational to individual. However, moving through the subsequent phase for each type of interest is not guaranteed and can take place

from differing knowledge levels. In some cases, it is clear that an individual needs further support, whether this is from peers, parents, or a facilitator, in order to maintain or develop their interest (Hidi and Renninger, 2006; Renninger and Hidi, 2016). The development of interest unfolds through interactions with the environment (Renninger and Hidi, 2011), and external factors such as teacher support are also important here, both to stimulate and sustain interest in the face of challenge, and to stimulate students' feelings of self-efficacy. It is important to realise that interest is unlikely to develop in isolation (Hidi and Renninger, 2006). Each of the interest conceptualisations examined focuses on a distinct aspect of how people interact with specific content (Renninger and Hidi, 2011). Interest can also be used as one of the predictors for academic success and provide a motivator to overcome a variety of different difficulties in order to succeed, as the interest prompts a greater level of engagement (Renninger and Hidi, 2016).

Utility: The concept of utility is predominantly expressed in other choice models related to economics and psychology (Foskett and Hemsley-Brown, 2001). For some students, choices are made in order to increase utility and self-interest: for instance, thriving in the job market of the future. For others, choosing a course or a career is '*a form of investment-like decision-making behaviour*' (Paulsen, 1990). This model is labelled '*rational choice*' (Holmegaard et al., 2015) as students are rational decision makers and capable of making informed decisions about their education with the goal of maximising anticipated returns (Jæger, 2007). However, some academics contend that students cannot be fully rational because they are unable to make a rational decision merely because they lack the knowledge necessary to be systematic. In order for the rationality requirement to be satisfied, options must be ranked in order to maximise something. In reality, it is not possible to take account of all available information, to calculate the advantages and disadvantages, nor even to assume that students are not merely seeking what is '*good enough*' (Foskett and Hemsley-Brown, 2001). In the expectancy value model, utility value concerns how a choice is good or not in reaching long-term goals, such as career goals, or short-term goals. For example, some subjects give more credit than others in university applications which can grant them a higher utility value for some students, or a student may place a high-utility value on science and want to take up medical studies with no interest in the course (Bøe et al., 2011). Choices with utility value can be driven by external motivations. (Bøe et al., 2011).

Cost: This could be time or effort, for instance, the loss of time and effort in pursuits that might be more essential to one's identity, but they could also be aspects such as the certainty of passing or completing high achievement, needing to give up another choice, the potential of disappointing parents, or needing to dealing with negative stereotypes, anticipated anxiety and fear of failure (Bøe et al., 2011; Eccles, 2009). This model choices are assumed to be influenced by both negative and positive task characteristics, and all choices are assumed to have costs associated with them, precisely because one choice often eliminates other options (Eccles and Wigfield, 2002, p.11).

Attainment: Attainment value incorporates identity. One will probably put in more effort and be more motivated to do something if it's essential to one's sense of self. As they grow up, individuals develop an image of who they are and what they would like to be (Eccles, 2009, p.8). Eccles (2009) argues that attainment value presents the relationship between the the fit of the choice with the student's identity development and the importance that the student places on achieving the goal combined with that choice. The implication of this is that identity development is at the heart of an educational choice, both explicitly and implicitly through its influence on other aspects of the choice process. Identity development happens constantly as students negotiate their place in society, assimilating the available information, options and trends. Thus, there is a strong relationship between the knowledge one acquires about the choice, its associated utility value, the importance to achieve that choice, and developing one's sense of self.

2.3.2. Social and institutional reproduction of educational values and choices:

Bourdieu's theory

Within his theory of social reproduction, Bourdieu propose three concepts: habitus, capital and field, and the interaction of these components results in generating a '*logic of practice*' (Bourdieu, 1984, 1990). This relationship was presented in the following formula: '[(habitus) x (capital)] + field = practice' (Bourdieu, 1984). Bourdieu's sociological framework places significant importance on these theoretical concepts as they provide insights into the intersection of social structures and individual agency.

2.3.2.1 Habitus

This represents internalised dispositions that guide individuals thinking, acting, values and behaviour. Bourdieu (1984) defines habitus as '*internalised and converted into a disposition that generates meaningful practices and meaning giving perceptions; it is a general, transposable disposition which carries out systematic, universal application*' (p.170). Habitus refers to more than norms and values, because it is embedded within everyday actions, many of which are sub-conscious (Thomas, 2002). Bourdieu goes on to explain that habitus is embodied through the expressions of '*durable ways of standing, speaking, walking and thereby thinking and feeling*' (Bourdieu, 1990, p.70). Thus, the family structures one's educational experiences through the process of habitus. These experiences, then, influence and change the habitus, which in turn shapes subsequent experiences such as further education or employment (Thomas, 2002). Bourdieu states that socialisation has an important role in the shaping of habitus and making up the system of dispositions through the influence of family and schools; people with similar experiences are more apt to develop a similar set of dispositions for analysing and comprehending the world (Bourdieu, 1990). Although habit is formed throughout one's life, it is suggested that early socialisation has a disproportionately large impact since it creates the so-called '*primary habitus*', which serves as the foundation for all later habit forms (Bourdieu and Passeron, 1990). Bourdieu (1984) suggests that people who share the same social world will often have similar experiences, embodied inclinations, and tastes. This is because shared social experiences have a tendency to form a collective habitus. As a result, habitus may be shared by all individuals who belong to the same group or class and display a same social history. Although there is an on-going process of re-structuring of the habitus, change is slow (Thomas, 2002).

2.3.2.1.1 Institutional habitus

Another crucial concept that draws heavily on Bourdieu's concept of habitus is institutional habitus. Many researchers (Reay et al., 2001; Tarabini and Fontdevila, 2017) have advanced the literature on Bourdieu's theory of social reproduction and developed new perspectives on how to study schools as institutional practices in relation to students' choices, performance and achievement. Reay et al. (2001) define the institutional habitus as '*the impact of a cultural group or social class on an individual's behaviour as it is mediated through an organisation*'

(para. 1.3). Using the concept of institutional habitus, Reay et al. (2001) examine the ways in which the effects of the schools (institutional habitus) interact with students' race, gender and class to influence their educational trajectory in terms of accessing elite universities. Reay et al. (2001) conceptualise institutional habitus as constituted of three dimensions: the educational status (elite universities), organisational practices (such as subject entry requirements) and expressive order (attitudes and assumptions that form institutional habitus). The institutional habitus of these dimensions demonstrates how advice from others, prejudice and cultural bias affect students' choices and their chances of success from various socioeconomic and cultural backgrounds (Reay et al., 2001; Tarabini and Fontdevila, 2017).

Institutional habitus refers to the set of predispositions, taken-for-granted expectations and schemes of perception on the basis of which schools are organised (Reay et al., 2001). The significance of institutions is evident in Bourdieu's work. Bourdieu views the education institutions as socially and culturally biased as the knowledge of the dominant groups is favoured to the detriment of other minority groups. (Thomas, 2002). Most researchers in this field see school as the major source of institutional habitus that only serves to maintain the reproduction of inequalities. This happens when researchers single out schools as the sole focus of research and disregard them as social actors seeking to reproduce their own status in the educational field (Çelik, 2021). Institutional habitus does not celebrate and prize diversity and difference; therefore, students from diverse backgrounds do not find greater acceptance of and respect for their own practices and knowledge, but instead it prioritises and valorises one set of characteristics (Thomas, 2002).

2.3.2.2 Capital

Capital describes the resources in a society that can generate forms of social advantage within specific fields for those who possess it (Bourdieu, 1984, 1986). In *Forms of Capital* (1986), Bourdieu identified three key types of capital – economic, social and cultural capital – which interact with a person's habitus within a field or social context to produce relations of privilege or subordination within society. **Economic capital** refers to resources that are most immediately converted into money or financial wealth. **Social capital** is made up of 'social obligations', relationships or networks. **Cultural capital** exists in three main states/formations: institutionalised which is gained from institutions (e.g., qualifications, diploma, degree),

embodied which is inherited or internalised (e.g., forms of knowledge) and objectified which is represented in the form of cultural goods (e.g., cultural goods and artefacts) (Bourdieu, 1986). Skeggs (2004) suggests that the process of legitimizing capital holds more significance in generating advantage or privilege, rather than the actual nature or shape of the capital itself. Thus, in any particular domain, the most influential forms of capital are those intrinsic values that can be easily transformed into symbolic representations that align with the field's expectations. For instance, Bourdieu regards education as one such symbolic representation.

2.3.2.3 Field

In order to understand interactions or to explain social phenomena, Bourdieu suggests it is necessary to examine the social space in which such interactions or events occur, rather than simply look at what was said (Bourdieu, 1984). Field is the social space in which interactions, transactions and events occur. Although such interactions may occupy a physical space, field does not necessarily refer to a physical setting. Rather, field represents a system of power and social relations that acts to structure what is imaginable or possible for individuals, either as perceived or actually possible (Bourdieu, 1984). The relative power that determines positions of dominance and subordination and locates individuals and groups within fields is determined by the distribution and accumulation of capital in the form of cultural, social or economic resources. Individuals and other agents try to distinguish themselves from others and acquire capital that is useful or valuable within that arena and, as such, fields are seen to be hierarchical. Individuals are seen to struggle to increase or maintain their account of capital and hence improve or keep their position within the hierarchy of the field (Laberge and Kay, 2002). However, the distribution of capital is not fixed but sensitive to the struggles between agents, which leads to fields being constituted by a fluid system of social positions as individual positions continually move in a field, both as the outcome of the struggle for ascendancy or in some cases due to the entry of new agents (Laberge and Kay, 2002). In fact, the entry of new agents into a field may transform the internal structure by altering the power relations between various agents already occupying that space.

2.3.2.4 Education pedagogy and symbolic violence

Bourdieu was interested in how institutions, such as schooling, play a role in the reproduction of inequalities. Bourdieu and Passeron (1990) explore how cultural meanings are transformed

into forms of capital by groups in society who then impose these meanings on others by hiding their arbitrary nature. The focus is on how the education system utilises action, pedagogic authority and pedagogic work in schools and how these elements are interconnected.

Pedagogic action consists of a set of policies and laws. Bourdieu and Passeron (1990) define pedagogic action as the *'imposition of a cultural arbitrary by an arbitrary power'* (p.5), whereby *'cultural arbitrary'* stands for the taken-for-granted beliefs, ideas and power relations. Therefore, it is perceived as a fundamental basis for exercising symbolic violence, seeking to impose meaning (Bourdieu and Passeron, 1990). The arena of pedagogic action is the larger social space where individuals engage in a competition to promote their own vision of how the world should operate. These interests can either be supportive of maintaining the current state of affairs or in favour of bringing about changes (English and Bolton, 2015). Pedagogic action exists in three forms: first, informal education emerging from the interaction among the members of a society; second, education in the family; and finally, formal education (Ağın, 2018).

An important element of pedagogic action is pedagogic authority (Bourdieu and Passeron, 1990). Institutions receive pedagogic authority to implement pedagogic actions (English and Bolton, 2015), which results in pedagogic work that implies *'the process of inculcation which must last long enough to produce a durable training, i.e. Habitus'* (Bourdieu and Passeron, 1990, p. 31). The role of pedagogic work involves socialising students as young individuals to understand their place in society and perpetuating the values upheld by the dominant group. This is achieved by instilling in students the acceptance of these values as legitimate, natural and the way things are (Bourdieu and Passeron, 1990).

... pedagogic work (whether performed by the School, a Church or a Party) has the effect of producing individuals durably and systematically modified by a prolonged and systematic transformative action tending to endow them with the same durable, transposable training (habitus). (Bourdieu and Passeron, 1990, p.196)

One significant method through which educational work is accomplished involves the use of symbolic violence. Symbolic violence pertains to a phenomenon where individuals, based on

their personal experiences, unconsciously adopt certain patterns of thinking and behaviour that align with the existing unequal power dynamics (Bourdieu and Passeron, 1990).

These theoretical perspectives are important for the analysis in Chapters 5 and 7, which explore the pathways' streaming practices and social discourse within secondary schools that can reinforce existing inequalities within these pathways.

2.4 Research into students' educational choices

The conceptual background of the previous sections sets the scene for a better understanding of subject choice, guiding the reader across the conceptual perspectives used in this thesis. This section conveys the empirical work which led to finding a gap in research on subject choice.

'Choice is a fundamental process of human existence ... for the choices we make express our beliefs, values and personal priorities' (Foskett and Hemsley-Brown, 2001, p.1). Researchers have defined two broad approaches to researching choice in education. These are factors in choice, and the process of choice at a specific point in time. The former discusses the range of factors that influence a student's choice of a subject, and the latter identifies how choice processes operate and how each factor dynamically plays a role in each part of that process (Foskett and Hemsley-Brown, 2001).

Although this categorisation was helpful to understand educational choice, the empirical review used a different categorisation with results organised into three groups: rational, sociological and narrative identity perspectives. Nuances exist between these groups in terms of how time is conceptualised and whether a factor or process approach was used.

The search for empirical studies informed the design of this research study, and it was conducted through performing Boolean searches with various search engines such as Google, Google Scholar and the University of Leeds online library services (e.g., web of science), using the identified keywords ['STEM choice', 'subject choice', and 'secondary school/higher education students']. The scope of searching was restricted to peer-reviewed articles around educational choice. Additionally, the search for empirical studies was based on some research projects: IRIS (Interests and Recruitment in Science), and ASPIRES Research. These projects

were held in European countries, like the UK (England, Scotland, Wales and Northern Ireland), Denmark and Norway. They used some original methods, and provided a good overview of key findings. These empirical studies focus mainly on the third research question, which concerns outcomes of pathway choice. They draw on a range of theoretical and analytical frameworks in order to address different aspects of young people's educational choice processes. The various approaches have yielded multifaceted results and interpretations concerning subject choice – and STEM/science subjects in particular (Henriksen, 2015).

Sections 2.4.1, 2.4.2 and 2.4.3 describe and analyse a review of empirical work on educational and career choices in secondary schools and the higher education sector. It starts by presenting international research on students' choice of subjects and careers related to them. It discusses the methodological and theoretical frameworks used, and how these were useful in explaining students' educational choices.

- Studies in section 2.4.1 identified how rational studies, mostly located in the Eccles model, have examined students' choices of subjects and careers in secondary and post-secondary sections (in a manner that accounts for their interests and engagement, and achievement motivation). Though its focus is on the social and cultural dimensions, these aspects of the model are often under-utilised in studies. These studies often look at choice as a one-time decision and often used quantitative methods (e.g., Bøe and Henriksen, 2013; Hasni et al., 2017; Palmer et al., 2017), though recently more research has started to lean towards using the Eccles model qualitatively (e.g., Lauermann et al., 2017).
- Studies in section 2.4.2. identified other type of studies that are located in the sociocultural sphere (Bourdieu's 'capital' approach). Although these studies used an integrated approach to choice factors using factors analysis, their theoretical perspective is primarily sociological, focusing on how students' choice processes reflect their identity, with notable impact from social background, race and gender, and making extensive use of Bourdieu's concept of 'capital' and identity, within which subject choice is viewed as a dynamic process. Therefore, a range of quantitative and qualitative methods were employed, including longitudinal studies to access how students' choices are formed across time.

- Studies in section 2.4.3 identified other types of studies that used more explanatory approaches located within narrative identity perspectives (narrative psychology) to understand how students relate themselves and others to the process of subject choice. These studies approach students' choice with an understanding that choice is a process that is ongoing and subject to change. Young people's educational choices are likely to be shaped in various complex ways over time (Bøe et al., 2011). Looking at methods, research within these studies tends to use longitudinal qualitative methods and/or mixed methods. Although this type of study views research into factors as important in stressing the personal and social nature of choice, it calls for more process-oriented research to better understand how students make meaning of their choices through its emphasis on two central concepts – identity, and time (Holmegaard et al., 2015) – and how individuals make meaning of the present by negotiating what was before (in retrospect) and what is expected in the future (prospective) (Holmegaard et al., 2015, p.2). A narrative approach provides an understanding of choice of study as a continuous process whereby individuals work on their identities in terms of negotiating and constructing a coherent choice narrative (Holmegaard et al., 2015, p.1).

2.4.1 Choice from rational decision-making perspectives

Historically, one aim of research has been to examine students' educational options by identifying the components of those choices (Holmegaard et al., 2014a). Many studies have examined students' relationship to subjects at school through the constructs of attitude, interest and motivation. These studies describe factors that influence these constructs, such as gender, ethnicity, teaching methods, the advice of significant others and participation in out-of-school activities (Hasni et al., 2017; Palmer et al., 2017). The research literature confirmed that there is no single factor that has universal influence because different students are persuaded by distinctly different factors, and many different factors influence children's decisions. These factors are also interrelated, making it difficult to disentangle the effect of any one variable (Regan and DeWitt, 2015). Due to the complexity of students' choices, many approaches have been taken to understand the decision-making process (Bøe et al., 2011) and to investigate the connections between these factors in a way that could effectively incorporate empirical findings into models of enrolment behaviour (Regan and DeWitt, 2015).

One of the most prominent expectancy value frameworks that describe students' motivations for educational choice is Eccles et al.'s expectancy value model (Eccles, 1993, 2009; Eccles and Wigfield, 2002; Wigfield and Eccles, 2000). Many empirical studies have been conducted using the expectancy value framework to understand students' motivational behaviour in educational choice (Bøe et al., 2011). In a longitudinal study, Lauermann et al. (2017) point out that students' maths- and science-related career goals are a direct consequence of their expectancy of success and value beliefs about these subjects. Students consider both what they are good at (academic self-concept) and what they like (interest) when choosing a future career or university course. Students' self-concept of their subject ability and their impression of the difficulty of the subject play a key role in the choice of a subject (Osborne and Collins, 2001). Lykkegaard and Ulriksen (2016) find that subjective values have a larger impact on educational decisions than expectations of success. Interest, in particular, is found to be among the most important factors for choices of education and occupations in STEM subjects. In a study, interest emerged as among the key factors forming subject choice (Purcell et al., 2008). It is worth noting that interest in the topics per se can be different from interest in school subjects as experienced in the classroom. For instance, Osborne and Collins (2001)

distinguish between interest in the science content and interest in aspects of school science. While pupils saw the study of science as important and were engaged by topics when they could perceive an immediate relevance to their daily lives, many pupils perceive school science as a subject dominated by overly repetitive content and lacking sufficient challenge (Osborne and Collins, 2001).

In other studies, interest overlaps with other factors. For example, according to Palmer et al. (2017), students ranked interest, subject ability and perceived necessity for their future study or career plans as the most important factors in both choosing and rejecting subjects. Conducting a quantitative study about what status students assign to science and technology compared to other subjects in the curriculum, Hasni et al.'s (2017) results showed that science and technology's status (preference and importance) was higher than for any other subject, showing a strong positive relationship between the science and technology relative status and students' motives to pursue further studies and careers in science and technology. The expectancy value framework is useful in explaining young people's decisions regarding their career choices. In their study, Lauermann et al. (2017) suggest that career aspirations may function as an antecedent of academic motivations and should not be perceived as only a consequence of such motivations.

As an example of how the model has been used to show how expectations of success and subjective value predict the utility values students ascribe to a subject, Caspi et al.'s (2019) study explores which factors contributed to students' academic choices, finding that interest and utility value are the main motivators for choosing STEM careers. Findings show that utility value and interest are cited as students' main motivators for STEM choices, while expectancies for success are mentioned less (Caspi et al., 2019). In another research project, Mujtaba and Reiss (2014) find that students' decisions to continue with physics (or mathematics) after it is no longer required is highly predictable by their perception of the usefulness of science degrees (for a desired job).

In upper secondary school, the usefulness for future careers frequently emerges as a key factor in choosing these courses. Some students may choose upper secondary STEM subjects to obtain admission, while others want to keep their options open or gain entry into prestigious higher education courses, or secure a well-paid job (Bøe and Henriksen, 2013). However, STEM education programmes are unlikely to be viewed as simple routes to financial

security or other employment benefits due to their perceived high costs. (Bøe and Henriksen, 2013). For instance, these subjects are usually thought to be more difficult and have a heavier workload than most other subjects (Osborne and Collins, 2001; Cuff, 2017). Another study (Bøe and Henriksen, 2013) explores Norwegian students' motivations, and their expectations for physics in secondary and tertiary education, adopting the expectancy value model. Their findings highlight three categories of upper-secondary student motivations: the extrinsic category focus is mainly on utility; the intrinsic category accentuates the interest factor; and the intrinsic and extrinsic categories are broadly motivated by interest, ability beliefs and utility for university admission. The researchers note that most students who entered secondary physics and who fit either the intrinsic or extrinsic and intrinsic categories would continue to pursue tertiary physics; those categories expressed a stronger consensus regarding their desire to study physics than the extrinsic characteristics (Bøe and Henriksen, 2013). The researchers explain that students who chose physics appeared to have plans for their education that did not involve physics; these plans include taking physics to keep their options open or to fulfil entrance requirements (Bøe and Henriksen, 2013).

A similarity between this model and previous studies is that the Eccles model contains factors that affect students' decisions, such as ability, beliefs, values, etc. However, it has been observed in studies in the sense that all these components are linked to the notion of identity as providing new ways of approaching students' process of subject and career choices through identity framework (Bøe and Henriksen, 2013; Holmegaard et al., 2014b). Jensen and Henriksen (2015) exploring how do science and technology students describe their educational choice, findings show that although attainment value is not as readily identifiable in students' answers as are in interest-enjoyment or utility value, it is often expressed more subtly and is among the motivations described when students often express that their choice fitted well with how they perceive themselves.

A range of factors such as cultural setting, cultural stereotypes, and parents and teachers have been widely researched. Drawing on an older body of research, Eccles (1993) argues that value attributed to a given task or domain of achievement by socialisers (parents and teachers) influence children's motivational constructs such as self-belief, values of the task, personal efficacy and identity. Caspi et al. (2019) maintain that the values students attribute to STEM besides some environmental factors (perceived peer interest and ability in STEM) predict

students' motivations for choosing a STEM major; students who chose a STEM major had higher scores for subjective task value and expectation of success, and perceived effects of environmental factors than their counterparts who majored in non-STEM disciplines. In addition, the positive perceptions of their peers' interest and ability in science contributed significantly to students' choice to major in STEM disciplines (Caspi et al., 2019). Inspiration and influential popular media such as articles, books, radio, TV programmes, magazines, films and documentaries are also described by students in terms of having created interest and hence affecting choice (Jensen and Henriksen, 2015; Schreiner and Sjøberg, 2007). Jensen and Henriksen (2015) discover that students are focused on values and expectations when describing their educational choice. Interest has arisen and been developed through school and family experiences, leisure activities, science outreach and exposure to popular culture. We aim to identify the discourses that young people draw upon when they describe their choices and to relate these to expectancy value theory as well as the media.

A prominent strength of the Eccles theoretical model that involves two components – a psychological and a sociological component that influence students' expectations of success and the subjective values of social variables, such as socialisers and gender – is its acknowledgement of the importance of identity (Eccles, 2009). Culture defines gender and the stereotypes related to jobs, subjects and activities. Young people use these stereotypes as tools in their identity work. They have their own perceptions of each stereotype, and they are influenced by parents, peers and other socialisers. (Bøe et al., 2011, p.8). For example, Bøe and Henriksen (2013) find that students who knew what career to choose aspired to go into engineering (particularly males) or medicine (particularly females). They concluded that these students tried to fit their career choice into their identity. Their choices are culturally defined as they are influenced by stereotypes related to jobs and subjects that are gender-specific (Bøe and Henriksen, 2013). In this regard, norms, stereotypes or expectations that young people encounter, and which may constrict their perception of the options accessible to them and the roles they are expected to assume, are an example of the role of others in shaping and maintaining subject aspirations.

2.4.1.1 Limitations of expectancy value model

Many studies using the expectancy value model have examined students' choices of subjects and careers in secondary and post-secondary sectors – in a manner that accounts for their interest and engagement, achievement motivation, and the social and cultural dimensions (e.g., Bøe and Henriksen, 2013; Palmer et al., 2017). Although this model has proven valuable for understanding students' choices in the above studies, other studies have shown that there are important aspects that need to be considered further.

Research on subject choice using rational models, such as the expectancy value model, was often statistical, particularly with regard to the decision to study science. Although these statistical studies are helpful historical records, they tend to ignore what students say is happening in schools that affects their subject and career decisions (Pike and Dunne, 2011) preferring to qualitatively explore how they interact and '*create a sense of fit for individual students*'. They were criticised for focusing too much on the choice and not the students themselves (Holmegaard et al., 2014a). Many studies employing quantitative research show that students' expectancy and subjective task value beliefs reported at the beginning and end of secondary school predict each other over time. (e.g., Lauermann et al., 2017). Lykkegaard and Ulriksen (2016) claim that the model has been mainly employed in studies using a single measurement and is therefore too simplistic, and that the model needs to be supplemented by qualitative data related to the model's feedback loop and its ability to capture changes over time or the complexity of students' choice processes (p.719). In their study, Lykkegaard and Ulriksen (2016) explore the reflections of 15 students in their last year in upper-secondary school concerning their choices of tertiary education. They employ the expectancy value model to examine whether the factors indicated in the model could statistically be used to detect significant changes in the students' educational choice processes, finding evidence that the quantitative surveys and qualitative interviews gave quite different results concerning the students' considerations about the choice of tertiary education, and that significant changes in the students' reflections were not captured by the factors in the expectancy value model. Moreover, the quantitative factors from the model did not sufficiently explain students' dynamical educational choice processes, whereby students in parallel considered several different potential educational trajectories. Lykkegaard and Ulriksen (2016) collect data at various points to allow the pattern to emerge from multiple data points over time, and

their findings underlined the importance of collecting different types of data to provide an explanation for the observed changes over time.

The arrows in the diagram of the expectancy value could suggest that choices are made instantaneously and result from a series of influences that progress from left to right in the model. The expectancy value model in theory was designed to be fluid and dynamic, providing a framework for understanding how these factors develop and evolve over time and how they interact with each other to shape decisions (Eccles, 2009). Time is represented by an arrow completing a loop to demonstrate how all these different factors are susceptible to change, due to circumstances and time itself ultimately influencing decision-making processes. The Eccles et al. model might be interpreted to mean the expectation of success and subjective values underpinning choices are subject to change in relation to both space and time (Eccles, 2009). Eccles (2009, p.81) explains that: *'Since the model plays out over time, I have included one arrow to illustrate the fact that today's choices become part of tomorrow's history of experience. This arrow includes the agentic effects of individual's choices on subsequent behaviors of socializers and the larger cultural milieu'*.

Theoretically, the development of the expectancy value model aims to create an evolving and dynamic framework. This model provides a perspective on how various factors evolve and interact over time, influencing decisions. However, the empirical evidence in many studies using this model demonstrate how such an interpretation of the choice process is rather limited, as it states that choices happen in an instant in time and are the outcome of a series of influences (Ryder et al., 2015).

2.4.2. Choice within sociological perspectives

While the previous section provides a useful way to explore a range of factors that influence students' subject choices, it does little to take the concept of time into account, seeing choice as a purely rational decision made at a particular point in time. This is where other research studies and literature that view choice as a dynamic process, influenced by a wide range of socio-cultural factors (Foskett and Hemsley-Brown, 2001), are also incorporated. This section identifies studies that are located in a sociological approach, and uses the factor analysis approach in which subject choice is viewed as a dynamic process. Therefore, a range of

quantitative and qualitative methods is employed, including longitudinal studies to access how students' choices are formed across time.

In order to tap both the breadth and depth of students' aspirations, perceptions and attitudes towards subjects – STEM subjects in particular – wider research projects like ASPIRES, and IRIS have conducted longitudinal studies, employing qualitative and mixed research methods approaches. For instance, the first phase of the ASPIRES project (a 13-year research project tracking young people's educational and career trajectories from age 10 to 23) tracked the development of young people's science and career aspirations from age 10 to 14. The second phase continued to track young people until the age of 19 to understand the changing influences of the family, school, careers education and social identities and inequalities on young people's science and career aspirations. The third stage of the research, ASPIRES 3, continued to track the young people as they move into adulthood and employment. Over 40,000 young people have taken part in the research, including large-scale national surveys and in-depth interviews (Archer et al., 2013). Similarly, the IRIS research used a variety of quantitative (questionnaire IRIS Q that comprised a total of 65 items ranging between multiple-choice and open-ended questions) as well as qualitative approaches (focus group and individual interviews) (Henriksen, 2015), which were completed by almost 7,000 first-year STEM students in the five IRIS consortium countries in 2010–2011. The questionnaire was based on the theoretical perspectives adopted and on previous projects covering school science experiences, sources of inspiration for choice of education, expectations for future job, first experiences as a STEM student, and attitudes to gender equity in STEM (Henriksen, 2015).

Despite the amount of research (e.g., Eccles model) showing that interest is a main factor leading students' educational choices, an extensive amount of research within this line of work has investigated students' choices in general, and sciences/STEM choices in particular have shown that students' enrolment in science/STEM subjects declined as students advanced to higher grade levels. There was substantial evidence that students around the age 15-16 reach a stage of making their first decision about taking non-compulsory subjects and disengage from science (Bøe et al., 2011). For instance, in the ASPIRES project, almost all students reported interest towards science, yet very few young people aspire to become a scientist. Students may perceive that subject choice '*as not for them*' and choose not to study

it at the post-secondary level (Archer et al., 2010, 2013). In contrast to the Eccles model, research (e.g., Archer et al., 2010; Holmegaard et al., 2014b) does not always find that interests decide students' choices. These studies find that even students who find science interesting do not necessarily consider choosing it. They show how some students either are challenged in seeing science as something for them or are prevented in being recognised as someone belonging within science.

In this respect, the ASPIRES study look at Bourdieu's capital approach as a way to better comprehend the reasons why some students continue studying science after it is no longer required and the reasons behind those who do so in post-compulsory science (Moote et al., 2020). Cultural capital has been predominantly framed by Bourdieu in relation to the arts. In the ASPIRES project, Archer et al. (2015) propose rethinking of Bourdieusian arts-based forms of capital given the scale of technological and social change. Archer et al. (2015) developed the concept of science capital as an analytic concept to help make sense of children's science and career aspirations, and also as methodological tool that is generalisable to measure science capital. A theoretical model of science capital captures all the science-related resources or capital that a student might possess, including scientific literacy and knowledge (what students know), attitude to science and how they think about it (what students think), what type of science-related activities people do in their free time (what students do) and who they have as social contacts (who students know) (Archer et al., 2015; DeWitt et al., 2016). Science capital comes from a variety of sources which include school, home and family outside school learning and the students' daily experiences (DeWitt et al., 2016; DeWitt and Archer, 2015). Students have different amounts of science capital which affects whether they feel science is for them or not (Archer et al., 2022). It was found that the more science capital a young person has, the more likely they were to continue with science when it is no longer compulsory. Children from families with greater access to scientific resources, such as parents who work in science-related jobs or have scientific qualifications, appeared more likely to be interested in a future in science or plan to pursue at least one science (Archer et al., 2013, 2014; DeWitt et al., 2016). Students with greater aspirations in science tended to report more favourable parental attitudes towards science (DeWitt and Archer, 2015). Moreover, encouragement from an adult plays a key role in maintaining and developing students' aspirations in STEM (Archer et al., 2022). Longitudinal tracking within the ASPIRES project also

suggested that these patterns became stronger over time (DeWitt and Archer, 2015). Mujtaba and Reiss (2014) find that the main element that motivates students that intend to continue studying physics after high school is the encouragement they receive from their teachers. In their study, the focus was drawn towards the dominant discourse that science majors are only for ‘the clever’, that it is demanding and challenging and that in order to study science disciplines, students must believe they are ‘clever’. Findings indicate that this is an image that many students, including high achievers, find challenging to identify with (Archer and DeWitt, 2015). Thus, the discourse that *‘science is challenging and for the clever’* prevents students of both genders and students from underrepresented groups from participating in science (Archer and DeWitt, 2015). For example, Archer et al. (2022) understand that one of the key reasons some students who studied advanced level (‘A level’) chemistry at age 18 did not choose to pursue a undergraduate chemistry degree is the feeling ‘not clever/enough’ and views associating chemistry jobs with masculinity. These findings are not necessarily surprising, as they also align with additional research around who does and does not continue to participate in science. The stereotypes about scientists are still pervasive and do not align well with the ideals that are promoted in modern society, especially for young women (Mujtaba and Reiss, 2014). Young people will never have a truly free choice of education until these cultural barriers are removed. Henriksen (2015) claims that norms, stereotypes or expectations that young people are exposed to limit their perception of the options available to them and the roles they are expected to take on. This area of research perceives students’ subject and career choices as closely related to identity, calling for more attention to be given to the role that identity development plays in students’ subject orientations in school and university (Archer et al., 2010; Holmegaard et al., 2014a; Holmegaard et al., 2014b; Schreiner and Sjøberg, 2007). In an earlier study from the project, Archer et al. (2010) used the lens of identity to explore the processes underlying the formation of 10- and 11-years-olds’ engagement with science. Identity is understood as *‘both embodied and performed constructions that are both produced agentically by individuals and shaped by their specific structural locations’* (Archer et al., 2010, p.619). Findings show some students’ choices appear incomprehensible and complex due to the predominant interplay of discourse on gender, class and race and around science and the identity of a scientist. For example, many students, even though interested in doing science, could not identify with the image of being scientists in the future due to constructing science as ‘masculine’, ‘brainy’ and ‘hard’. One longitudinal study

(Schreiner and Sjøberg, 2007) sought to explore participation and engagement in science, addressing differences linked to students' sense of self-identity, and how this plays a major factor in how they respond to school subjects. In a response to the statement 'I would like to be a scientist', students in developing countries wanted scientist to be part of their identity, while the majority of students in what is called the developed world did not perceive an identity as a scientist as part of who they want to become. All these studies are focused on the role of broader socio-cultural influences on students' subject interests, including the social and cultural dimension. They offer insights into the manner in which students construct representations of educational and career choice over time, in which students are required to balance who they expect to become if choosing a particular study programme (Schreiner and Sjøberg, 2007) with societal discourses of what a proper choice is (Hsu et al., 2009). For instance, instead of viewing choices as simple decisions or purely cognitive phenomena, Archer et al. (2022) suggest thinking of choosing or not choosing a chemistry degree as an ongoing '*tug of war*', a metaphor capturing the idea that multiple factors, forces and experiences (resulting from interactions between habitus, capital and field) interact within complex circumstances. These circumstances involve constant tension and negotiation exerting both positive and negative influences on the inclination towards chemistry or other alternatives.

2.4.3 Choice from narrative psychology perspective

While studies in the previous section showed a sociological perspective in which choice factor analysis was used and the personal and social nature of choices discussed, making extensive use of Bourdieu's concept of 'capital' and identity, in which subject choice is viewed as a dynamic process that reflects identity work, there is a call for more process-oriented research (Vulperhorst et al., 2022). Therefore, this section discusses the general movement towards psychological (discursive) perspectives. This rationale is approaching student choices through the eyes of the students themselves through narratives rather than focusing on choice factors. What is important for this research is therefore not to identify the components which affect students' choices but rather to qualitatively explore how they interact and '*create a sense of fit for individual students*' over time (Pike and Dunne, 2011).

One Scandinavian study (Holmegaard et al., 2015) explores how students perform and construct their post-tertiary choices. Holmegaard et al.'s use of identity framework develops the understanding of how students create '*a sense of fit*' and how they make sense of the discourses they draw upon in their narratives. In choosing their future, however, in order to gain recognition for the stories they tell, they are restricted by the overall storyline of how a proper choice is expected to be performed (Holmegaard et al., 2015). A few theoretical perspectives were used to inform the work in these studies like discursive analysis (Hsu et al., 2009) and narrative psychology. For instance, Hsu et al. (2009) use the framework of discursive psychology as a theory and a method, seeking to understand the discourse available to students to express their views about a science career. This Canadian study draws on discourse psychology to gain insights into how students ascribe meanings to different discourses in order to articulate their science-related career choices: that is, how they use discursive practices to make meaning of themselves and their identities and make themselves recognisable through using language in particular ways. Another theoretical perspective not too far from discourse analysis informing the work in these research projects is narrative psychology. The table shows other studies using discourse analysis as a psychology source with narrative theory (Holmegaard et al., 2014a, 2014b, 2015). Narrative psychology in this sense is used to express the individual and cultural facets of student narratives; therefore, it is combined with other sociological theories, such as late modern theory (Holmegaard et al., 2014a), post-structuralist theory (Holmegaard et al., 2015) and governmentality theory (Holmegaard et al., 2014b) in order to provide a wider view on the relationship between identity and culture. For example, Holmegaard et al. (2014a) use narrative psychology as the main methodological approach and combine it with the theory of late modernity, which is used to explain the context in which students' subject and career choices are made. Theory of late modernity is used to understand the setting in which the choices are situated and the implications for the student's way of choosing what to continue studying (Holmegaard et al., 2014a). Based on the same longitudinal study but analysing different aspects of it, Holmegaard et al. (2014b) investigate students' perceptions of STEM and whether they decide to choose to continue studying it or not. Michel Foucault's theory of governmentality, which views discourses as platforms for students to think and act upon, was combined with narrative psychology, used as a methodology to provide insights into how students make meanings of their narratives. The findings show that science was described by these students as rigid and

fixed. While these ascribed characteristics pushed away some students from choosing science, as they leave students with little room to govern themselves, they attracted some other students who perceived science as a secure and stable path for further study. This shows there are different ways of constructing an identity and different ways of interpreting its construction (Holmegaard, 2014b).

What distinguishes these studies is that narratives are embedded in the social and cultural surroundings, though they are continuously renegotiated after being tested in an individual's social interactions. According to Holmegaard et al. (2015), language plays a significant role in justifying these renegotiations. They emphasise the use of the phrase '*I always*' as a means to indicate a steadfast and carefully considered decision. The researchers observed that this phrase was commonly employed when a narrative of choice had undergone significant changes over time.

In general, these studies approach students' choices with an understanding that choice is a process that is ongoing and subject to change. Young people's educational choices are likely to be shaped in various complex ways over time (Bøe et al., 2011, p.8), and identity as a theoretical lens can enhance our understanding of students' choices, as put forward by Archer et al. (2013). Within such a framework, identities are not conceptualised as accumulative over time, stable or coherent, but continuously performed and negotiated through discourse, relations of power, cultural settings and social structures (Madsen and Holmegaard, 2023).

2.5 Agency and narrative psychology

Having the reader guided across the main theoretical perspectives used in this thesis, this section conveys the empirical work which led to finding a gap in research on subject choice.

From this review of studies, the major points concluded are as follows. First, studies categorised under section 2.4.1 provided clear insights into the main personal factors influencing the educational choice (i.e., subjective task values and expectancy of success). Second, the literature review often approached students' educational choice from a perspective of identity and narrative identity studies (especially the studies categorised under section 2.4.3). Such an approach is needed to understand how students make meaning of their

choices and how they relate themselves to higher education. Third, the literature review incorporated a focus on how socio-cultural factors such as social background, gender and ethnicity interact with students' educational choices and transition to higher education. Finally, these qualitative, longitudinal studies (especially the studies categorised under sections 2.4.2 and 2.4.3) provide rich insights into choice as an ongoing process. Finally, most of these studies researched STEM and science-related disciplines.

The above review acts as a tool to inform the construction of the methodology to approach the aim in two ways.

First, there is a considerable body of research that looked at educational choices that is largely framed around sciences and STEM, with little focus on choices in non-science/STEM subjects. These studies were useful in explaining students' engagement with sciences in with the hope of increasing participation in STEM. However, the literature shows there is only a limited body of work that explicitly explores different perspective on different subjects (particularly, humanities, social sciences and the arts). This study is intended to contribute to the research into the values of different school subjects (in this case, the science and literary pathways) by exploring what perspectives students and pathway advisors have regarding these pathways in secondary schools in Algeria and how these values influence their pathway choices.

Second, these studies (categorised in section 2.4.3) do not see students' subject choices as a purely rational decision made at a particular point in time. Rather, 'choice' is seen as a dynamic process, influenced by a wide range of social and cultural factors (Foskett and Hemsley-Brown, 2001) and a student's developing sense of identity. Identities are not isolated constructs but co-constructions between the individual, their surroundings and their relationships; consequently, focuses on individuals, their actions and their agency (Shanahan, 2009).

However, while identity is a point of contact, agency is a more active and purposeful concept that helps us recognise that identity can be transformed if students are empowered rather than deprived. The explicit use of the concept of agency was not strong in these studies. Student agency is becoming a central concept in educational policy and practice. It is widely conceived as a policy objective and as a condition for student success (Klemenčič, 2022, p.2) and conceptualised as *'a temporally embedded process of social engagement, informed by the past (in its "iterational" or habitual aspect) but also oriented toward the future (as a*

“projective” capacity to imagine alternative possibilities) and toward the present (as a “practical-evaluative” capacity to contextualise past habits and future projects within the contingencies of the moment)’ (Emirbayer and Mische, 1998, p.962). All three of these constitutive dimensions of human agency are to be found, in varying degrees, within any concrete empirical instance of action (Emirbayer and Mische, 1998, p.11), and this idea of agency as social action is influenced both by the dynamic element of agency itself and the temporal-relational contexts of action. Therefore, in the context of students’ choices and engagement, agency pertains to the inherent ability to engage in self-reflection and purposeful interaction with the environment in which individuals are embedded (Klemenčič, 2022). The capacity to be reflexive (to think about oneself, to reflect inwardly) is at the core of human agency and understanding, and it is this capacity to be reflexive which is the point of connection between the individual and the social (Parker, 1991, cited in Crossley, 2000, pp. 529–530).

This study suggests that students exercise their agency of pathway choice through engaging in a self-reflexive process over time in relation to pathway values. While agency provides the researcher with a critical lens to examine the extent to which literary pathway and science pathway students were agentic in constructing their choice narratives in relation to the institutional and social structures and associated pathway values, narrative psychology provides an analytical tool to unpack how students construct their narratives and make meaning out of them over time, allowing insights into how the process of choosing a field of study impacts students’ future outlooks and shapes their interpretation of past experiences (Holmegaard et al., 2015). In this regard, students’ choice narratives are understood as being shaped by social and institutional structures and their own agency. Institutional and social structures in relation to pathway values shape students’ sense of agency, which is revealed through constructing and re-constructing their choice narratives.

2.6 Chapter summary

This chapter defines the theoretical orientation of this study by situating it within the existing literature in the fields of education aims and values and students’ subject choices. The first half of this chapter tried to answer the question about the aims education should serve

through shedding light on two main perspectives of education aims. The first is the subject-driven approach that is based on assessing subjects in terms of their intrinsic features (for intellectual development) or their instrumental features (satisfying social needs). The second perspective focuses on bringing balance and harmony between society and the individual while representing school subjects in a way that does not take priority as an aim in education but focuses on other prior aims, such as human flourishing. The second half of this section outlines the theoretical concepts that explore how students negotiate their choices within the social and institutional systems of power that constrain choices through constructing narratives of pathways values. A review of empirical studies relevant to the focus of this research is also presented, and a review of where these fields overlap is discussed alongside how the present study addresses gaps in the literature.

Chapter 3. Research methodology

This chapter outlines the methodological approach, which includes stating the research questions, and presenting the research paradigm and design, participants and sampling strategy, site selection, data collection procedures, ethical considerations and data analysis. Finally, an overview is provided to explain the impact of COVID-19 on the original research design.

3.1 Research questions

The reviewed literature aims to establish a context for the present study by introducing and discussing literature on concepts of interest (educational aims and students' subject choice). The first section of the literature highlighted the controlling power of educational aims that find an educational expression in the context of school subjects and pathways. The second section shed light on how choice has been conceptualised as a social nexus and how individuals' choices are strongly tied with the social forces surrounding them. The proposed study is underpinned by the following questions:

- 1 What values do different stakeholders hold in relation to pathways in Algerian secondary schools?
- 2 What factors underpin educational pathway values in Algerian secondary schools?
- 3 How do educational pathway values in Algerian secondary schools influence students' pathway choices?

The structure of these questions reflects the theoretical and methodological background of the research. Research question 1 begins by considering the social contexts in which educational pathways come to be valued in certain ways through interviewing key stakeholders, namely, secondary school students and pedagogic counsellors and is followed by research question 2, which explores how the social and institutional structure affects students' values regarding the science and literary pathways, and what hidden discourse and implicit messages they receive about the values of these pathways. Research questions 3 aims to capture the students' negotiation of their choice narratives in relation to pathway values.

3.2 Research paradigm and design

In order to make a link between research methodology and questions and the philosophical direction of the research, a paradigm of inquiry should be determined (Costley et al., 2010). According to Bogdan and Biklen (1982), a paradigm is *'a loose collection of logically held-together assumptions, concepts, propositions that orient thinking and research'* (p.30). For Creswell (2014), a paradigm *'is a general philosophical orientation about the world and the nature of research that a researcher bring to study'* (p.8). Every single paradigm is composed of a set of three main components: epistemology, ontology and methodology (Costley et al., 2010; Guba and Lincoln, 1994). In an attempt to define the basic beliefs of any paradigm, Guba and Lincoln (1994) shed light on three main questions. Ontological questions are centred around the nature of reality and how can we access reality. Epistemological questions address the relationship between the knower and the known. Methodological questions are concerned with the practical process that bridges the knower and the known.

The theoretical framework supporting this study is *'constructivism'*. Guba and Lincoln (1994) claim that the constructivist framework recognises a relativist ontology, a transactional and subjectivist epistemology, and a hermeneutic, dialectical methodology. For this theoretical worldview, individuals seek to interpret the complex world in which they live subjectively through the lens of their experiences, and the meanings they form from these experiences are various and diverse (Creswell, 2014). In order to give meanings to our experiences, we tend to create conception, images and notions which are constantly subject to change in accordance with our changing experiences (Schwandt, 1994). The researcher, therefore, approaches these multiple experiences with a tendency to *'look for the complexity of the views rather than narrowing the meanings into a few categories of ideas'* (Creswell, 2014, p.8). Approaching the constructivist paradigm, an individual's subjective reality is viewed as socially constructed, and knowledge is not viewed as being *'discovered by the mind but continuously created and constructed'* and that *'reality is expressible in a variety of symbols and language systems... stretched and shaped to fit purposeful acts of intentional human agents'* (Schwandt, 1994, p.125). The researcher aimed throughout this study to voice participants' personal

experiences, reflections and beliefs (Costley et al., 2010, p.84) and gain insights into their lived experiences through interpreting the meanings they attribute to their world (Creswell, 2014).

As the constructivist view is widely related to qualitative research (Creswell, 2014), this study adopts a qualitative approach. While the quantitative research focuses on testing theories, establishing facts and describing statics (Bogdan and Biklen, 1982), qualitative research focuses on *'exploring and understanding the meaning of individuals or groups ascribe to a social or human problem'* (Creswell, 2014, p.4). Unlike quantitative research which focuses on measuring the relationship between two or more variables (Creswell, 2014), qualitative research describes social phenomena as being *'so complex and interwoven that they cannot be reduced to isolated variables'* (Yilmaz, 2013, p.311). Creswell (1994) characterises qualitative research in terms of two features: namely, *rhetoric* and *axiology*. Whereas rhetoric describes the language used in the study as personal and informal, axiology is based on the belief that research is value-laden and biased; that is, researchers cannot be separated from what is being studied as they are affected by the worldview of their surroundings and they bring this worldview to the study. Similarly, Denzin and Lincoln (1994) claim that the framework adopted by qualitative approach is value-laden rather than value-free as the researcher seeks to identify reality as socially constructed and something through which our social experiences are constructed and given meaning. This means that the idea of multiple realities is endorsed, which means in turn that researchers should deliver a trustworthy account of their participants' realities (Creswell, 2014). The qualitative researcher continuously asks, *'How do people negotiate meaning? How do certain terms and labels come to be applied? How do certain notions come to be taken as part of what we know as "common sense"?' (Bogdan and Biklen, 1982, p.28)*. There is a variety of models in qualitative research (Creswell, 2007). Given the nature of this research, the study will explore in depth students' narratives of pathway values and choices in their natural context.

3.2.1 Narrative approach

Narrative is a discourse with a clear sequential order that connects events in a meaningful way and thus offers insights to the world and people's experiences of it (Hinchman and Hinchman, 1997, p.xvi), providing *'the researchers with a rich framework through which they can investigate the ways human experience the world through their stories'* (Webster and

Mertova, 2007, p.9). Narrative is not an objective construction of life, but it is rendition of how life is perceived (Webster and Mertova, 2007, p.3). Therefore, narrative approaches, and narrative psychology in particular, were used in this study to explore how individuals perceive themselves as *'living within a progressive story'* (Lykkegaard and Ulriksen, 2016, p.311). Narratives are understood as storied structures (Holmegaard et al., 2015). This study has used narrative methodology to provide insights into students' choices and their experiences upon choosing either the science or literary pathway; it gave access to understanding students' pathway choices as a process of constructing meaning that includes shifts viewpoints on plans for the future as well as interpretations of the past (Ulriksen et al., 2013). This meaning-making process was explored over an extended period of time (the fieldwork period), which reflected students' negotiations of their pathway choice (Ulriksen et al., 2013) in terms of the present (who one is), who one wishes to become (the prospective account) and how this fits one's notion of self (retrospective account) (Bruner, 2004). The use of this methodology highlighted how students' choices were clearly influenced by various factors and contexts (Holmegaard et al., 2015; Ulriksen et al., 2013). *'Meaning making is both embedded in the cultural context where the narratives take place, and constructed in relation to the individuals' own and their surroundings' sense of the individual's self. Individuals cannot freely invent narratives that aren't recognizable in terms of these two central aspects – the culture and other people'* (Holmegaard et al., 2015, p.34).

3.2.2 Positionality

Positionality has been described as a key strategy in the process of generating knowledge by means of qualitative research as it is recognised for its continual internal dialogue and critical self-evaluation of researcher's positionality as well as active acknowledgement and explicit recognition that this position may affect the research process and outcome (Berger, 2013, p.2). In this case, the researcher was both an insider and an outsider. As an insider, she was familiar with the schooling system and culture of the wider social context, having studied in the Algerian education system for 13 years, including three years of secondary school. She had been through the same experience of choosing what pathway to study 14 years earlier. She also shared the participants' first language; therefore, she could feel the benefit of picking up the cues of colloquial language that are only understood among individuals who share the

same linguistic and cultural setting. The fact that the researcher shared a considerable level of commonality with the participants helped her to conduct qualitative research in a way that enabled her to learn more about other people's experiences as she could connect well with them and gain their trust. This all facilitated the progress of data collection.

However, the researcher's insider positionality presented some challenges. For example, she may not have been fully aware of the criticality of what participants said due to her shared context with the interviewees. For instance, participants often used the word 'they' when they internalised values that people in their social network ascribed to pathways, and the usage of such words appeared clear to the researcher due to her familiarity with the context; therefore, retaining something of her outsider position, the researcher realised that she no longer belonged to that schooling context and had never worked in mainstream Algerian schools. Having this in mind, she soon learnt how to develop a high level of awareness and never implicitly assumed what the participants meant. She learned always to probe further into issues that might have otherwise been overlooked or taken for granted by asking for clarification: 'what do you mean by this word?'

Though it is difficult for any researcher to make the research totally free of biases and assumptions, controlling one's biases from personal experiences is vital for enhancing the accuracy and rigour of the research and keeping its process ethical; therefore, it is necessary to ensure one's positionality and reflexivity of the research journey is needed (Berger, 2013). In order to maintain reflexivity throughout all phases of the research project, the researcher evaluated her research conduct through keeping a diary to reflect on her reasoning, judgments and emotional reactions. Moreover, she made use of prolonged engagement with participants through repeated interviews (Berger, 2013).

3.3 Sampling and site selection

3.3.1 Site selection

This study was conducted in two public secondary school in the researcher's province. The research site was decided by two factors. First, choosing the research locality was based on the logic that the social structure surrounding students plays an important role in influencing students' choices and perceptions of educational pathways as shown in the literature; therefore, including two different types of schools (urban and sub-urban) brought different social contexts, backgrounds and social structures. Based on common observation, there were notable contextual differences between rural and urban environments regarding school resources (such as class size, technology access and teaching staff), parental education, practices and socio-economic background. All these factors may have had an influence on the way students value different school subjects and pathways. The second factor deciding the research site was that the reviewed literature suggested that there is a link between the concept of school subjects and achievement and that part of people's perceptions of school subjects could be based on the attainment value they attribute to different subjects. Therefore, shedding light on two different schools in terms of attainment strengthened this research project.

3.3.2 Participants and sampling strategy

A purposeful sampling strategy was predominantly employed in this study. Creswell and Clark (2007) define purposeful sampling as a *'means that the researchers intentionally select participants who have experience with the central phenomenon, or the key concept being explored'* (p.112). Researchers use purposeful sampling in qualitative research when they want to study a small sample of subjects whose study will help to obtain a breadth of data and a thorough understanding of the issue under study (Yilmaz, 2013). In addition to purposive sampling, this research also included elements of snowball sampling, which worked as an effective strategy to recruit additional participants (Bryman, 2012). There are four pedagogic counsellors in this study. The researcher initially approached two pedagogic counsellors, one working in an urban school and the other in a sub-urban one, and one of

these pedagogic counsellors put the researcher in contact with another two pedagogic counsellors whom she thought might be interested in taking part in this study. They agreed to have a phone call, in which the researcher could explain the purpose of this study, and they were sent an email with the information sheet and consent letter before both confirmed their interest in participating.

The participants of this study were students and pedagogic counsellors. The rationale of selecting participants from different backgrounds was to establish a comprehensive picture of how pathways are valued by different stakeholders. In order to ensure trustworthiness in terms of the sampling in this study, the researcher chose participants with different roles, backgrounds, positions and experiences because this reflected the real world of curriculum values in the Algerian education system and reflected how students' experiences of the curriculum are shaped by their broader social context. It involved students and pedagogical counsellors (see tables 3.1, 3.2, 3.3, 3.4).

Students

The students that were the main focus of this study were between the ages of 15 and 17 years, and all participating students were enrolled in either the science or literary pathways. They were also required to be in their first year of secondary school. The reason this grade was picked was that in their first year students are not yet streamed into sub pathways (see table 1.3); that is, they either belong to the science or literary pathway. However, in their second and third years, they are streamed into further sub pathways, which in this case may complicate the sampling process.

Pedagogical counsellors

Pedagogical counsellors are responsible for streaming students either onto the literary or science pathway, and it was believed that including them in the study would enrich the data and bring unique and special insights to the research. The criteria through which the pedagogical counsellors stream students onto either of the two pathways is dependent on the students' preference, their overall performance in their fourth year at middle school and the directions of the counsellor.

3.3.3 Access to schools and participants

The researcher applied for official authorisation from the Academy of Education in the province where the fieldwork was conducted. It took around three weeks to finalise the official approval necessary for ethical conduct of research in the school. After that, to formally access the secondary schools, the researcher took with her the official authorisation letter, and she talked to the head teacher. The researcher successfully gained the participation from two schools. First, she gained access to a sub-urban school because she had a relative who was a teacher at the school, which made access to participants easier. Soon after that, the researcher gained access to an urban school near where she was based, following the same procedures. The researcher took around a month to approach the participants of both schools and get their approval. During that time, the researcher attended the schools frequently to converse with potential participants, as she wanted to build rapport with them and explain the purpose of the study to them. This was mainly done in the schoolyard during students' mid-day break or in the classroom with the teacher's approval and with pedagogical counsellors at their offices. The participants were given an information sheet and a consent form for participants (see Appendices A.7, A.8 and A.9). The information sheet explained to participants what the research was about, what they were required to do, how their data would be communicated. The prospective participants were also assured that it was possible to withdraw from the study (see ethical considerations section 3.4).

The data collection was planned to be conducted in schools. However, due to COVID-19 and the national lockdown of the schools. The researcher had to proceed working with the urban and sub-urban schools only. Schools were closed until further notice. Therefore, the researcher had to adapt to the imposed situation and consider doing fieldwork remotely (see section 3.8 for further clarification).

The fieldwork lasted around nine months. In accordance with the time scale and the amount of work the researcher could manage, the study was intended to recruit a minimum of 12 students in both schools and a maximum of 18 students. The researcher initially managed to get the approval of 16 students; however, four of them withdrew from the study for personal reasons before the start of the interviews. Therefore, the researcher had managed to eventually recruit 12 secondary school students from the two schools, with six students

recruited from each school, and three students from each pathway. Even though gender was not among the main features of the study, there were participants from both genders between the two pathways. This was challenging due to the relatively low number of males taking either the science or literary pathway compared to the female students. The participating students comprised nine females and three males. Four pedagogic counsellors joined from four different secondary schools in different areas. They were of different ages and had working experience in middle schools and secondary schools and in different school areas (urban, sub-urban and rural). All the pedagogic counsellors were females, which was coincidental, as there was one pedagogic counsellor per each school, and all of them happened to be female.

Participants characteristics

The tables below show significant characteristics of the students and pedagogic counsellors profiles.

| Participants and schools | Students | | Pedagogic counsellors |
|-------------------------------------|-------------|----------|-------------------------|
| | Science | Literary | |
| Urban school (High-attaining) | 3 | 3 | 2 |
| Sub-urban school (medium-attaining) | 3 | 3 | 2 |
| Total | 12 students | | 4 pedagogic counsellors |

Table 3.1: Overview of participant numbers in this study

| Participants | Pathways | Gender | Attainment | |
|--------------|------------------|--------|------------|--|
| Nouri | Literary pathway | Male | Average | |

| | | | | |
|---------------|------------------|--------|---------|--|
| Doria | Literary pathway | Female | High | Urban and high-attaining school |
| Shiraz | Literary pathway | Female | Average | |
| Rukaya | Science pathway | Female | High | |
| Fares | Science pathway | Male | High | |
| Ryhem | Science pathway | Female | Average | |

Table 3.2: Science and literary pathway students in an urban, high-attaining school

| Participants | Pathways | Gender | Attainment | Sub-urban |
|---------------------|------------------|---------------|-------------------|------------------|
| Dhikra | Literary pathway | Female | Average | |
| Insaaf | Literary pathway | Female | Average | |
| Nabila | Literary pathway | Female | High | |
| Karima | Science pathway | Female | High | |
| Asma | Science pathway | Female | Average | |
| Hadi | Science pathway | Male | Average | |

Table 3.3: Science and literary pathway students in a sub-urban, medium-attaining school

| Pedagogic counsellors | Gender | School Type | Working experience | School level |
|------------------------------|---------------|--------------------|---------------------------|---------------------|
| Amel | Female | Urban | 12 years | Secondary school |
| Jamila | Female | Urban | 4 years | Secondary school |
| Sameh | Female | Sub-urban | 2 years | Secondary school |
| Nasira | Female | Sub-urban | 20 years | Secondary school |

Table 3.4: Overview of pedagogic counsellors

3.4 Ethical considerations

Informed consent

Since this study was conducted in two public schools, it was required that consent was obtained from the provincial Academy of Education of the city where the fieldwork was conducted and from the principals of each school.

The researcher made sure to fully inform them about the purpose of this study, how they were going to take part, why their participation was important and whom the research findings would benefit. The researcher had their verbal as well as written consent. The process of informed consent took place before the schools shut down due to COVID-19. The involvement of students aged between 15 and 17 (minors) required the consent of their parents, and a consent form was sent to their parents to be signed if they agreed that students could participate in the research. In addition the research goal and the nature of the students' participation were explained clearly to all the students in plain language.

Confidentiality

The researcher assured all participants that their participation was voluntary, that they could opt out from the study at any time, and that all the information they shared would be kept confidential and anonymous. Therefore, the names of the participants and schools were anonymised to help them express their opinions freely. During the interview, participants

were asked if they want to anonymise any vulnerable information they shared. Interviews were audio-recorded after obtaining the participants' consent. The safety of data storage was assured, and it was only used for the purposes of the research study.

The interviews with students and pedagogic counsellors were supposed to be conducted in the school. However, after the emergence of COVID-19, the location was no longer an issue as face-to-face research was conducted instead as online research.

Data protection

The electronic data collected was stored safely on the M drive of Leeds University, which is password-protected and is accessible by me only. Four secondary school students had to withdraw from the study for personal reasons, their electronic data were erased, and the hard copies were destroyed.

According to Leeds University's ethics policy on COVID-19, the researcher did not have to resubmit an ethics amendment form for a second time because the way in which the researcher interacted with participants was safe in terms of COVID-19 restrictions, and no substantial amendments were made to the original research such as recruitment methodology.

3.5 Data collection methods

The primary tool used for data collection in this study was semi-structured interviews with students and pedagogic counsellors. The interviews were originally outlined to be face-to-face individual meetings, but due to COVID-19 and the national lockdown of the schools, the researcher had to adapt to the imposed situation and consider doing fieldwork remotely (see section 3.8 for further clarification).

The table below provides an overview of the research questions, their purposes, instruments, research participants, and technical support.

| Research Question | Purpose of Research Questions | Research Participants | Instruments | Technical Support |
|--|---|-----------------------|--|--------------------------------------|
| 1. What values do different stakeholders hold in relation to pathways in the Algerian secondary schools? | To explore the social contexts in which educational pathways come to be valued in certain ways | Students | Three rounds of narrative interviews with each participant | Audio recordings + Field notes |
| 2. What factors underline educational pathway values in Algerian secondary schools? | To explore how the social and institutional structure affect students' values of the science and literary pathway. What messages they receive about the value of these pathways in their lives. | | | |
| 3. How do educational pathway values in Algerian secondary schools influence students' pathway choices? | To explore how all those received messages may have or may have not affected their pathway choices | Pedagogic counsellors | One semi-structured interview with each participant | |

Table 3.5: Overview of research questions in relation to the value of research questions, participants, instruments and technical support (before the emergence of COVID-19)

3.5.1 Pilot study

The researcher conducted a pilot study before formally starting the fieldwork to check the feasibility of the data collection method that is proposed for the research. A pilot study permits researchers to gain an understanding of the study design as it provides them with the opportunity to evaluate and prepare recruitment strategies, data collection methods and analysis in case any change is necessary (Doody and Doody, 2015). Conducting a pilot study can be viewed as a risk-mitigation strategy as it reduces the chance of failure in a larger project. Another prominent advantage of conducting a pilot study is it allows the researcher to develop and enhance their communicating skills before approaching the larger study (Doody and Doody, 2015).

The first step towards the refinement of the data collection tool involved obtaining academic advice from the supervisors of this research study. Their feedback was invaluable as they provided guidance on the structure, content and wording of some of the interview questions. After that, the research had to put the interview guide to the test. The interviews were piloted with two first-year students – one male student on the science pathway and one female student on the literary pathway – from the same sub-urban school in which the fieldwork was conducted. This meant that the students in the study shared similar demographic characteristics. Both students provided verbal consent, and they were interviewed face-to-face twice in the school. The interviews last around 1 hour 30 minutes with each participant. The researcher looked to recruit one pedagogic counsellor from another secondary school that was not included in the study. While the head teacher of that school approved access the school for the researcher and to talk with potential participants for the pilot study, the pedagogic counsellor for that school refused to participate due to heavy workload. The researcher did not want to think about interviewing the pedagogic counsellor in the sub-urban school, as each secondary school has only one pedagogic counsellor and that one needed to be saved for the actual study.

The pilot study allowed the researcher to get a ‘feel’ for the interview process in terms of probes and prompts with secondary school students. After the interviews, students were given the question guide and were asked for their feedback (e.g., about the clarity of the

question, etc.) to improve the questions. As a result, the pilot study led to the following changes:

- The interview guide was designed to elicit students' and pedagogic counsellors' values. The researchers decided to ask questions about values in general instead of encouraging a response about relative values. The researcher decided to let the relative aspect of pathways to either show as outcome of the analysis or not. For instance, instead of asking questions like 'which pathway has more importance to you?', the question turned into 'how do you think school pathways are important?' (see Appendices 5 and 6).
- For the purpose of the nature of this study as a narrative approach, the researcher had to rephrase some questions. For instance, the question 'why did you choose the science/literary pathway?' was rephrased as 'how did you come to be on the science/literary pathway?' Overall, the expression that roughly translated to 'how come?' in the local language was used instead of asking why-questions. Moreover, since the time factor was important in this study in terms of how students negotiate their choices over time, the number of interviews was extended from two to three.
- The interview guide questions were divided into a group of topics (see Appendices 6 and 5) instead of creating a long list of question, and the order and phrasing of certain questions and words were modified.

3.5.2 Conducting narrative interviews

Narrative psychology led to combining semi-structured interviewing with narrative approach. The primary aim of conducting narrative interviews was to understand how over time students create meaning and engage in the exchange and recognition of narratives within their cultural context of secondary school to explore how they navigate their decisions, progressively revising their account of their choices to ensure its persuasiveness to others and themselves (Holmegaard et al., 2014a). Therefore, a set of questions were prepared in advance to be covered, but the order of these question were different. Besides this, follow-up questions and probing questions were used depending on the participants' responses. In the narrative interview, the main objective was to encourage students to expand upon

and share their personal stories. The interviewer's role was to explore the students' meaning-making by asking follow-up questions (Holmegaard, 2015). The researcher was a co-constructor of the narrative through understanding, interpreting and questioning certain aspects of the narrative (Holmegaard et al., 2014a).

In total, three round interviews were conducted with each of the 12 participants to allow for the narrative to unfold over time. The average interview length was between one and two hours with the students, and 1.5 to two hours with the pedagogic counsellors. It was noticed that students were more spontaneous than the pedagogic counsellors, who were more formal and diplomatic, which might explain why students' interviews took longer, given that they were interviewed three times and the pedagogic counsellors only once. The researcher counted 40 audio-recorded interviews. The interview format included a list of main topics and preparation of a pertinent list of open-ended questions to be addressed during the interviews (see Appendix 5). The students' interview guide focused on three main areas of interest that were important to cover in order to answer the research questions.

The first interview focused on pathway values in general. This interview was meant to explore what values they held around pathways and what experiences led them to value the two pathways in certain ways, asking participants directly this time what their own perspectives were regarding pathway values.

The second interview was built on the previous interview, focusing on streaming practices and policies. The questions tackled the period in which the pedagogic counsellor communicated the streaming process and policies to the students for the first time. This is usually done in an information session (or sessions) held in the classroom. This is an important area to include in the interview, as it is considered a crucial phase for the students to formally contemplate their pathway values and choices, and also gain an insight into the institutional system of practice around streaming. These questions provided insights into how the social and institutional structure affects students' values regarding the science and literary pathway and the hidden discourse and implicit messages they received about the values of these pathways.

The third interview focused on the process of the pathway choice (see Appendix 5). This interview guide was designed to probe into students' experiences with pathways at a deeper

level. It was concerned with how values, standards and norms regarding educational pathways came to influence their pathway choices. The narrative approach was used most in this interview. Using this approach, the researcher avoided questions like ‘why did you chose x pathway?’ and more open questions such as ‘tell me how you came to be on the X pathway?’ and ‘what did you mean when you said x?’ were encouraged. Prompts, probes, requests for elaboration and clarification were used so that the participants could expand on their accounts and tell their stories in more detail.

| School | Pathway | Students | First interview | | Second interview | | Third interview | |
|------------------|------------------|----------|-----------------|------------|------------------|------------|-----------------|------------|
| Sub-urban school | | | Duration | Date | Duration | Date | Duration | Date |
| | Literary pathway | Insaaf | 49 min | 09/05/2020 | 1h 37 min | 03/06/2020 | 1h 57 min | 12/06/2020 |
| | | Nabila | 1h 38 min | 15/08/2020 | 1h 9 min | 21/08/2020 | 2h | 24/08/2020 |
| | | Dhikra | 1h 39 min | 01/04/2020 | 44 min | 15/04/2020 | 1h 29 min | 30/10/2020 |
| | Science pathway | Hadi | 1h 14 min | 10/05/2020 | 1h 44 min | 04/06/2020 | 1h 44 min | 17/06/2020 |
| | | Asma | 1h 2 min | 13/04/2020 | 1h 47 min | 19/04/2020 | 1h 58 min | 11/05/2020 |
| | | Karima | 1h 40 min | 30/03/2020 | 1h 53 min | 13/04/2020 | 1h 42 min | 16/05/2020 |
| Urban school | Literary pathway | Doria | 53 min | 5/07/2020 | 1h 30 | 8/07/2020 | 2h 6 min | 22/07/2020 |
| | | Shiraz | 1h 16 min | 28/07/2020 | 1h 23 min | 01/08/2020 | 1h 41 min | 03/08/2020 |
| | | Nouri | 48 min | 13/07/2020 | 56 min | 01/08/2020 | 2h 9 min | 18/08/2020 |

| | | | | | | | | |
|--|-----------------|--------|-----------|------------|-----------|------------|------------|------------|
| | Science pathway | Fares | 2h | 12/08/2020 | 1h 47 min | 18/08/2020 | 1h 51 min | 27/08/2020 |
| | | Rukaya | 1h 44 min | 26/08/2020 | 2h 04 min | 11/09/2020 | 1 h 39 min | 18/09/2020 |
| | | Ryhem | 1h 12 min | 14/09/2020 | 43 min | 15/09/2020 | 1h 10 min | 19/09/2020 |

Table 3.6: Overview of students' interview data

The pedagogic counsellors' semi-structured interviews were also composed of the same three topics but were all combined in one interview (see Appendix 6), providing insights to answer the three research questions. As shown in the empirical literature above, social influence makes a very significant input into students' choices. Therefore, conducting semi-structured interviews with pedagogic counsellors enriched data as their perceptions and opinions brought unique and special insights in the research.

| Pedagogic counsellors | Interviews | |
|-----------------------|------------|------------|
| | Duration | Date |
| Nasira | 1h 33 min | 30/03/2020 |
| Sameh | 1h 54 min | 26/10/2020 |
| Jamila | 2h 10 min | 08/11/2020 |
| Amel | 1h 48 min | 29/09/2020 |

Table 3.7: Overview of pedagogic counsellors' interview data

3.6 Qualitative data analysis: thematic approach

Qualitative analysis is a '*process of reviewing, synthesising and interpreting data to describe and explain the phenomena or social worlds being studied*' (Fossey et al., 2002). Similarly, Dey (1993) defines qualitative analysis as the process of resolving data into its constituent components to reveal its characteristic elements and structure. Creswell and Clark (2007)

maintain that the analysis of qualitative data is about *'aggregating the words or images into categories of information and presenting the diversity of ideas gathered during data collection'* (p.6).

Thematic analysis was used to address all the research questions. It was considered a good fit for the primary research purpose of this study: to identify commonalities in experience and perceptions across participants in relation to a shared phenomenon (pathway values). The use of thematic analysis allowed a holistic exploration of the students' narratives and lived experiences of the educational pathways taking into account the differences, intersections and uniqueness of each student. The thematic analysis allowed an exploration of the collective and shared meaning and experiences of the science and literary pathway students, and its use was mainly drawn from Braun and Clarke (2006, 2013). However, the researcher drew on the work of some other qualitative researchers such as Bazeley (2013), Rubin and Rubin (2005) and Saldaña (2021).

3.6.1 Data analysis steps

Data familiarisation

The first step was familiarisation with the raw data. After each interview, the researcher took notes detailing any significant information or impression that emerged. All audio recordings of interviews were generated from the interviews with all the participants. They were transcribed in the local language (Algerian Arabic) into Microsoft Word. The focus of this study is thematic rather than linguistic in that it concentrates on the content of participants' responses rather than the way these answers were conveyed. Some researchers argue that prosodic features such as intonation are needed. However, in some cases, this was found to be an important feature in the analysis as it could influence the interpretation of content. Therefore, participants' expressions of emotions, such as laughter, chuckling, hesitations, sighing etc. were identified.

While transcribing, the researcher was able to recall those times and relive the same feelings and impressions she had, and she jotted down some initial ideas and impressions. After she finished transcribing, she listened to the recordings several times while reading and re-reading the text to familiarise herself with the written and spoken data ensure that accuracy

standards were met, such as repetitions, pauses etc. She would write down notes and reflections to catch ideas on the fly while listening to the interviews and reading the transcripts.

Although the researcher came to this analysis process with an already-built knowledge and thoughts, she would always try to distance herself from the transcript and recordings. She followed Bazeley's (2013) suggestion of approaching the transcripts as if they had been written by a stranger so that she avoided any premature closures and following any initial hunches. The researcher read through the transcripts and took some notes about participants' conceptions and ideas but also how they expressed their ideas, the examples they made, the language they used and the feelings and emotions that emerged. The example below shows some examples that were taken from the participants' interviews of how the researcher tried to understand what went underneath the spoken words.

Examples: Asma, a middle attainer on the science pathway, made a metaphor of '*middle-class people and working-class people*' to describe the difference between her as a middle-attainer science pathway student, and those higher attainers science pathway students.

Language: When participants talked about students changing pathways from the science pathway to literary pathway, they might use words like '*go up*' and '*go down*'. These specific choices of words may reveal their inner values, beliefs and thoughts.

Feelings and emotions: When participants expressed their point of view regarding an issue, their intonations reveal what emotions are accompanying their opinions. For example, Shiraz challenged the social view of literary pathway and science pathway students being differently valued by society, and her intonation showed feelings of frustration, sadness and sometimes repressed anger.

The researcher tried to read the data analytically, generating some initial ideas and thoughts around the research questions. In order to facilitate the analytic engagement, she asked herself the following questions:

- Why might they be making sense of things in this way (and not that way)?
- How would I feel in this situation?
- How could their account be different?

- What assumptions underpin the data?
- What worldview does the account imply or rely on?
- What implications might this account have? (Braun and Clark, 2013, p.8)

At this stage, the researcher started using computer software as she became familiar with NVivo 12 through which all the interview transcripts were uploaded. NVivo was an efficient tool that kept a record of all the data and reflections and allowed for effective and efficient retrieval of coded data while enabling the observation of links across large datasets

Initial data generation

The researcher read the transcripts carefully and created initial codes that captured the meanings and patterns that she viewed as important in the data, as it is essential to use precise terminology. She used codes and potential themes or, as Braun and Clark (2006) call them, '*candidate themes*' (p.224) throughout this text. Braun and Clarke (2006) define a code as the building blocks that combine to create themes and tend to be more specific than themes. They also note that codes capture a single idea associated with a segment of data that identifies what is of interest in the data and in relation to the research question. For example, a literary pathway student said '*my teachers advised me to choose science pathway; even my teachers in humanities subjects advised me to go for science pathway, because I was an excellent student, but I insisted on the literary pathway*'. This quote was coded as 'Science pathway for high-attaining students'. On the other hand, a theme captures a common, recurring pattern across a dataset clustered around a central organising concept. A theme tends to describe the different facets of that singular idea, demonstrating the theme's patterning in the dataset (Clarke and Braun, 2006) Therefore, a theme is not something that is, in itself, coded but an outcome of coding, categorisation or analytic reflection (Saldaña, 2021). For example, 'Science pathway is for high-attaining students' can be a code, but 'achievement value' can be a theme.

Some researchers like Joffe and Yardley (2004) propose that coding cannot be purely inductive, and it needs to flow from the principles that underpin the research and the specific questions one seeks to answer, while others (e.g., Braun et al., 2016) suggest letting the code be generated from the data and do not advocate for the development of coding frame. For them, the thematic analysis should be flexible in the sense that it does not delimit the scope

of coding, which may, in turn, delimit the researcher's reflexivity process during coding (Braun et al., 2016). Furthermore, the specific research questions are liable to evolve during the coding process because themes are not necessarily based on research questions, where the researcher's role is to locate them within data, but themes are instead the final result of codes being the building blocks as a result of the active engagement of researcher (Braun and Clarke, 2006; Braun et al., 2016).

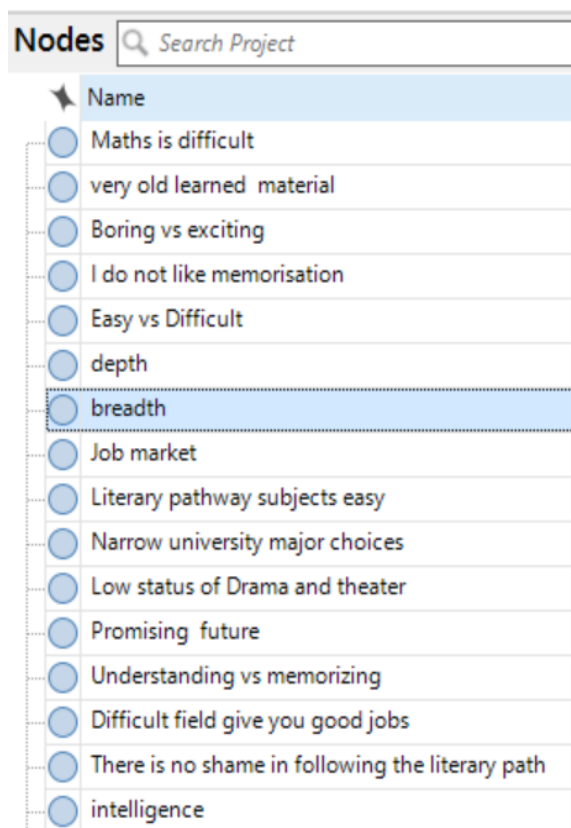
The approach to coding adopted to answer the research questions was an abductive one. The approach of data-coding and theme development were both '*data driven*', whereby the content guides the developing analysis (Braun et al., 2016) and theory-driven in that the results were interpreted in the light of the literature. At the beginning of the process of NVivo coding, the researcher approached the data with some theoretical concepts in mind to code around. These were pathway values, institutional and societal structure, and pathway choice. These concepts were located in the research questions, the reviewed literature and what the researcher wanted to explore (Joffe, 2011). (These concepts were not created as broad nodes in NVivo; however, the researcher was considering them as coding.) However, coding was not restricted to these concepts, as the researcher turned to more inductive analysis in which codes were generated depending on the data (Braun and Clarke, 2006; Linneberg and Korsgaard, 2019). For instance, the researcher frequently used some in vivo coding (Elliott, 2018) by creating codes based on the participants' own language to keep close to the data. Besides this, '*colourful phrases from participants may be attractive as code labels for gaining the audience's interest; using words from the participants can also keep interpretation closer to the data and give it greater "face" validity*' (Elliott, 2018, p.9). In this way, the codes stay close to the data and mirror what they actually contain (Linneberg and Korsgaard, 2019). Here is an example of a science pathway student reflecting on her choice of the literary pathway.

| Extract | Codes |
|--|--|
| (Pedagogic counsellor) told us not to rush in making a final decision and to consult our parents. When I consulted my parents, they said that science pathway was good but beyond my abilities. So they supported me to go for the literary pathway. They told me that the literary pathway was good, and there is no shame in it. | -No shame in choosing LP -Consulting parents -Literary pathway is good |

Table 3.8: Data extract with in vivo codes applied

Codes like 'No shame in choosing literary pathway' were generated based on the participant's data. This helped the researcher see through the participants' eyes and added more authenticity to the analysis.

The researcher wanted to code individual data extracts for as many potential themes as they fit into because she could never know what might be interesting later (Braun et al., 2016; Richards, 2015; Saldaña, 2021). The image below gives an example of coding from the interviews.



| Nodes | |
|-----------------------|---|
| ★ | Name |
| <input type="radio"/> | Easy means low attainment |
| <input type="radio"/> | Difficulty means better |
| <input type="radio"/> | Better University specializayions |
| <input type="radio"/> | Complete each other |
| <input type="radio"/> | Both Jobs are good |
| <input type="radio"/> | Both Pathways are good |
| <input type="radio"/> | Value vs Need |
| <input type="radio"/> | Importance is not usefulness |
| <input type="radio"/> | usefulness means market demand |
| <input type="radio"/> | Developing & Needed on day to day basis |
| <input type="radio"/> | more needed, more asked for |
| <input type="radio"/> | Economic purpose of education |
| <input type="radio"/> | Necessity vs Luxury Needs vs Wants |
| <input type="radio"/> | it is science era |
| <input type="radio"/> | Humanities & Arts do not feed u |
| <input type="radio"/> | LP has value |
| <input type="radio"/> | Most least chosen pathway |
| <input type="radio"/> | There is value in LP |

Figure 3.1: Initial coding

After finishing the initial coding of all participants, the researcher went through the dataset for a second time. Coded extracts were re-read and revised to determine whether they belonged to the codes they were assigned to. The researcher compared the content of the extracts with the codes. As a result, some codes were similar, and she collapsed them together. For example, codes like 'maths is difficult', 'easy vs difficult' and 'difficult fields give you good jobs' were collapsed together; some other coded extracts were re-coded. More codes were produced during the data analysis process but were discarded due to irrelevance to the research.

Themes searching

Many codes were created across all participants at the endpoint of the coding stage. When all data of the participants had been coded, re-read and revised, It was time to look at the previously the long list of the defined codes with a higher level of abstraction so the researcher started to think more conceptually while looking for potential or candidate themes

which are broader and capture more than one very specific idea (Braun et al., 2016). Coding progressed through two cycles: first-order analysis, which was about using informant-centric terms, and second-order analysis, which relies on researcher-centric concepts (Gioia et al., 2013; Saldaña, 2021). While the former is more descriptive, the latter is more theoretical, and it is about grouping those former codes to form potential themes based on similarities and differences (Linneberg and Korsgaard, 2019).

Therefore, the researcher started thinking about the relationship between codes, between themes and between different levels of themes (Braun and Clark, 2006). These codes were grouped when necessary and as needed to form candidate themes. Some initial codes went on to form main themes, whereas others might have formed sub-themes, and others still might have been discarded (Braun and Clark, 2006). Visual maps/tables were made good use of at this stage, and a thematic map of this early stage can be seen in Figure 3.2.

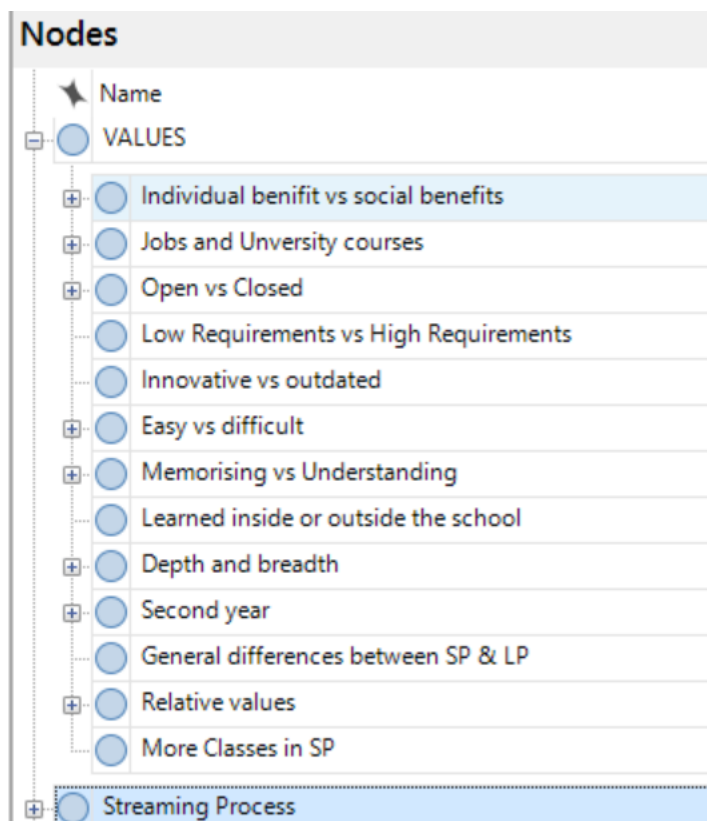


Figure 3.2: Evolving coding, from codes to potential themes

Candidate themes were decided based on to what extent they could capture something in relation to the research questions of this study.

The candidate themes showed in Figure 3.2 included 'depth and breadth', 'memorisation vs comprehension' and 'easy vs difficult'. However, it was found that these three potential themes expressed the same overarching theme, which explains the nature of the knowledge presented in the subjects of both pathways, how this knowledge is assessed and how was it structured. Particular facets of this theme included ideas around the level of pathways difficulty, the nature of pathways when assessed and learned (memorisation/comprehension), and the depth of the learned content (whether the distribution of the content covered is balanced in the core and foundation subjects in both pathways). This theme was later called 'achievement value: pathway content, structure and assessment'.

Braun et al. (2016) noted that this step of the '*second coding round*' would '*ensure a systematic, coherent and robust set of codes*' (p.198). However, coding can be nuanced and iterative, and these two circles can be disentangled. When generating themes, the researcher also followed Rubin and Rubin's (2005) set of recommendations, including the following:

Looking for similarities and differences: this strategy was most effective when comparing students' and pedagogic counsellors' data. For instance, one of the main differences was that students were spontaneous and chatty, while pedagogic counsellors were formal and diplomatic. (It felt sometimes that they were holding back, trying to remain formal and professional.) As a result, the students expressed a theme of pathways' relative values differently than the pedagogic counsellors did.

Concepts frequently mentioned: the researcher looked at the prevalence of patterns and meanings in the data items and across the dataset as vital; that is, themes could be distinguished between and within transcripts (Braun and Clarke, 2006; Bryman, 2012). Besides the co-occurrence of codes, the researcher paid close attention to sequencing, that is, the relationship of one code to another (Joffe and Yardley, 2004). For example, she could analyse the mention of 'science pathway was better than literary pathway' as typically associated with the mention of '*access to a variety of university courses*'. That is, the first justification given by most participants who believed that the science pathway was more valued than the literary pathway was that the science pathway offered a variety of university

courses to choose from, unlike the literary pathway, which was limited in terms of future options.

Reflecting on what is missing in the data: the researcher noticed that participants expressed how the science pathway allocation was higher than that of the literary pathway, but when probed to justify that belief, none of them seemed to remotely link this to economic factors.

Synthesising across all students: in order to understand and interpret the big picture across all participants, the researcher designed case-based matrices (Bazeley, 2013), that is, tables comparing the data related to participants' information on one or various candidate themes. These tables helped the researcher to spot the predominance of a theme/pattern across participants. The matrices included two or more categories, dimensions or concepts that are cross-classified. The matrix is probably one of the most commonly used types of display. As with boxed displays, they can be used from the early stages of an analysis, for instance, to present a literature review, to illustrate demographics or, later in the process, to illustrate the results (Linneberg and Korsgaard, 2019, p.22). Tables below show two different profile matrices which were generated during analysis:

| Pathways | Students | Curriculum depth and educational policies | Quotes |
|------------------|----------|---|---|
| Literary pathway | Nouri | the two policies implicitly referred to. That is, science pathway student cannot switch because they cannot handle science subjects. Nouri spoke only about the side of literary pathway student, but no one word was uttered from him about the side of science pathway students. | Minutes 12:00 14:47 37:00 55:39 |
| Science pathway | Fares | the two policies are meant to be because of depth thing. He is against the two policies but not entirely. Fares is with the idea of no to the two policies and the equality of depth. But since these two things do not exist in the education system, there is no need for Literary pathway students to study sciences at university because of their reality regarding the depth. | Minutes :09:28 11:33 45:23 |

Table 3.9: Fragment of profile matrix: pathways values (initial analysis)

| | Names | Educaional policies | Streaming and Pedagogic counsellor | Justification | Reasons for the policy+ with/against+ why |
|----|--------|---|--|--|---|
| LP | Nouri | -with , against, with , against, (zero consistency) | -go up and go down -PC let them know/he lready know | -diff -high require -depth and breadth (with) | Requir high & diff and breadth →ok..not ok → LP students are not able |
| | Doria | -indifferent, then against | -She did not know before until PC told her | -Breadth & diff (they are super related) (indiff, against) | Breadth leads to diff → indifferent ..against -she spoke abot 2 policies but she had only one quote about inequality. |
| | Shiraz | -against after I let her know. -The word inequality was said | -doesn't know abot the policy | -LP unable since middle school -diff/niveau 3ali - | -I fk it. I told her about the 2polic, she doesn't know them. -LP unable+ diff → Against → one chance/dounble chances of getting a job |
| | Insaaf | -With (personal experience) - bewteen with &against | -PC told them but she already knew | -diiff -ability | -ability+diff →yes but a bit of confusion She seemed to agree more than disagree. |

Table 3.10: Fragment of profile matrix: streaming policies (initial analysis)

3.7 Trustworthiness

The interpretative paradigm is followed in this study, which implies that its quality is to be evaluated according to the extent to which the interpretations of the data are trustworthy. Therefore, the term trustworthiness is used to underpin the claim that the research findings are significant and worthy of attention (Lincoln and Guba, 1985). Lincoln and Guba (1985) identify four components to achieve trustworthiness: credibility, transferability, confirmability and dependability.

A number of researchers (Lincoln and Guba, 1985; Rallis and Rossman, 2009) propose techniques for establishing trustworthiness that include many of the techniques followed in this research, as documented in this chapter. Rallis and Rossman (2009) discuss a set of strategies to enhance the trustworthiness of a piece of qualitative research, which include '*prolonged engagement in the fieldwork*', '*triangulation*', '*peer debriefer*' and '*using your community of practice*'. One account of how these strategies were used in this project is described as follows:

Prolonged engagement in the fieldwork: before COVID-19 hit the entire globe, when schools were open, I visited the school setting on a regular basis, where I attended some classes with students and discussed with participants, either students or staff. I frequently engaged with participants via phone while not on site. After the schools were shut down, I virtually continued with participants via social media because of the pandemic situation, and the fieldwork took longer than planned (around nine months). However, this long period helped me to develop an understanding of my participants and establish a relationship of trust.

Triangulation: gathering data from several sources through different research methods. However, this study employed a more expansive understanding of this term and a different range of informants. Data were collected from different sources in terms of different participants (students, parents, teachers, pedagogic counsellors). In this case, participants' views and opinions were verified against those of others, which led to a deep and rich picture of perspectives and experiences. Moreover, 'site triangulation' was used, which was achieved through the participation of informants in two different schools. When similar results emerged at different sites, findings might have had greater credibility in the eyes of the reader. The sampling of a range of people in different roles and positions was employed to provide the variety of perspective to provide a better version of reality.

'Peer debriefer': during and after fieldwork, virtual meetings were held with the supervisors to discuss data collection process. Furthermore, the researcher regularly sent them data analysis texts. Their fresh perspectives challenged the researcher's assumptions, and their questions and comments enabled her to refine her writing, develop a greater depth of analysis and strengthen the arguments and interpretations in the light of the comments made.

Reflexive journal: reflections and impressions about the data collection process data analysis stage were written on a regular basis. Guba and Lincoln (1985) note the engagement in this reflective activity is important for establishing credibility as the researcher can then monitor their own subjectivity.

3.8 The impact of COVID-19 on the the original research design

The study was originally planned to take place in three schools, namely, an urban, a sub-urban and a rural school. It was planned to involve students, teachers, parents and pedagogic counsellors from the three schools. In addition, it was planned the study would employ semi-structured interviews with all these participants. The plan was to stage the three schools (urban, sub-urban and rural) in two data collection phases, gathering data from two schools, starting from January-early February 2020 until June 2020, and leave the third school until September 2020, as it was neither feasible nor practical to work with three schools in one go.

In January 2020, the researcher travelled to Algeria, and she first started contacting some schools. She decided to start with a sub-urban school because she had a relative who was a teacher at the school, which made access to participants easy. It took around three weeks to finalise the official approval necessary for an ethical conduct of research in the school. At the time, COVID-19 started to emerge in China and even some other parts of the world, but it was nothing more than news reports that one would hear on TV and it was thought the situation would unfold soon. In February 2020, the researcher gained official authorisation from the Academy of Education in the province of the city where the fieldwork was conducted. When she formally started the fieldwork, there were no significant cases of infection in Algeria or in the city where fieldwork was taking place. Everything was moving very well as planned. The researcher conducted one focus group with students and two further individual interviews with one student and one pedagogic counsellor. In March 2020, COVID-19 was confirmed to have spread to Algeria with one case in Algiers, the capital. With no idea that schools would be shut down, the researcher thought of gaining access to an urban school while still carrying out fieldwork in the sub-urban school. The process of school access and approaching potential participants was easier in the urban school than in the sub-urban school, as all the necessary paperwork was already finalised. The researcher approached potential participants and gained their consent. When the fieldwork was about to start formally in the urban school, the shocking news was that the coronavirus had escalated all over the world. As a result, the Algerian government had declared a national lockdown that included all social gathering places and schools. The researcher was lucky to have already approached participants, taken their personal contact details, and built a rapport with them in both schools before the lockdown. It was possible that she had spent better quality time with the sub-urban school

(especially the students) as she used to visit them in the school often. She would talk to them after class, or in the school yard during their mid-day break. All these factors helped the participants to get to know and trust the researcher. However, as a result of the school lockdown, the research design needed to be amended. Therefore, the researcher started to think of the best ways to adopt remote data collection as an alternative to face-to-face data collection for research. There were a few questions that needed to be taken into consideration:

- Whether the same participants would be able to be involved within the new context of COVID-19
- Which of the remote data collection methods were closest alternatives to the original research tools of this study
- How long would they take and would these methods have any implications on the timeline of the research?

In response to all these questions, first, it was decided to remove the rural school from the research design. When the researcher started to conduct fieldwork in the first two schools, it was impossible to look at the rural school, as after the national lockdown, the only schools that could be contacted were the urban and sub-urban schools. Schools were closed until further notice. Therefore, the researcher had to adapt to the imposed situation and consider only urban and sub-urban schools as part of the study.

Second, having done a face-to-face focus group with students in the sub-urban school, the researcher wanted to follow the same research design for the urban school. Focus group interviews allow the interviewer to observe and record peer group dynamics and interactions (Lodico et al., 2006). It is the most suitable method for examining group interaction as it allows researchers to observe how participants discuss their personal experiences and beliefs among themselves, and how they make use of non-verbal cues such as body language, facial expressions and gestures (Berg, 2009). Collective views can easily be obtained as they create opportunities *'to witness interactions and uncover how meaning is jointly constructed and shared collectively'* (Aurini et al., 2016, p.137). Furthermore, the interaction among group members would replace the interaction between the researcher and the group members,

which means the participants' views will be more emphasised and the researcher biases during the process of interviewing will be eliminated (Berg, 2009).

At first, the researcher considered an internet-based focus group, which would be either synchronous or asynchronous (Fox et al., 2007). In the situation of a global pandemic, virtual methods were the best alternative to traditional face-to-face methods. At first, she planned to conduct an online synchronous group, but it was difficult to maintain a high-quality internet connection, and she had to consider an online asynchronous focus group. A private Facebook group would be created, and students would be invited to join the platform to answer the posted questions and communicate among each other. Careful consideration of ethical issues was essential when research is conducted in an online setting, as the safety and confidentiality of participants should be ensured, given that participants know each other and they could access the platform any time where personal and sensitive information might be shared. The researcher was not sure that this method would ensure total confidentiality for participants or that their written responses in the comments section would not be disclosed to others. Therefore, due to these technical and ethical issues, the idea of conducting a focus group was dropped. Individual online interviews were decided to be the main and only data collection method in both schools with all participants.

The first technological platform used was Facebook, and it was used because it was the only medium of communication between participants and the researcher. Moreover, it is the most used platform in Algeria, especially among teenagers. As soon as the interviews started, Facebook did not provide a stable, good connection. The researcher considered asking the participants to download one of these advanced technological platforms, such as Zoom, Webex, GoToMeeting or Skype, wherein the interviewer and interviewees could access better audio and video communication. However, the participants have different backgrounds and ages, and not all of them were well-versed with the recent technological platforms. The researcher did not want to add a burden on them or put them under pressure. Moreover, she sensed that they did not quite welcome the idea of face-to-face interactions via video interviews. Therefore, this idea needed to be abandoned. The final best practice the researcher was left with was '*phone interviews*'. The participants were asked kindly if they could move to speak on the phone; all of them approved. Although phone interviews may sound old compared to more advanced technological platforms, it was efficient and handy.

Using the Algerian national network, phone interviews were used with the rest of the participants in both schools. Although the absence of visual cues was a downside of phone interviewing, it did not result in any loss of contextual or non-verbal data. A lot could be inferred from participants' tone, intonation, laughs and moments of silence. Besides this, using this method allowed participants to feel more comfortable and relaxed, especially when disclosing sensitive or personal information. While limitations existed, the phone interviews were overall a positive fieldwork experience during the lockdown.

Finally, as a response to the question 'How long would they take and would these methods have any implications on the timeline of the research?', the fieldwork took longer than planned (around nine months), due to the pandemic, and this had later consequences for dealing with the transcribing and analysing of the participants. For instance, parents and teachers were interviewed, but their data was not included in the data analysis due to time constraints.

3.9 Chapter summary

This chapter presented the overall qualitative nature of the research. After presenting the research questions and an explanation on how the constructivist paradigm of the research informed the narrative approach, the chapter discussed accessibility in the research setting, participants' sampling and recruitment, positionality, data collection instruments, data analysis, and finally the impact of COVID-19 on the original research design. During a long fieldwork period, the researcher conducted in-depth narrative interviews with 12 students and four pedagogic counsellors, and the qualitative data were analysed through thematic analysis. The research quality was enhanced through a set of strategies aimed at enhancing its trustworthiness. Then the findings produced an analysis for the next four chapters, with the first three chapters discussing students' findings and the last presenting pedagogic counsellors' findings.

Chapter 4. Educational pathways values: Students' perspectives

The purpose of this chapter is to present the results of analysing the students' views, conceptions and beliefs about secondary school educational pathway values, as associated with the science and literary pathways. The following research question will lead this chapter:

Research Question One: What values do different stakeholders (students) hold in relation to educational pathways in Algerian secondary schools?

This chapter is divided into two main parts. The first (section 4.1.1) presents the instrumental values of educational pathways which include social utility (section 4.1.1.1), university courses and career options (section 4.1.1.2), and the achievement value of the curriculum structure, content and assessment (section 4.1.1.3). Then, the second part (section 4.1.2) presents the intrinsic values of pathways that includes pathways knowledge and enjoyment (section 4.1.2.1). Finally, section 4.2 presents a summary of the findings.

4.1 Representation of intrinsic and instrumental values as relative values

The findings provided critical insights into students' perspectives around educational pathway values and then moved to describe what values they ascribed to these pathways. The outcome of the analysis signals that all students, on both pathways, expressed predominantly instrumental values regarding pathways with little emphasis on intrinsic values. The instrumental values that students expressed were social utility, university course and job options, achievement value of pathway structure, content and assessment. The intrinsic value mentioned was pathway knowledge and enjoyment. Students expressed various views around these values, emphasising the university course/job options and achievement value to a high degree and intrinsic values to a lesser extent.

Another important finding was the majority of students were more focused on ranking values and treating them as dichotomous than citing the values of each pathway. Students tended to talk about values as '*relative values*'. The interview questions were often initiated with an

open and neutral start that did not encourage a relative value response by asking general questions like ‘in what ways are these pathways valued?’ or encouraging the students to talk about pathways and the streaming process in general. However, when students were asked these questions, they often expressed how they saw pathway values as relative. Therefore, the relative aspect is an outcome of the analysis of their responses. The coming sections present the students’ perspective on educational values and relative values at the same time.

4.1.1 Instrumental values

All participants appeared to refer predominantly to the instrumental aims of the science and literary pathways: that is, pathways are for something beyond schooling. They were conceived as a means to achieve further ends, including social utility, university courses and career options, and the achievement value of the curriculum structure, content and assessment. The majority of students emphasised that they saw instrumental values as relative, arguing that the science pathway held a higher instrumental value than the literary.

4.1.1.1 Social utility

Students reflected on pathways’ social utility, expressing this in terms of the extent to which pathways were needed and useful in individuals’ daily lives, as well as the extent to which a pathway contributed to the development and growth of the country. The voices of most students participating in this study expressed these values in relative terms, and they were divided between those who claimed that ‘the science pathway and the literary pathway have the same utility’ and those who claimed that ‘the science pathway is more useful to society and the individual than the literary pathway’. Only one student in the literary pathway (Doria) held the opposite view to the rest of the students. She argued that the literary pathway possesses a higher value than the science.

Though from different pathways, participants like Dhikra and Nabila (literary pathway) and Karima and Fares (science pathway) were relatively close in terms of their perspectives. Fares made clear that the utility of science pathway can be seen at a more public level, but the literary pathway’s utility can be measured on a smaller scale (individual level). That was the same point emphasised by Karima, Dhikra and Nabila, who argued that while science pathway

students benefit themselves and their country, literary pathway students benefit themselves only:

Fares: *The science pathway benefits all people because all people need it, but the literary pathway benefits only those who are interested in literature or writing... I see that the benefit of the science pathway can be seen in daily life. We need it on a day-to-day basis, but the use of the literary pathway is not needed daily. We need it only when we want it. I only read a book or something from literature when I feel like it. However, the science pathway is a necessity.*

Fares went on to add,

I will give you an example. We have three meals in a day. Breakfast, lunch and dinner. Some people may want to add another meal at around 4:00 p.m. for snacks. The three main meals are the science pathway, skipping them will have serious consequences on our health, but the last meal is just like the literary pathway. It is good to eat it, but if we don't, nothing will happen to us, our bodies can do just fine without it.

Fares's quotes illustrated two main points. First, there is a distinction between the science and the literary pathways. His conceptions implied that the science pathway is necessary while the literary pathway is a luxury. Second, he maintained that in life today, science and technology are needed more and are essential not only for the individual but for society as a whole. Similarly, Karima noted,

Karima: *Society can really depend on science pathway students to contribute to our country's progress and development.*

Researcher: *Do you think that literary pathway students don't contribute to the country's development?*

Karima: *No, if they are going to do any good, then it would be for themselves.*

This exchange illustrates that Karima views both pathways as offering utility for the individual; however, the utility of the science pathway was more significant than for the literary. As shown

in Karima's excerpt, she demonstrated her belief that science pathway-related jobs had more utility at the level of society and individuals. However, literary pathway-related jobs guarantee individual benefits only.

Overall, reflecting on pathway utility, the majority of students – and science pathway students in particular – agreed that the utility of the science pathway was larger and wider than the of the literary. They argued that the science pathway was deemed to have more quantifiable uses to society and the individual, while the utility of literary pathway was deemed less quantifiable. In this sense, they perceived the literary pathway as less valuable. Their relative values could be detected by how they portrayed the pathways' differences.

Fares was the student who most prominently verbalised the utility of pathways in more depth and detail, taking the most time among all the participants to do so. On the face of it, his reflections (given the quotes above) implied that the science pathway is more worthwhile than the literary given the technological and scientific world we live in, which requires certain degrees and skills to continue functioning. However, when Fares was asked a direct question about whether all these pathway differences made one pathway more important than the other, he answered,

Fares: *One pathway better than the other pathway, No. But one pathway is more highly in demand in the market than the other pathway, Yes!*

Researcher: *But I remember you said earlier that the science pathway was more useful?*

Fares: *I did not mean it is more valued, but I meant it has higher market demand.*

Researcher: *What is the most valued pathway for you then?*

Fares: *Both are important because we need medical doctors in the science pathway and judges in the literary pathway. We need to learn languages if we want to travel the world... They have the same importance in our daily lives... We need them both. But we need the science pathway more than the literary pathway.*

Referring to an instrumental motivation of education, Fares stated that usefulness is mainly measured in a materialistic sense. That is, he claimed that the market demand made the science pathway more useful than the literary pathway. In previous quotes, Fares explained the huge need for science pathway domains by stating that it is constantly developing and is more necessary on a daily basis. He articulated that the science pathway's usefulness did not affect the importance of pathways, going on to distinguish between what he meant by importance and usefulness:

Researcher: *Do not you think that this may affect which pathway is more important than the other?*

Fares: *No, importance is not the same as usefulness. By importance, I mean that we need both of them in our lives. But when I say the science pathway is more useful than the literary pathway I don't mean that we never need or use the literary pathway whatsoever. There will be times when we will need the literary pathway. In a case of legal issues, one would not go to the doctor but consult a lawyer, but we don't go to court daily, do we? Dealing with legal issues does not happen on daily basis in our lives.*

Researcher: *So, for you, both have the same importance?*

Fares: *Same importance, but the market demand has made the science pathway more useful than the literary pathway, and as I said, importance is not the same as usefulness.*

These comments appeared to contradict what Fares said earlier as he described the literary pathway as luxurious and less influential in people's lives with a not very positive intonation. Although Fares portrayed those pathways as equally important in terms of their utility during the interview, he rarely referred to any precise values for the literary pathway that he deemed as equally valued as those in the science pathway. Moreover, his explanation of its importance and usefulness was vague and confusing. Participants such as Dhikra, Nabila (literary pathway) and Karima (science pathway) made similar claims to Fares's. They portrayed pathway values through the lens of today's globalisation influencing science and economic growth. These students clearly stated that the science pathway is more useful than literary pathway. However, in contrast to Fares's argument, they believed since the science pathway is more

important, their relative values were more prominent as they started discussing the social benefits of science pathway-related occupations. Nabila argued that the COVID-19 pandemic proves that the science pathway is more useful and, hence, more valued, saying the following:

The science pathway is more valued. This is my opinion and everybody's opinion. In the COVID-19 pandemic, people did not need a translator, a judge or a lawyer; they needed medical doctors.

In another quote, she maintained,

Nabila: *It is true that the literary pathway is good, but **it is not that important** in individuals' lives. It doesn't have a great contribution to the country. For example, the economy doesn't need someone who majored in the literary pathway. Many fields the country depends on don't need literary pathway students. [researcher's emphasis in bold]*

The occupation value of pathways was discussed a great deal by participants. Professions in law and medicine, in particular, were often-repeated dichotomies the participants used to describe the level of societal utility of these two jobs, and therefore the two educational pathways. In this regard, focusing on fields such as medicine and healthcare, Nabila did not consider that the literary pathway contributes to the socio-economic development of the country. It is apparent in Nabila's statements that the role of the science pathway became more reinforced than before because of the COVID-19 pandemic. Nabila placed great emphasis to the high value of the science pathway not only in medicine but also in economics. In fact, she greatly stressed the value of economics frequently in her interviews. Her quotes also showed that the wider social structure shared her views about positioning the literary pathway as less important. That was clearly explicit in her statements. She tried in some points during interviews to reflect the literary pathway benefits, but she mostly used broad terms, such as reported earlier – '*it is true that the literary pathway is good*' – and in the following:

Nabila: *The fields in which they need science pathway students are more in number than the fields in which literary pathway students are needed. For example, science pathway is needed in the field of economics, healthcare, trade and finance, but literary pathway students are needed in fields such as teaching and the judiciary. Like, needed in simple fields*

Researcher: *What do you mean by the word simple?*

Nabila: *I mean, it's not that important to the country, such as economics.*

This extract showed that Nabila succinctly touched on some literary pathway careers that she acknowledged as needed in society. Though she vaguely referred to some values in terms of future careers and university courses in the literary pathway, she argued that these jobs are in simple domains as they are not in demand. This opinion suggests that she assigned a higher value to the science pathway over the literary pathway due to the variety of domains and our need for them in our lives.

All the science pathway students, except for Rukaya, stressed the instrumental value of pathways when they expressed a belief that the science pathway offered more utility than the literary. However, their conceptions were varied. For example, as shown in the quotations above, some participants showed stronger intonations that identified the supremacy of the science pathway because of its usefulness. For the most part, their conception of pathway utility influenced their relative values regarding the pathways. However, others were more neutral in the sense that they reported the science pathway as being more useful and maybe more important but they could acknowledge deeper values in the literary pathway (e.g., Ryhem, Asma and Hadi). Asma provided a detailed statement on the utility values of the literary and science pathways:

Asma: *Normally, in any country, both humanities and sciences are equally needed... For example, developed countries need science to develop their economics and need humanities to enrich their populations' morals and be distinguished culturally from other countries... but our country needs sciences more to develop its economy.*

Asma was among the few students who provided some examples explaining the ways in which the literary pathway is useful (referring to the cultural value of the literary pathway). However, similar to other views, she had to admit that the science pathway value outweighed that of the literary pathway, which was clear in her intonation. Even though Asma and Ryhem believed that the science pathway is more valued in terms of its social utility, they did not

dismiss the literary pathway because they – Asma, in particular – could genuinely see value in it.

While Fares, Karima, Nabila and Dhikra were clear and decisive when they argued that pathway differences meant that the science pathway contributes more utility to society than the literary pathway does, other voices, such as Rukaya, Insaaf, Shiraz and Nouri, indicated that the literary pathway is differently useful to society, and these differences implied a more complementary relationship between pathways in terms of societal utility. Most students who held these views belonged to the literary pathway, besides Rukaya, who was the only one on the science pathway who claimed that both pathways are equally important and both are useful to the society in different ways:

We needed medical doctors in this pandemic to cure people, but how had we known that there was COVID-19 in the first place? It is through the press, media, journalists who published and wrote and made it easier for us to know the information... We need them both; there will be huge disequilibrium with only one of them.

The same point was shared by Shiraz:

If we are to compare a doctor and a lawyer, people will look at the doctor with higher regard than the lawyer. For them, the science pathway is better... but I see that students' science and literary pathways have an equal role in developing the country. A lawyer or a doctor, both are the same.

All the literary pathway students, except for Nabila and Dhikra, believed that the science and literary pathways are of equal utility and value. It could be noticed in their quotes (particularly, those from Insaaf and Shiraz) that these students challenged and expressed disapproval in their intonation regarding the common social view that positions the science pathway as more worthwhile than the literary pathway.

In summary, in this section, participants discussed the values of pathways; they reflected on the pathways' utility, which was identified instrumentally. Speaking of the latter, participants described the future utility of the science pathway as an indispensable field continuously needed for the individual and society that never loses its daily relevance. For the most part,

they accorded vaguely positive values to the literary pathway, but hardly ever detailed what utility values the literary pathway might offer. The next section discusses another instrumental value that is not related to pathway utility, but pathways' future opportunities.

4.1.1.2 University course and job options

This was one of the values emphasised most by students. Many participants expressed the belief that the number of future opportunities offered in both pathways was varied. All the students, except for Nouri (literary pathway), explained that the science pathway had more future options than the literary. Therefore, all the science pathway students (except for Rukaya) and two literary pathway students (Nabila and Dhikra) expressed this value in relative terms, attributing a higher value to the science pathway.

Overall, participants conceived this value in two ways. First, some students reported that science pathway-related qualifications were in higher demand in the job market than literary pathway qualifications as the former prepared students for the future workforce, where science credentials were a prerequisite. For instance, Dhikra explained that the science pathway provided more opportunities because it contributed to the development of the country, and she went on to argue,

Science pathway students are really useful for society. It is true that they have more opportunities because their study content provides them with these chances. It is not the government who decide that they get more opportunities... After all, literary pathway students will not invent anything!

Reflecting pathway values in terms of their variety of labour market options, Dhikra noted that the science pathway had more options at the level of university courses and job opportunities. In her quote, she made a connection between job access and the economic benefits of pathways. She claimed that future careers from the science pathway are a key contributor to innovations and economic growth, and for this reason, society depended on them and facilitated science pathway-related opportunities in the labour market. In addition, she explicitly reflected on how education authorities, and she seemed to agree with them, believed that science pathway students earned those chances rather being granted them.

Some other students expressed this value by reflecting on the ongoing discourse in their surroundings. Overall, the literary pathway was not seen by many science pathway students or their those in their social surroundings as a successful route for post-secondary education. For instance, Karima, who seemed to share the same perspective with her social environment, mentioned the story of her aunt's failure to secure a job as a result of her choice of studying Arabic literature at university, how sorrowful she was because of her choice and that she advised Karima not to follow the literary pathway. Karima said:

All my uncles followed the science pathway, except for one aunt. She studied Arabic literature. She advised me to choose the science pathway because the literary pathway has a very limited number of subjects at university. It would not give you worthwhile subjects... even in terms of jobs... She loved Arabic literature, but after she finished university, she became jobless.

Second, many participants emphasised that when students take up the science pathway in secondary school, the options to pursue other courses are wider compared to taking up the literary pathway. Literary pathway courses are only limited to humanities and the arts. They implicitly echoed some education policies that stated at university science pathway students have the option to move to literary pathway-related degrees, but literary pathway students cannot take up science pathway-related degrees (Chapter 5 provides more detail.) The majority of science pathway students (notably, Karima and Fares) believed that the open access into the science pathway contributed to the science pathway's supremacy. In this regard, Fares commented,

Researcher: *Do you mean that the scientific BAC (Baccalaureate) is better than the literary BAC?*

Fares: *No, I mean the scientific BAC provides a good and **guaranteed** job. With a scientific BAC, one can take up a job in the humanities fields.*

Fares expressed values around pathways suggesting that the science pathway was more important, and this was much clearer when he related pathways values to his choice experience:

Fares: *This allows me to choose between scientific and literary university courses. If I chose the literary pathway, I would never be able to study a science-related course at university if I wanted to, but with the science pathway, I can choose among them.*

Referring to his own pathway choice experience, Fares, as a science pathway student, considered being in the science pathway as a privilege that would guarantee his future. The word ‘*guarantee*’ was used often by Fares during interviews, meaning that the science pathway provided him a sense of job security and ensured he could change his career path in future. Fares noted, ‘*I don't know. I was not sure of political science... I chose the science pathway because it **guarantees I can change my mind***’ [researcher’s emphasis]. Based on what Fares said and the way he expressed it, one may suggest that the science pathway was more important to Fares than the literary.

While some students on the science and the literary pathways did show approval towards this educational policy (e.g., Fares, Karima, Hadi and Asma, Dhikra, and Nabila) that maximised the access opportunities of the science pathway and shaped the way they ranked the science pathway as more important than the literary, other students (mostly following the literary pathway) refused to define this policy as a criteria for valuing the science pathway over the literary pathway. For instance, Shiraz (literary pathway student) disapproved of the lack of opportunity in the literary pathway and argued that this might limit literary pathway students’ opportunities:

Shiraz: *Literary pathway students have one chance at university. This chance has so many chances. I mean there is psychology, law, so many other things, but science pathway students have two chances at university. They [science pathway students] can carry on in their field of study and take up jobs in sciences or they can have jobs in humanities like literary pathway students.*

Researcher: *What do you think of that?*

Shiraz: *When I think of it, I find it normal, but there is no equality. For me, I believe that literary pathway students and science pathway students will both find jobs, but they [the government] gave two chances for the science pathway and only one chance for the literary pathway students. So, there is*

no equality, and based on this point, we can say that they give more importance to the science pathway.

Researcher: *Who are they?*

Shiraz: *The government that issued this policy...*

Shiraz, however, took an opposing position to the science pathway students mentioned earlier, re-emphasising the point that education authorities granted higher value to the science pathway. She referred to such practices by saying ‘*there is no equality*’. Although she claimed that the government limited the opportunities for the literary pathway, she disagreed with others in her social environment when they devalued literary pathway because of its limited options

I have always been hearing the same words around pathways. They [society] give more importance to the science pathway because it's the pathway that guarantees jobs and makes one successful and the literary pathway is impossible to allow seeking jobs... I always hear about these rumours... I know I will have many options at university; my brother studies psychology, and my cousin followed media studies. I know other people who chose journalism. It is not like what science pathway students think, that literary pathway students will not find something to choose at university... They look down on literary pathway courses.

Shiraz depicted how others negatively described the literary pathway as limited in options. She disapproved of this social dismissal of the literary pathway and tried to distance herself from it. While she argued that policies allowed for more occupational opportunities for the science pathway, her perspective regarding the literary pathway remained positive.

Rukaya was the only science pathway student who had different views of all the rest of the students in the science pathway:

Since they give more opportunities for medicine which belongs to the science field, this means that they [the government] are interested more in the science pathway, and it is not only them who is providing opportunities, even students agree with that.

Although many students stated that science pathway-related careers and qualifications offered greater job options, when giving examples, these students would refer to certain specific occupations such as '*medicine*'. Rukaya's quote is one of these examples that showed job opportunities were not necessarily open for all science pathway careers but for specific science pathway-related employment (e.g., medicine). Society did not place value broadly across all science pathway future careers but rather specific careers – at the top of these careers was medicine. Moreover, Rukaya's quote highlighted the role of societal and governmental priorities influencing the perceived values of pathways.

4.1.1.3 Achievement value: pathways' structure, content and assessment

The achievement value explains the extent to which a pathway reflects deep thinking and intensive reasoning. It refers to the ability to think intelligently and understand complex ideas at a high level which translate into competence and performance. All participants discussed the achievement value that pathways hold in terms of their structure, content and assessment, presenting this value in terms of the following:

- the level of pathway difficulty
- memorisation and comprehension (the nature of pathways when assessed and learned)
- depth and breadth of the content covered in pathways (whether the distribution of the content covered is balanced between the core and foundation subjects in both pathways)

These features reflected how pathway content, structure and assessment were set up. Overall, the science pathway was portrayed as possessing a greater achievement value than the literary because it was more difficult, being based on comprehension, and possessing a greater depth and breadth.

4.1.1.3.1 Difficulty level

The level of difficulty of educational pathways was the most frequently discussed concept. Participants described difficulty in terms of the perceived inherent difficulty of the subjects, or the amount of lessons covered (content), or how pathway core subjects' were assessed (assessment). Pathway difficulty signified the values of attainment and ability.

The majority of students in both pathways often argued that the science pathway was difficult and literary easy. However, few of these students argued that both pathways could be deemed to be difficult. No participant thought the literary pathway to be more difficult than the science. The more the pathway was difficult, the more it was valued by these students.

While some participants mostly expressed opinions that the pathway difficulty was dependent upon their own subjective experience with different subjects (abilities, strengths, weaknesses, etc.), most participants paid greater attention to the perceived inherent difficulty of the educational pathways. They argued that the science pathway was more difficult than the literary pathway due to the nature of these subjects themselves or due to certain features in the main subjects of the educational pathways, such as the covered content (lessons and the amount of content covered). Karima explained the first time a pedagogic counsellor came to the classroom to introduce students to the pathways and familiarise them with the process of streaming so they could choose the suitable pathway for them:

Karima: *She told us those who are able in sciences go to science pathway... and those who are capable in literary pathway subjects go to the literary pathway, and she told us that students, in the science pathway, can change their pathway in the first year to the literary pathway, but it is not the other way around.*

Researcher: *Why do you think she mentioned that?*

Karima: *It is obvious... For those who can't do well in the science pathway, the literary pathway is an outlet for them because it is easy, but those who were already in the literary pathway and could not do well in the literary pathway subjects, how do you expect them to be good at scientific subjects?... Science pathway is much more difficult.*

Once more, shedding light on the pathways policies (see section 4.1.1), Karima discussed how being in the science pathway allowed changing to the literary pathway but not vice versa. She justified this policy by highlighting a noticeable link between the pathway difficulty level and students' attainment and ability, meaning that the more difficult the pathway was, the higher

the ability required. This concept, shared by Karima and many other students in both pathways, suggests an implied higher value for the science pathway because of its superiority over the literary pathway in terms of attainment requirements. Karima further discussed the link between pathway difficulty and students' grades elsewhere. She made a comparison between her academic grades and those of her friends in the literary pathway, who outdid her:

Karima: *If you ask our teachers to make a comparison between us, you will figure out that my 14/20 is better than her 15/20. Because our study programme is more difficult than theirs. Their science lessons are super easy; it is a revision of what they studied in middle school.*

In this quote, Karima explained how a lower grade for science pathway students was better than a higher grade for literary pathway students because of the variation in difficulty between the pathways. The high value that Karima placed on the science pathway became more apparent when she continued her statement with the following comment:

Researcher: *Do you think that a difficult domain is better than an easy domain?*

Karima: *Yes... A difficult specialism is better than an easy one because it will grant you a good job at university and an easy specialism will give you an easy job, less than the other one.*

This statement shows a direct link to relative values in which Karima linked subject difficulty with a good job in the future. Similarly, Fares stated that higher attainers were found in the science pathways:

Fares: *Because science pathway fields are difficult and they require one to be intelligent, and only smart people can get high grades.*

Researcher: *Do you mean that literary pathway students are not intelligent?*

Fares: *No, but science pathway subjects need a better form of intelligence.*

Like Karima, Fares not only confirmed the existing link between pathway levels of difficulty and high intellect and ability requirements but also manifested the influence of this link on

the relative values of the pathways. This idea could have led to an initiation of a social understanding that students with higher abilities in scientific subjects choose the science pathway. The social understanding that was created, instead, was that higher attainers choose the science pathway. Higher attainers are generally referred to as '*intelligent*', as shown in Fares's quote. Difficulty is perceived as inherent to the subject and not dependent, at least to some extent, on students' capabilities or motivation. This showed that students such as Fares and Karima and their social environment believed the science pathway was more valued than the literary pathway.

Moving to the literary pathway side, Nouri also portrayed the science pathway as more difficult than the literary. He was asked to reflect on the policy of changing pathways, and he quoted his pedagogic counsellor said:

***Nouri:** In the first year at secondary school, if a student finds the science pathway difficult or maybe does not like it, they can **go down [researcher's emphasis in bold]** to the literary pathway. Students on the literary pathway cannot **go up [researcher's emphasis in bold]** to the science pathway.*

***Researcher:** What do you think of this policy?*

***Nouri:** I don't know, I may explain it by saying that science pathway students may find scientific subjects difficult. The level of science pathway is higher than on the literary pathway, and students in the science pathway have higher grades... For example, in BEM, only those who get 15, 14 go to the science pathway, while students with a grade of 10 or so choose the literary pathway.*

This extract reinforced the shared idea that the more difficult the pathway was, the higher the intellect and ability required. Such an idea, however, resulted in a conception that weaker students choose the literary pathway, which was implied in Nouri's statement. Though Nouri had always claimed that educational pathways had the same value regardless of their difficulty level, the constant and repeated use of words such as '*go up*' and '*go down*' (see the quote above) when he justified the practice of some policies may have suggested otherwise.

***Researcher:** Why the use of going up and going down?*

Nouri: *When science pathway students can't do well in the science pathway, they just go down in their ranking, but literary pathway students can't go up*

Researcher: *Are they ranked from top to bottom?*

Nouri: *No! But science pathway students are more able than literary pathway students because their grades are higher than ours and their study is much more difficult. I mean, even our study is difficult, but theirs is even more difficult.*

Nouri provided mixed responses to whether pathways' difficulty levels defined their relative values. Although Nouri, in many places during the interview, emphasised the idea that both pathways are important, his last quote that categorised students in a hierarchy based on their abilities and related this to the pathways' levels of difficulty did not suggest an equal value of pathways but an engrained sense of pathway hierarchy.

Other literary pathway students – Shiraz, Insaaf and Doria – believed that the science pathway was more difficult in general, but this did not leave the literary pathway without any difficulty. Besides this, they argued that difficulty did not define the value of the pathway. These students often disapproved of the social view that assigned a lower value to the literary pathway due to its perceived easiness, and they were against the idea that an easy pathway was meant for students with lower abilities and lower attainment. Referring to the wider society, Doria explained that the government valued the science pathway more than literary pathway:

The more difficult subject doesn't mean it is better, but maybe the government perceive the science pathway as better because it is more difficult, and because science pathway students are higher attainers.

Doria's perspective in the above quote seemed in conflict with others' views (education authorities). She highlighted the broader social and cultural context within which the science pathway was defined as more difficult, and hence accorded a higher value. Although Doria did not detail her opinion, she did not believe that a pathway's difficulty level defined its worthiness. Moreover, she was against the idea that an easy pathway was meant for students with lower attainment:

This is not logical at all! Those who think that they don't study well and do no effort, and then they follow the literary pathway hoping it is easy, it is not easy! It has some difficulty!... There is no such thing as stuff for stupid students and some stuff for intelligent students !... And I don't believe that they [science pathway students] are the only higher attainers. This is quite misleading.

Following the same line of ideas, Shiraz found that the science pathway was more difficult than literary pathway based on her perceived academic abilities. Shiraz noted that the science pathway was socially regarded as more difficult while she herself believed that both pathways were difficult in their own right. Although Shiraz and others (social view) shared the same perspective that the science pathway's perceived difficulty made it a target for higher attainers and the perceived easiness of the literary pathway became a target for lower attainers, the angle through which they perceived this perspective was different. While other people (e.g., school, friends, etc.) considered the easiness of the literary pathway and its attraction for lower attainers as contributing factors in the literary pathway's lower value, Shiraz argued that both pathways were difficult, and the level of difficulty did not determine which pathway was more important. Moreover, she argued that lower attainers choosing the literary pathway was a mistake these students made due to the promoted negative social conceptions. Shiraz was clearly challenging the negative social attitude towards an easy subject/pathway which implied that the less difficult the pathway was, the less value it possessed. This issue made Shiraz more persistent in proving the point that her pathway was equally difficult. Therefore, one could suggest that difficulty appeared as measuring criteria to define the value of pathways.

It seems that the way in which subjects' content is designed, delivered and tested affects students' conceptions of the educational pathway values. Rukaya expanded on this point. She explained why the literary pathway was easier than science pathway:

Just in the study programme, but normally the science pathway and literary pathway, as knowledge, are both difficult. But the way they teach the literary pathway and the way they design tests and assessments in the literary pathway is easy. For example, French and English tests are so easy. So, their

study programme is easy. Therefore, lower attainers in middle school would rather choose the literary pathway.

As mentioned earlier, all the science pathway students argued for the difficulty of the science pathway. Many of their claims suggest the higher value of science pathway over the literary because of its presumed difficulty. However, Rukaya, was the only participant who explained that sciences and humanities as fields of study or branches of knowledge are difficult in their own right. She explained the reason behind the common belief that the literary pathway is easy and the science pathway is difficult was due to the curriculum design. Rukaya's quote reflects how the educational authorities designed the curriculum of each pathway differently so that they fall into the description of easy and difficult. This may call for some curriculum attention from the authorities. Hence, her comments showed that the difficulty of taught content on different pathways did not define their relative values. Rukaya, like Shiraz, brought into the discussion the concept of effort and how it related to the difficulty level of pathways.

In contrast, Insaaf did not provide a clear sense of the relative value she and her society ascribed to pathway difficulty levels. Generally, Insaaf noted that the science pathway was more difficult than the literary. Like other participants, she associated the level of difficulty with ability and attainment requirements, as illustrated by the quote below:

*They [education authorities] say literary pathway students performed badly in the literary pathway, which is easy, and still want to switch to the science pathway... Yes, that is true. How come you are a literary pathway student. You couldn't do well in the literary pathway. To be fair, the first year in the literary pathway is easy, and you want to **go up** to the science pathway?! This is the right thing to do [speaking about the policy regarding students changing pathway]. [researcher's emphasis in bold]*

Insaaf illustrated her opinion regarding the policy of students changing pathways. She appeared to be in agreement with this policy, which implied that difficulty is linked to higher-achieving students and easiness to lower-achieving students. She carried on portraying her opinion regarding students' course choices and what she thought about the wide range of courses (sciences and humanities) the science pathway offered and the limited number of university courses the literary pathway provided (humanities only):

Normally, if students studied on the literary pathway, they should continue in their field, and if they studied on the science pathway, they should stick to their field at university, but emmm [hesitation] I don't know! Sometimes, I think that the more science pathway students progress in their grades, the more difficult their study gets. That's why the ministry give more options on the science pathway, because those who couldn't take up a university course in sciences would still stand a chance to settle for something less... As for the literary pathway student, the ministry would think that they should stay where they are... I think this is a good policy for those who couldn't handle a hard course at university; they can always go down to something lesser to continue their journey.

There is a clear link between the pathway level of difficulty and the variety of future prospects. The majority of students were aware of this education policy but had different perspectives on how appropriate it is. As shown in the quote above, Insaaf gave mixed answers that could not clearly indicate her position regarding this crucial policy. The first line of her quote showed that Insaaf disagreed with the policy, but then she hesitated for a moment to justify the righteousness of this policy by explaining that the more students progressed in grades, the more difficult the science pathway curriculum would get. Her claim that science pathway students could opt for lesser courses at university (by lesser courses, she meant literary pathway courses) could raise question marks over her perspective on the relative values of the pathways. Though Insaaf had been arguing for the equality of values that both pathways possessed, these recent quotes indicated a sense of a pathway hierarchy of values. This sense of hierarchy could be detected in some words she repeatedly used. Like Nouri, her use of words such as '*go up*' (see in bold), which was noticed often in Insaaf's conversation, might imply that the pathway values were not necessarily the same, not only for her social surroundings but for herself too. It is worth mentioning that Insaaf and Nouri were among the strongest advocates for the worthiness of their pathway. However, they were the only ones who constantly used words such as '*go up*' and '*go down*' whenever they had to speak about that certain school policy.

Despite her support for the education policy, in later discussion, Insaaf disapproved of the low value that society attached to the literary pathway because it was an easy field:

They got it all wrong, they put science pathway students in high regard. We both study difficult stuff. For example, I will outdo a science pathway student in philosophy and they will outdo me in science or physics subjects.

In another quote she said,

I had this idea that science pathway students are better than the literary pathway students. I said to myself that it was ok, the most important thing is that I study well and I do my best, but when I studied on the literary pathway, I experienced Arabic as a subject, I realised that the literary pathway was as difficult as their pathway... We are not stupid. Why we are stupid? We are not learning about the alphabet!

Insaaf manifested the high value society accorded to science pathway in terms of its difficulty and portrayed how this value was projected onto students' achievement levels and abilities. Insaaf was critical about labelling literary pathway students 'stupid' because their pathway was easy. What Insaaf said in the previous two extracts appeared to contradict her earlier statements regarding education policies, in which she approved of the education policy that allowed only science pathway students to take up humanities courses because their pathway was difficult and they were more academically able. In many parts of the interviews, Insaaf emphasised the equal value of both pathways; she based this argument on her experience as a former science pathway student and a current literary pathway student. Insaaf struggled to prove that the literary pathway had some difficulty and was not entirely easy. In her attempts to maximise its value. In doing so, she kept referring to the second and third years in secondary school, where literary pathway students would be introduced to more challenging subjects such as philosophy and other languages (either German, Spanish or Italian). She commented, *'they are better than us only in the first year, but the next year and the year after, we will be having the same difficulty. We will have difficulty in some subjects, the same thing for them! There will be balance at last.'* Insaaf and Shiraz seemed to share the same sentiment. These literary pathway students had developed a strong desire to defend the literary pathway and prove that their chosen pathway was also difficult and valuable in response to the negative social attitudes around the easiness of literary pathway.

4.1.1.3.2 Memorisation and comprehension

A significant number of literary pathway and science pathway students across the two schools showed particular interest in the nature of the pathways' different learning processes (e.g., content, meaning how subjects were learnt by students and how they were assessed). There was a general social consensus among participants that the science pathway was based on comprehension and the literary pathway was based on memorisation. However, many of these students expressed the opinion that Arabic was the only literary pathway comprehension-based subject. Shiraz was the only student who argued that memorisation and comprehension could be found in the subjects of both pathways. Rukaya provided more details about the naming of these two concepts:

She [the pedagogic counsellor] told us that the science pathway depended on languages and philosophy and it specifically relies on memorisation... such as history and geography. The science pathway relies on three main subjects. If a student was not good at them, no need to go onto the science pathway. These are physics, maths and science; these subjects should be comprehended.

Many students, such as Rukaya, believed that the science pathway was a more comprehension-based pathway and the literary pathway a more memorisation-based pathway. However, they admitted that there is a little bit of memorisation and comprehension in both. For example, Rukaya said, *'Arabic and language subjects do not require memorisation while the science subject is not entirely comprehension'*.

The above quotes identified the general idea of this dichotomous concept, and Rukaya went on to provide additional insights into what she meant by memorisation and comprehension

Researcher: *What do you mean by memorisation and comprehension?*

Rukaya: *For example, in history, they only memorise the lessons, even if they don't get them. Geography and religious studies are only about defining concepts. There is no practice in these subjects; what you read in your book, you memorise it and then write it back on the test paper. Unlike science, maths and physics, where we have to practice what we have learnt. We do*

experiments in science and chemistry. As for maths, it is purely comprehension. Maths is all about calculation. There is no memorisation. We understand, we don't memorise only... One may memorise a lesson in history or geography without really knowing what is going on or what geography is!

Rukaya recognised memorisation, which she attributed to the literary pathway, as rote learning, passive and theoretical. However, comprehension is more meaningful learning as it is less theoretical than memorisation as it provides the students with practical experiences. The former suggests that memorisation is passive and the science pathway a more active form of learning. When Rukaya was asked which of these two concepts she deemed better, she did not give a precise answer; instead, she referred to her own learning tendencies: *'I am not into memorisation'*. When prompted further, Rukaya said the following:

It would be great if subjects of memorisation are comprehended first. Like, we can understand them before memorising them. For example, our teacher of history and geography used to tell us stories in history class so that we fully grasped the lesson... In the geography session, he would bring to us the world map and tell us stories about the old times... He was nothing like those teachers who print out the lesson, or they write it on the board and tell us to copy it down on our copybooks or they tell us to copy the lesson down from the book!... Make us understand before we memorise... Even if they [humanities subjects] are subjects to be memorised, they will become more exciting if we understand them first. Storytelling is an exciting side of them.

Rukaya spoke about a previous teacher of hers, probably in middle school. She described his unusual approach of teaching humanities subjects as exciting because they were delivered in the form of storytelling. Her use of words such as *'exciting'*, *'story'* and *'storytelling'* may suggest that she had found in his approach a sense of meaningful learning that went beyond raw rehearsal, meaningful learning that she could relate to. Unfortunately, the majority of other teachers' approaches reinforced the concept of raw rehearsal and rote learning, as illustrated by Rukaya. For this reason, memorisation is negatively pictured by most students on both the literary and science pathways. Rukaya's quote identified a possible reason behind

this negative depiction. Her earlier comment about memorisation and comprehension illustrated how teaching approaches and curriculum design in humanities subjects played a significant role in how students conceived the pathway values. In the beginning, Rukaya gave the impression that comprehension is better than memorisation. However, as the interview progressed, she identified ways teachers provided lessons in literary subjects and articulated how humanities subjects could have been more exciting and meaningful if they had been taught in a non-traditional way that stepped out from rote learning.

Along similar lines of argument, other science pathway students, such as Fares, Karima and Asma, highlighted the same issue around rote learning on the literary pathway. For example, Fares explained which approach between memorisation and comprehension he believed to be better:

Someone who can comprehend is better because intensive memorisation will eventually lead to all the memorised content becoming mixed up in one's head, and on the day of exam, if the teacher changes the format of one question only, the student cannot answer correctly. This is a trap that most literary pathway students fall into.

Agreeing with the point shared by Fares, Asma expressed her opinion regarding memorisation and comprehension:

There are some types of people who love to comprehend the subject material; they just use their brains. But in memorisation, the more one memorises, the more they are at risk of getting everything they learnt mixed up in their head.

In the quotes provided by Fares and Asma, the term memorisation was looked at as the act of absorbing large amounts of information in a supposedly limited amount of time which would not lead to meaningful and durable learning, and Asma continued to elaborate on her idea in the quote below:

If you ask a literary pathway student about when the Battle of Navarino happened, they would answer that it happened in 1827, but they will forget it very soon after because this information was memorised and stored in

short-term memory. Now, if you ask a science pathway student about volcanos, their nature, and how they get formed and why they erupt etc., they will answer you, because this information is not to be memorised but understood. This is the difference between the science pathway and literary pathway... In science, because it is rooted in comprehension, the brain has more tendency to develop.

Shiraz was the only student who firmly argued that memorisation and comprehension could be found in both pathways, and they were not exclusive to one pathway rather than the other. Repeatedly, literary pathway and science pathway students linked memorisation and comprehension with attainment and student ability. It is clear from this statement from Shiraz that,

both pathways have memorisation and comprehension... In the literary pathway, Arabic is 90% based on comprehension and there are a few things that need memorising. Maths, science, and English should be comprehended, but some details could be memorised for full comprehension... Their history and geography [on the science pathway] are about defining concepts, that's all, but ours contain more details that must be comprehended... So, it is not the case that the science pathway is comprehension and the literary pathway is memorisation. That is wrong.

As shown in the previous section, Shiraz defended her pathway as being both comprehensible and memorisable to protect her pathway from all the accusations of being of low value. Shiraz noted when the pedagogic counsellor asked who was interested in the literary pathway, only three girls, including herself, raised their hands. Later that day, many of her classmates questioned her choice of the literary pathway. Shiraz noted that her friends accorded low value to the literary pathway because it was perceived as memorisation. She disapproved of this common belief. In many parts of the interview, she argued that these were '*wrong ideas*'. She appeared as a defender of her pathway. This defending attitude was prominent in the following comment, when Shiraz was asked to clarify what wrong ideas her social environment carried around pathways.

They [her friends] say that the literary pathway is only about memorisation, and only weak students go to the literary pathway... Those who perceived themselves as weak academically think that the literary pathway is the best option for them because they think all they have to do is just memorise, and they can pass their grade!

While most students, like Fares and Asma, believed that the literary pathway is predominantly memorisation-based and science pathway is predominantly comprehension-based, Nouri, a student on the literary pathway, believed the same but also thought that these two approaches are complementary: *'It is better to understand and memorise... For example, if you're sitting for an exam, it would be more useful to understand and memorise while revising.'* Even though Nouri mentioned that memorisation and comprehension existed in both pathways to a certain degree, he generally agreed with the common perspective among students. In contrast to the majority of students on the science pathway in particular, who accorded lower value to the literary pathway because of its dependency on memorisation, Nouri adopted a positive perspective during his contemplation of memorisation. He seemed to think highly of memorisation as this appeared in his intonation and his narrative that was shown later. Nouri explained the ability to memorise was an academic strength that enabled him to succeed as a male student on the literary pathway. The above quote showed he accorded equal value to each of the literary and science pathways as memorisation and comprehension complete each other. When prompted further to define these two terms, Nouri replied,

*Comprehension happens when the teacher explains a difficult lesson. With just a few examples, students will understand... They will comprehend the lesson thoroughly; the lesson is implanted inside their head. They just have to do some practice. But, during memorisation, even if a student doesn't understand the lesson, emmm [hesitation] I mean they have to comprehend the lesson even a bit! But **even if they did not understand the lesson, and the teacher's explanation is already there in the book, it is better, in this case, to just memorise.** [researcher's emphasis]*

In this quote, Nouri provided a contradictory statement. Memorisation did not appear to be complementary to comprehension, as he argued earlier, but as subordinate to comprehension in that students could resort to it if they did not or could not understand a lesson. Furthermore, Nouri unconsciously highlighted an issue that was already highlighted by Rukaya. His use of the expression in bold (see above quote) raised a question regarding the teaching practices and school policies. Nouri's quote pointed out that humanities subjects were taught and tested as memorised material from the textbook. This might reinforce an informal and hidden hierarchy of educational pathways with the literary pathway situated in a marginal position. In another comment, Nouri said,

I don't like it [the science subject], and I am not good at it. It demands lots of comprehension. I like memorisation only. For example, on the exam, science makes you use your head a lot; it has lots of calculations. It is unlike the literary pathway: just memorise, and you will be able to answer all the questions.

Although Nouri attributed a high value to memorisation and believed that memorisation was a key to his success on the literary pathway, the above extract indicated an implied understanding that memorisation was a lower-level skill as compared to comprehension, meaning that comprehension was described as an exercise for the brain which required analysing and synthesising while memorisation was a raw rehearsal of reciting concepts and facts. In his quote, he used the expression 'use your head'. In the original language, the use of this statement signified someone with high intellect and high abilities.

4.1.1.3.3 Depth and breadth of content covered in pathways

In reflecting on pathway values, all students shed light on the depth and breadth of the pathways in terms of the content and structure that is taught on them. Depth, as portrayed by all the students in this study, referred to how deep into a specific subject the curriculum goes. Breadth referred to the extent of coverage on each pathway. In their data, students sometimes referred to depth, and some other times, they referred to breadth of the content on both pathways. The structure of the educational pathways is designed and planned differently. To explain, scientific and literary subjects are both taught on the science and literary pathways. However, the subjects' weighting is different. Science subjects have a higher

weighting on the science pathway, and literary subjects have a higher weighting on the literary pathway. This suggests that the content of scientific subjects should be focused on more in the science pathway, and the content of literary subjects should be focused on more in the literary pathway (in terms of either the extent of depth and breadth in the covered content). Having established this, the majority of students explained that the science pathway had more depth and breadth than the literary pathway. Hence, it was more important. because the level of depth and breadth in a pathway signified that the pathway possesses a high achievement value.

At the beginning of the interviews, Nabila and Doria (literary pathway students) stated that the science pathway had more depth in scientific subjects and the literary pathway had more depth/breadth in literary subjects:

Nabila: *She [the pedagogic counsellor] said, on the literary pathway, we focus only on literary subjects such as religious studies, history and geography. So, we don't focus on maths, science and physics. We study them in a simple and superficial way, not in detail. On the science pathway, the focus is on scientific subjects and not much on literary subjects such as history, geography, French, English.*

Researcher: *So, the science pathway content is specifically deep in scientific subjects and literary pathway is deep in literary subjects?*

Nabila: *Yes.*

Doria added to Nabila's account:

Each pathway has core subjects. These core subjects have high subject weighting. It is true that we study the same subjects, and we share the same content of some of these subjects, but the difference is that the science pathway is based on scientific subjects and the literary pathway is focused on literary subjects, like we learn these in great detail, but we don't learn much about sciences... Later, at university, students have a specific specialism and literary pathway students have a specific specialism.

Students generally tackled the point of pathways depth and breadth. This pattern was seen in many students' responses, not only Nabila and Doria, but also Fares, Rukaya and Insaaf. However, as the interviews progressed, students' conceptions of the depth and breadth of the content covered in pathways started to evolve. They shifted their account to be more nuanced.

Literary pathway and science pathway students had mixed opinions regarding the pathways' depth or breadth. Their voices ranged between those who argued that science pathway curriculum content went deeper than the literary pathway curriculum content and those who leaned more towards arguing that both pathways have the same depth and breadth. However, some other literary pathway students (e.g., Shiraz and Insaaf) did not show a clear perspective on which pathway had more depth and breadth in it. The majority of science pathway and literary pathway students who reported that the science pathway had more depth/breadth than the literary deemed the science pathway to be more important. When asked about the policy question that enabled students in the science pathway to change their pathway and pursue wider course options at university and not vice versa, many students would justify this policy by referring to the depth and breadth level of the curriculum in both pathways. Nabila, when asked this question, claimed the following:

When we look back to the secondary school period, we will find that science pathway students studied the literary subjects very well, and they sat for their BAC exam in all these subjects, but the literary pathway students studied physics and science and maths superficially. There is no depth at all. So, we can't choose science pathway-related fields at university, and we didn't really study scientific subjects at secondary school.

Nabila was further prompted to reflect on her views. She was asked, if they had had the same depth on the literary pathway content as the science pathway, would they have been allowed to change their pathway and choose among a wider range of courses? Nabila responded:

It doesn't work!... If this is going to be the case, then they [the education authorities] should have assigned us all in one pathway! There must be differences between the two choices.

Nabila's comment implied that the best way to differentiate between the two pathways and make it possible for students to choose is to design curriculum content that ensures some students can achieve depth and breadth to their learning in humanities and scientific subjects and design another curriculum content in which some students' knowledge is expanded only in humanities subjects. Once again, Nabila's comment shed light on the functionality of educational policies around pathways and how these policies constructed and sustained students' relative values. Although Nabila did not state directly that the depth /breadth factor contributed more to the relative values of the pathways, her statements, and the way in which they were uttered, suggested that Nabila perceived the science pathway to be valued more highly. In her following quote, which took place at the end of the interview, Nabila reflected:

Nabila: *The science pathway is the bigger pathway, and the literary pathway is the smaller one. This is how I define a pathway.*

Researcher: *Why did you use the words big and small?*

Nabila: *The science pathway is inclusive of literary and scientific subjects at the same time, but the literary pathway is inclusive of literary subjects only.*

Likewise, Dhikra, who was a student on the literary pathway, expressed her opinion regarding why the science pathway allowed for more opportunities for access either in secondary school or at university and in the job market. She responded, '*their [science pathway students'] study programme is more inclusive than ours*'. By describing the science pathway as more inclusive, she elaborated further that the science pathway had deeper coverage in all subjects.

Fares provided an example of a hypothetical situation concerning the difficulty for a science pathway student to become a teacher of Arabic, and the impossibility for a literary pathway student to become a medical doctor. When asked about his use of these two words (in bold), Fares explained:

If we make a comparison, a science pathway student is way more able than a literary pathway student because in the science pathway, students study everything... The literary pathway has little depth in it. The basics of the science pathway subjects are not known by the literary pathway students.

In another quote, Fares stated that the science pathway has features in its content that did not exist on the literary pathway:

Science pathway students must deepen their knowledge in all subjects because they will need them, but the literary pathway students do not really need scientific subjects and to deepen their knowledge in them.

Fares did not give an explanation of how science pathway students may need the depth/breadth in scientific and literary subjects. However, Nabila, who had the same position as Fares, explained this idea:

Science pathway students need scientific and literary subjects. Let's say French, even if it is a literary subject, but still science pathway students need it at university. Many university science pathway courses are taught in French, such as IT and pharmacy...

The link between the depth and breadth of content covered in humanities and sciences pathways and the ability requirement was detected in these students' accounts. While these students seemed to position the science pathway as more valuable, two students – one in the science pathway and the other in the literary pathway (Rukaya and Doria) – challenged the higher value placed on the science pathway merely because of the depth and breadth features, and they concluded that both pathways were the same in value. The examples, below, introduce Rukaya's explicit perspective:

Because science pathway students' study everything but they [the ministry] cut out considerable content from scientific subjects in the literary pathway. And then they say that literary pathway is not for smart people!

According to Rukaya, the issue of no depth or breadth in the literary pathway reflected negatively on the value of the literary pathway and created a pathway hierarchy. She was the only science pathway student who did not position the literary pathway as less important than the science pathway based on the level of depth and breadth in the curricula of the educational pathways. Instead, Rukaya disapproved of the way the pathway structure worked well for the science pathway students, discussing the outcomes of not designing the two pathway programme in an equal way that would allow for better outcomes for both sets of

students, not science pathway students only. Her depiction of the literary pathway as an attraction for lower attainers due to its lack of depth and breadth did not suggest that the literary pathway was of high or at least equal value to the science pathway according to the institutional structure. While Rukaya was consistent in her accounts, Insaaf expressed mixed views in this regard. Insaaf took up the science pathway as she retook the grade twice, then she decided to shift to the literary pathway. At the beginning of the interview, she commented,

No, I have experience on the literary pathway and science pathway. I have been on both pathways. When I studied on them, I realised that each of them has its own programme. our Arabic subject is nothing like theirs at all! We extend our knowledge in it way more than they do.

Insaaf strongly argued that both pathways had a balanced coverage of all subject content. This normally meant that the science pathway students mostly deepened their learning in scientific subjects, and literary pathway students in humanities subjects. However, as she went on explaining, she provided contradictory explanations for her claim in the same passage.

Researcher: *What about other main subjects of the literary pathway, such as languages, history/geography and religious education?*

Insaaf: *The content that we have in common is in religious education, and history/geography, and foreign languages... You know, our first year is the same as the fourth year of middle school. We extend on it in just a few things, but everything the science pathway students study is new... Our core subjects are similar to theirs, except for Arabic. It is deepened. But next year, in the second grade, we will have totally different books and lessons than theirs... Languages are totally different. As you know, these are core subjects in the literary pathway.*

It was noted that Insaaf affirmed many times that the content of the literary subjects was more profound on the literary pathway (unsurprisingly, since these were the core subjects on the literary pathway). However, when she was asked about providing examples, the only literary subject she referred to as being deeper in the literary pathway curriculum was 'Arabic'. She reported the rest of the literary subjects such as geography, history, religious education

and languages were similar in content to the science pathway curriculum. Confusing statements were provided by Insaaf, who at the beginning reported that both pathways had balanced coverage of content in all subjects, and then reported the opposite. An explanation can be offered to justify the contradiction in Insaaf's responses in that Insaaf insisted on the balanced depth/breadth of the literary pathway curriculum to prove to herself, and maybe to the researcher, that the literary pathway was as worthwhile as the science pathway. In order to prove the value of her pathway, she backed up her claims with two arguments. She referred to the content covered in the Arabic subject, which was a core subject in the literary pathway, as being taught in more depth and breadth than it was on the science pathway. However, sometimes, she unconsciously used language that might suggest that the level of depth and breadth in the curriculum of the educational pathways was an indicator of their relative value. The below quote illustrates that:

Insaaf: We have a good learning level in the Arabic language, in parsing and poetry... That's all... But they [science pathway students] have much more positive points. They have a good learning level in maths, physics, science and technology. I have no clue what technology is. There are many negative things, they underestimate us. They [science pathway students] have value and we have none. If you tell them you are a literary pathway student, they will think "huh stupid", but science pathway students are geniuses.

These quotes showed that the way she was defending her pathway suggested that she had encountered some social experiences in which the literary pathway was devalued because of its lack of the necessary depth and breadth. Moreover, Insaaf brought up the literary pathway's lack of technology teaching many times during the interview. It sounded logical that technology, as a scientific subject, was not included in the literary pathway course. However, this argument failed to explain why none of the literary subjects had been cut out of the science pathway curriculum. For example, Nouri explained what subjects students sit exams for in the baccalaureate: *'In the baccalaureate exam, the literary pathway students do not sit [exams] in science and physics'.*

4.1.2 Intrinsic values of educational pathways

While students predominantly reported the instrumental values in their accounts, explaining for the most part how science pathways possessed more instrumental values than the literary pathway did, a few of the participants (Dhikra, Nabila, Doria and Rukaya) on the science and literary pathways referred to the intrinsic value of the pathways. They discussed the consequences that pathway decisions could have for their own sake. Among the four students who discussed this theme, two – Nabila and Dhikra – argued that the science pathway possessed more intrinsic values than the literary pathway, while the other two students – v Doria and Rukaya – seemed to point out the intrinsic value of the literary pathway in particular.

4.1.2.1 Pathway knowledge and enjoyment

Some participants' findings demonstrated that pathways held an intrinsic purpose that evoked a sense of satisfaction or enjoyment. Dhikra showed a sense of enjoyment in the subject content of the science pathway, but she could not experience this enjoyment on her own pathway. She talked about her own subjective experience of studying in the literary pathway and quoted, in various parts of the interview, the personal values she could have obtained if she had chosen the science pathway. With a regretful tone, Dhikra said, *'for me, the science pathway is the best path because it makes students more knowledgeable'*. Other students also used the word *'knowledgeable'* to portray the intrinsic values of the pathways. Nabila, quoting her pedagogic counsellor, commented:

And she [the pedagogic counsellor] told us that a student in the science pathway will be more knowledgeable because we get to learn physics and science.

These students seemed to refer to the intrinsic value of the body of knowledge in the core subjects of the pathway. When Dhikra was asked to explain what she meant by the word *'knowledgeable'*, she stated that the body of knowledge in the literary pathway's core subjects was old and outdated, while the science pathway knowledge was new and innovative:

If you take a closer look at what we study on the literary pathway, you will find out that our study programme is so trivial and not exciting. The science pathway is a much more up-to-date field. You learn about things that will

really help you improve in your life... The content we study, we know it already, or we know most of it, and we don't even have to learn it. It is useless... You may learn a few new things in religious studies you have not heard of before. But the science pathway students always have new things. You can see they are always excited.

In another quote, Dhikra said,

I will be empty-headed... When I fill my head with things about ancient times, battles and wars, who killed who and who started the war on who.

Dhikra did not go on to elaborate about what subject she was referring to, but it seems that she meant either history or Arabic. In her quote, she talked about how the knowledge of the literary pathway (with its domains and disciplines) was somewhat old and outdated. It failed to reflect contemporary issues in society in the way the the science pathway did and which Dhikra perceived would '*help you improve in your life*'. This sense of enjoyment in knowledge from the science pathway was clear when she expressed her excitement about the field of science and shared an anecdote about how she would contemplate the decomposition process of a dead mouse she encountered while walking down the street. She found it fascinating to ponder over questions like what happens to the cells and how long it takes for the body to decompose. Dhikra did not perceive an intrinsic value in the literary pathway because she could not make a link between the literary pathway knowledge, which she described as old and outdated, and enjoyment.

While Dhikra's accounts led to the conclusion that the science pathway was intrinsically more valuable for her, Doria and Rukaya had a completely different opinion regarding the pathways' intrinsic values. For instance, Doria used a similar expression as the word '*knowledgeable*' but she expressed it in her own way: '*I think that the person who undervalues literature, reading and learning languages through which human beings can communicate is ignorant*'.

Rukaya, similar to Dhikra, described the knowledge from the science pathway as new and the literary pathway knowledge as old but with a more positive view of the literary pathway:

Rukaya: *I feel that the literary pathway looks like the feather quill that people in ancient times used to write with, and the science pathway is more like the normal pen that we write with nowadays.*

Researcher: *Is any one better than the other?*

Rukaya: *We can't depend on one of them and neglect the other. If we do, there will be disorder. They complete each other.*

Researcher: *But a feather quill is an old method of writing nobody is using today?*

Rukaya: *But it is so beautiful. hhhh*

Researcher: *Why did you compare the literary pathway with the feather quill pen?*

Rukaya: *Writing with a feather quill is beautiful, but there is no beauty in writing with a regular pen. A person who writes with a regular pen, they just do it for the sake of writing. They rush while writing; sometimes their handwriting is illegible... It contains numbers and calculations.*

Although Rukaya was a science pathway student, she admitted her love for literature and poetry. Rukaya's metaphor implied that she found the literary pathway and the type of knowledge, which she described as old (using the analogy of a feather quill), was more enjoyable for her than the science pathway knowledge. In addition, her metaphor implied that even in today's fast-paced world, where technology and sciences are seen as contemporary and modern fields, the world still needs humanities, social sciences and the arts even if these are considered by many as an ancient type of knowledge.

4.2 Chapter summary

The findings that were presented in this chapter are summarised in the following points:

- In general, all students in both pathways expressed predominantly instrumental pathway values with little emphasis on intrinsic values.

- Findings showed that the majority of students were more focused on ranking values and treating them as dichotomous than citing the values of each pathway. Students tended to talk about values as '*relative values*'. Therefore, the relative aspect is an outcome of the analysis of their responses.

- In general, students (science pathway students in particular) perceived the science pathways as more important than the literary pathway. Sometimes, the relative values were expressed explicitly and at other times, these were expressed implicitly and even unconsciously. Science pathway students (except Rukaya) ascribed higher value to the science pathway over the literary, while some of them, like Karima and Fares, exhibited noticeable dichotomies in their perspectives as they considered pathways to be more different than similar. They believed that the science pathway was more valued than the literary pathway, adopting a dismissive view of the literary pathway for the most part of their interviews. Other science students like Ryhem, Asma and Hadi engaged in more intertwined, complex and sometimes ambivalent accounts about the relative values of these pathways in which the science pathway was perceived as more valued than the literary pathway or the science pathway might have higher value than the literary pathway, but this latter was still of value for these students. Speaking of the literary pathway students, They all (except of Nabila and Dhikra) showed more blended perspectives in their descriptions of pathways as they believed the two pathways to have a more complementary and integrative relationship in which the science pathway was perceived as equal in value to the literary pathway.

- Participants' accounts showed how the pathways' relative values featured in the external structure, and their accounts demonstrated different positions in their views regarding different policies and discourses. However, this last point is discussed in detail in the next chapter.

Chapter 5. Factors influencing educational pathway values in Algerian secondary schools

The results presented in the previous chapter explored the values students hold regarding educational pathways, demonstrating some of the social and cultural factors behind these values. Therefore, the purpose of this chapter is to focus explicitly on these influencing factors. The results in this chapter answer the following research question:

RQ 2. What factors impact educational pathway values in Algerian secondary schools?

The analysis of the second research question is centred around identifying the influencing factors that students related to pathway values, which ultimately influence many of the students' values regarding pathways, as shown in Chapter 4. These factors are mainly institutional factors (related to education policies that are transmitted to the school level and enacted by the pedagogic counsellor) (section 5.1), and societal factors (related to the ongoing discourse around pathways in students' environment and media) (section 5.2). Finally, the chapter ends with a summary (section 5.3).

5.1. Influence of streaming policies and practices on pathway values

The analysis of participants showed that streaming (Chapters 1 and 4) was a manifestation and presentation of pathway values. The mention of the word streaming brings pedagogic counsellors into the picture because they are the agents that carry out the education policies and provide students with a roadmap for choosing their suitable pathways. Institutional factors refers to all the streaming policies and practices initiated by the Ministry of National Education and enacted by all secondary schools in Algeria. These policies are basically communicated to students through pedagogic counsellors, the mediators between the Algerian Ministry of Education and the students. Therefore, their role is the predominant one in this section.

Students' findings demonstrated how informative sessions with pedagogic counsellors were meant to answer two main questions:

- How are students streamed? (section 5.1.1)

- Are they allowed to change their pathway in the coming year and university course if the future? (section 5.1.2)

Sections 5.1.1 and 5.1.2 will explore how enactment of streaming policy as represented by students had a structure that sustained a narrative of relative values.

5.1.1. Enactment of streaming policy: attainment and preference

Participants often discussed pathway values through shedding light on the similarities and differences between pathways regarding their difficulty and depth level and memorised/comprehended content. They attached many values to these concepts. The achievement value was extracted from comparing and contrasting different student pathways (see section 4.1.4), and streaming seemed to be an influential factor for this value.

As reported by all students, the pedagogic counsellors explained that students are streamed according to their preferences and academic results at the end of their final middle-school year. Fares was the only student who argued that this law was '*just words on paper*'. He stated that all students would find themselves in the pathway they had chosen at first, regardless of their academic performance. The rest of the participants reflected on the streaming practices and their pedagogic counsellors' guidance. Overall, students' understanding of the second criterion of streaming '*attainment*' was not quite clear. They expressed the concept of academic attainment in two mixed ways. Sometimes, they referred to streaming as being based on students' attainment of the main subjects in each pathway; at other times, they referred to streaming as being related to students' overall attainment in all subjects. For example, some students who noted that only core subject performance was counted in the streaming later referred to overall attainment and vice versa. Students' complex narratives did not seem to be consistent in either sense. To illustrate, Hadi, a student in the science pathway, reported that the pedagogic counsellor made them aware of the importance of their preference and their attainment in the core subjects of each pathway when choosing:

She advised us not to choose a pathway that we can't do well in... She said we should think of what subjects we get higher grades at and then choose what we want.

Hadi was asked to elaborate on how the pedagogic counsellor explained the streaming process for more clarification. He commented,

Hadi: *At first, they look at your preferences, and then the attainment. They base their judgment on whether your wishes go hand in hand with your performance. For example, if you get 14 or more, and you chose the science pathway, you will get what you want, but if your grade is 10 or 11, you will be streamed to the literary pathway directly*

Researcher: *I don't get it. If you get a good grade such as 14, you go to the science pathway and if you get a below-average grade say 10 or 11, then you get streamed to the literary pathway?*

Hadi: *Yes, the pedagogic counsellor told us that. She said that we get streamed based on our preference and attainment. If our preference fits our attainment, we get what we want, but if our preference and attainment don't fit, then they will change the pathway we wanted.*

Researcher: *What do you mean by the expression 'preference fits attainment'?*

Hadi: *As I said, someone with a 10 or 11 as a grade won't be accepted easily in the science pathway.*

In the first quote, the pedagogic counsellor instructed the students to focus on the subjects they could excel at. Her words imply that higher attainers in the literary pathway subjects were to be streamed into the literary pathway, and higher attainers in science pathway subjects were to be streamed into the science pathway. In the second quote of the conversation between Hadi and the researcher, the pedagogic counsellor referred to the overall attainment of students in all subjects rather than their attainment in literary or scientific subjects. Hadi appeared to have a mixed understanding of the concept of attainment and the type of attainment required for being streamed into the preferred pathway. This is because of the mixed messages provided by the pedagogic counsellor regarding students' attainment. If the pedagogic counsellor's advice for students was to evaluate what subjects they are more able

at and have higher attainment in, then one may wonder why lower attainers are suddenly streamed into the literary pathway and higher attainers into the science pathway.

This repeated pattern appeared in many students' narratives, including those of Doria, Rukaya, Insaaf, and Ryhem's stories. This pattern implies that the pedagogic counsellor would advise students at first to choose a pathway by relying on their academic achievement and preferences. However, the course of discussion between the pedagogic counsellor and students shifted to inherently communicating the need for students to be higher attainers in general with high capabilities, especially in sciences. That was clearly shown in the example provided by Doria below:

She told us if someone is willing to choose science pathway, their grades should be good, like, no less than 13 or 12 and even our teachers told us that... She [the pedagogic counsellor] asked me why I wanted to pick the literary pathway, and I am high they think... They all have the same point of view!

The students have been exposed to this type of social discourse since middle school, maybe before, which justifies why the science pathway was more valued than the literary one. This point was repeated in students' interviews many times. Doria, Rukaya, Insaaf and Ryhem's stories were similar to Hadi's, and they all highlighted the issue.

The influence of streaming on pathway values was highlighted further when students shed light on another major streaming decision mentioned in the pedagogic counsellors' talks, that is, streaming students who failed their BEM exam⁵. This policy states that students who do not pass their final national test in middle school (BEM) are given a second chance when their academic performance throughout the year is considered⁶. Students did not often speak about this matter until they were asked about it. When asked, '*How are those who failed their BEM test streamed?*', participants like Doria, Insaaf, Dhikra and Nabila (literary pathway students), and Hadi and Ryhem (science pathway students) reported that the literary pathway

⁵ In the fourth year of middle school, students pass a national exam called BEM. Students who get at least 10 out of 20 move to secondary school. However, students who obtain a grade of less than 10 are given a second chance by the Ministry of Education to get accepted in secondary school by taking their previous year's academic performance into account.

⁶ $(\text{BEM test result} + \text{fourth year academic results})/2 = 10$ or more is a pass

was the most-streamed pathway. Others, including Karima, Rukaya, Fares and Shiraz, said that students who did not pass their BEM exam could be streamed into either the literary or science pathway, but they tended to be in the literary pathway because they got streamed there or they chose it with their own will.

Conversely, Nouri (literary pathway) and Asma (science pathway) stated that these students were still streamed based on which subjects they got higher grades in, explaining that students' stories and accounts regarding the streaming process for students who failed their middle school national were derived from their and others' lived experiences rather than the information provided by the pedagogic counsellor. The role of the pedagogic counsellor did not seem to feature strongly in students' accounts in this case:

Dhikra: *I think the majority would go onto the literary pathway and are normally streamed into it. I know some people who got less than 10 in their BEM and managed to gain a place in secondary school. They are weak in sciences but still want to be in the science pathway, so they [administration] did not let them. They were streamed into the literary pathway. Like, it is obligatory to be on the literary pathway. I mean these students are not even able to be on the science pathway, so there is no point.*

Nabila commented the following:

Nabila: *The majority of these students go onto the literary pathway. I know many students who got less than 10 in their BEM and they are now in the literary pathway.*

Researcher: *is it their choice to be in the literary pathway?*

Nabila: *... The decision of the administration sometimes is different than what students wrote on their orientation cards. There are cases where these students chose science pathway, and they find they were streamed onto the literary pathway. I have seen such cases... they evaluate their grades. If their grades in sciences are low, then they will be switched onto the literary pathway ... Even teachers have a say in this when they see a student who has nothing to do with science, physics, and maths. The decision will change.*

The pedagogic counsellors, as reported by students, always focus on students' preferences and attainment. On the surface, streaming is the practice of sorting students into two main study tracks – the science pathway and the literary pathway – based on their abilities and preferences to help students to choose what is best for their future. Preference stood for students' inner interests and tendencies, while attainment stood for students' academic potential in specific subjects. However, digging underneath the surface shows that streaming tends to group/categorise students based on their overall academic attainment in all subjects. This initiated a belief that high-achieving students are placed in the science pathway and weaker students typically streamed to the literary pathway. A good example of this categorisation is students who failed their BEM national exam. Students' discussion showed that even if these students are given a second chance by the education system to pass their final exam, most of them are either streamed onto the literary pathway forcefully or choose it willingly. Both scenarios explained the existence of a preconceived idea in society that attaches low attainment to the literary pathway and higher attainment to the science pathway, which, in many cases, influenced the values students linked to these pathways (see Chapter 4).

5.1.2 Influence of pathway change policy

The idea that science pathway students are higher-ability students compared to their literary pathway counterparts had been implanted into these young people's minds. Consequently, switching pathways, that is, from a literary to a science pathway, was viewed as impossible and illogical. In this regard, the pedagogic counsellor informed the students that students on the science pathway could change their pathway to the literary one, but literary pathway students could not make that switch. Ten out of twelve students, ranging between those admitting that they had known this policy from a young age and knew about it from their surroundings and others, stated that they heard of this policy for the first time from their pedagogic counsellors. Shiraz and Rukaya were the only students who did not seem to have a clear understanding or knowledge of this policy. The example below illustrates how students came to know about this policy before they made an appropriate pathway choice:

Karima: *She told us those who are able in sciences go to the science pathway
... and those who are capable in literary pathway subjects go to the literary*

pathway, and she told us that students, on the science pathway, can change their pathway in first year to the literary pathway, but it is not the other way around.

The pedagogic counsellor explained the various reasons behind this policy. The quotes below present these reasons from the point of view of three students: Karima and Fares are from science pathway; and Nouri and Doria from the literary stream:

Karima: *Some students disagreed. They wanted to know why science students can change pathway while literary pathway students can't... She [the pedagogic counsellor] explained that because the literary pathway pathway was easy and those who could not do well on the literary pathway could never do well in the science pathway.*

Fares: *Science pathway students can become literary pathway students because of the depth I told you about. A science pathway student somehow knows the literary pathway stuff, but the literary pathway student doesn't.*

Doria: *... If a student spent a whole year in the literary pathway, they did not expand their knowledge enough in science, maybe they study the same lessons but with no depth. The same thing for maths and physics... they cannot suddenly switch to the science pathway in the second year, but someone already in the science pathway can switch because languages are the same content, and Arabic is almost the same... I did not know about it until the pedagogic counsellor told us.*

As stated by Karima, the pedagogic counsellor explained that the content of the science pathway was highly demanding and challenging. Therefore, the pathway-changing policy was created to explain and justify why students in the science pathway can switch their pathway to a less demanding pathway. This policy justifies the higher value of the science pathway over the literary pathway as it is related to the intellectual and achievement demands of the science pathway and students' overall abilities. In the examples above, the pedagogic counsellor explained this policy by exhibiting a noticeable link between the pathway curriculum features and the value of attainment. The more difficult, deep, comprehension-based the pathway is,

the higher the ability required and the more value it attracts. As a result, this policy put students in a dilemma of relative values, and some students were therefore confused about the relative values of the pathways. For example, Insaaf and Nouri valued the literary pathway as a whole in terms of its knowledge, future opportunities, etc. However, when this rule came up in the conversation, Insaaf sounded unsure, inconsistent and contradictory (see Chapter 1). That was also the case for some other students, especially those from the literary pathway. The coming section will move from reporting how the educational system constructed and sustained a narrative of pathway values through organising streaming policies between those pathways to how the social discourse around different social agents fed into this narrative.

5.2 Social discourse influence on pathways values

5.2.1 Pedagogic counsellors, teachers, peers and parents

The streaming practices and policies already discussed have included some of the distinguishing features of pathways that defined their relative values. Students reported that the pedagogic counsellors often expressed these values implicitly or explicitly through shedding light on the nature of the curriculum content in terms of its grade requirement, difficulty, depth, and whether it was memorised or comprehended. The more the pathway held these features of high-grade requirement, comprehension, and in-depth coverage, the more value it possessed.

The findings also showed a utilitarian language used in the school environment. In response to questions like *'How did pedagogic counsellors help students to choose the right pathway?'* and *'How did pedagogic counsellor present the two pathways?'*, students reported that their pedagogic counsellor used a utilitarian language based on economically centred employability and social benefits discourses. Fares and Rukatya depicted it in the following quotes:

Researcher: *Did they ask the pedagogic counsellor about which pathways was better to choose?*

Fares: *They [the students] asked her about what jobs were needed, like, what is the most needed pathway? She said the science pathway. She said*

both pathways allowed for job access, but the most needed occupations in the market are in the science pathway.

In the same line of ideas, Rukaya said,

She [the pedagogic counsellor] advised us to choose a pathway that we would make use of at university, like we could find jobs in.

The previous chapter shows that student values around pathways were often centred on securing advantageous outcomes in a future context. This chapter demonstrates how their pedagogic counsellors reinforced these values. For example, the impact of the pedagogic counsellor's words should have had great significance on the values and maybe choices of the young people as they already influenced Fares's values. In the previous chapter, Fares strongly expressed his opinions regarding usefulness in the job market. The wider access of the science pathway, as shown in Fares's quote, indicates that the science pathway had more jobs because of the market demand. The following quotes show how pathways framed future course and career choices from the perspective of streaming policies:

Researcher: *Did the pedagogic counsellor talk you through university subjects, and how those were related to secondary school pathways?*

Karim: *She said that science students could study literary and science subjects and that university science specialisations were limitless.*

These streaming policies are not as simple as they sound. On the one hand, they reinforced the concept that the science pathway was for the more able and the literary pathway for the less able; on the other hand, they increased the value of the science pathway at the expense of the literary pathway as it provided the science pathway students with wider opportunities for job access and university courses.

Participants' accounts of pathway values displayed how the streaming process played a crucial role in shaping their values and surroundings. Streaming was crucial in the sense that it provided the students with a set of policies that guided their pathway choices and prospects. The pedagogic counsellors were responsible for delivering these policies and helping students make the right decision as they mediated between the Algerian Ministry of Education and students. Therefore, their role is predominant in this section, and they are a distinctive feature

of the context of this study. Furthermore, students' experiences with their pedagogic counsellors provided significant insight into one of the broader influences on student perspectives. After their informative session with the pedagogic counsellor, students sought a broader spectrum of ideas and perceptions from their surroundings, starting with their teachers and peers and ending up with their families, including parents, siblings and extended relatives. Students engaged in prolonged conversations with these social agents and pathway values were negotiated in this way. Students' social contexts proved to have a significant influence in shaping students' values. That influence was seen in terms of the advice regarding choice offered to students for them to make an informed decision and the ongoing education pathways discourse in society. This theme was particularly prevalent in students' responses to the questions, '*What is the most valued pathway?*' and '*What do others think about that? Do they agree with you?*' The aim of these questions was to explore the potential mechanisms behind the students' opinions on pathway values.

It was observed that society demonstrated a huge focus on the instrumental values of pathways; this included input on what university courses and careers were more/or less likely to be in demand in the future. Often, the majority of the students said that their social environment attached a higher value to the science pathway in terms of the width of their career prospects. However, a few other students reported the general view of pathways in terms of employability in their environment and then drew out some specific cases in which some people believed the opposite. To illustrate the first point of view, Nouri, Shiraz and Doria (mother), who all belonged to the literary pathway, attached a high value to their pathway, and pointed out that their close family environment (parents) valued the literary pathway and encouraged the students to choose the literary pathway because that was their choice and because they saw value in it.

Shiraz: *When I was in middle school, our teacher of Arabic language told us about her experience of choosing the literary pathway. She wanted to go to the science pathway, but her parents pushed her to choose the literary pathway. She was not convinced at first, but bit by bit she loved it and decided to take up a humanities course at university. She wanted us to know that the science pathway is not the only route for success or for finding jobs. Both pathways are good in their own ways.*

To illustrate the second point of view, Hadi discussed what values his social environment accorded to the literary pathway to help him choose the right pathway for him.

Hadi: *My mother advised me to choose the science pathway... and my aunt, who was in the science pathway, advised me to choose it. She said it was better, and my cousin, he did maths and thought the science pathway was better... When I asked them why, they said that I can find jobs in the science pathway and the literary pathway wouldn't give me any jobs; all there is teaching and law, that's all.*

Researcher: *Why do you think parents want their children to go on the science pathway?*

Ryhem: *The only reason is the variety of university options, and also, when you are in the science pathway, you later have the right to choose a humanities specialism because there are some people who were in the science pathway but, after getting their BAC, they decide to take up a humanities course at university.*

In another comment, Doria said,

Researcher: *Why do you think society looks at the science pathway with high regard?*

Doria: *First of all, I think this pathway is popular and contains difficult subjects such as maths, and they consider its courses to be more important than courses in the literary pathway, and the science pathway contains more university courses and enables students to choose literary pathway courses.*

Pathways opening up (future career or future course) options was an idea used by the participants' social environment in two senses. The first sense implies that the world is shaped and influenced by innovations in science and technology, which in turn suggests that qualifications related to the science pathway are in demand in the job market. The students were under the impression that pursuing science would guarantee them a secured job. The second sense implies that a science pathway opened up a variety of career paths that do not necessarily fall only in the sciences sector but the humanities sector as well. This was due to

the school policy that enabled those choosing the science pathway to switch their pathways in secondary school and access humanities courses at university (see quotes from Ryhem and Doria). Therefore, students' social networks, especially their parents, whose approval is vital in the streaming process, would advise students to choose the science pathway because when students take up the science pathway in school, the options to pursue other courses (in particular literary pathway courses) are wider than when taking up the literary pathway initially.

Students frequently referred to their family (parents and siblings), classmates, and teachers when discussing their future options (i.e., university course options and careers) in both pathways. They often reported an abundance of personal experiences and discussions they had within their environment, such as teachers and parents whose input seemed to feature in the form of advice around pathway choices. However, when discussing the social benefits of pathways, students seemed to refer to society, in general, using the pronoun '*they*'. Their close environments with whom they interacted regularly did not seem to be of direct influence on students' values in terms of pathways' social benefits. Rather, students referred to the overall culture/norms of their country. Most students, who portrayed their social context, considered science pathway more useful than the literary pathway.

Nabila: *Yes, others agree with me; they see science pathway as more important than the literary pathway, and science pathway is more needed, such as medicine... They [society in general] believe that the science pathway serves the country in many fields and domains, but the literary pathway has a different look.*

Alongside the values society ascribed to the science pathway in terms of providing students with a chance of being more 'employable', better prepared for the labour market and more useful to society, there is another social value accorded to pathways around academic attainment. This value implies that the subject content in the science pathway was believed to be intellectually higher than the subject content of the literary pathway. This understanding was derived from the preconceived differences regarding pathways found in the students' social environments. Within participants' social contexts it was commonly believed that taking a more difficult pathway based on comprehension necessitated high-grade requirements and

deeper subject content would attract higher value. On the other hand, taking up an easy pathway characterised by memorisation, low-grade requirements and less coverage was seen as less worthwhile by the general public. There seems, therefore, to be a link between perceptions of pathways and pathway values. These perceived differences translate into the idea that more able students take the science pathway, while the less able students take the literary one. As a result, the literary pathway was looked down upon and perceived as less important.

Insaaf: *They have this idea in their heads that science pathway students are the core focus of society, they develop society and literary pathway students just not needed. We have a teacher in our school. He taught me physics when I was in the science pathway. He would tell us that students in the literary pathway were stupid... He said that jokingly... Before that, we did not have a clue that science pathway students were better than literary pathway students, but when we went to secondary school, we started to notice this discrimination that a science pathway student is the most preferred... Before in middle school we were all the same; there were no science pathway students or science pathway students.*

Hadi: *You will see a big smile put on parents' faces if their son is in the science pathway. They brag about their children being in the science pathway. For example, my cousins and my neighbours would always come to me if they did not understand something in their study because I am in the science pathway. They think that literary pathway students are just for memorisation, and they don't get anything. Even parents would think the same, their son was no good if he is in the literary pathway.*

These examples are provided from the students' data to clearly illustrate the situation in which the students' social context projected the pathway values onto them. Students clearly depicted the demeaning social view of literary pathway students because they were in the literary pathway. These preconceived ideas in the students' social environments supported and sustained the narrative of the privileged position of the science pathway.

5.2.2 Media

As discussed already, students have internal messages and values they have absorbed from their childhood, which influence their own values and perhaps their choices. Their views are mediated by influences from peers, other adults, societal messages and the media. Although the participants rarely discussed or referred to how pathway values were portrayed in the media, the current findings show that the media was a source of influence on the students' values, albeit perhaps a low-level factor compared to wider societal messages and education policies, which are high-influence factors. The scope through which students' values around pathways were depicted is the media representation of literary pathway and science pathway students through social networking sites like Facebook. Participants, including Asma, Karima, Dhikra and Nabila, provided examples that painted a very illustrative picture of the local media's representation of students and their pathway values on social media – on Facebook in particular. They all highlighted social mockery around the lower-level requirements of the literary pathway, which are then projected onto literary pathway students' abilities.

***Asma:** When you go to Facebook, you find memes about the science pathway and literary pathway. Mmm, I don't know how to explain it. There was a meme, I forgot what it is exactly, but there was a meme describing how science pathway students and literary pathway students look at a particular thing differently. This meme showed how science pathway students look at things in more depth, not like literary pathway students, who were so superficial in their thinking.*

***Dhikra:** One day I came across a post about politics, I think, like some topic not relevant to pathways at all, then I scrolled down to read other people's comments. My eyes laid on a comment made about the post, and then another one, who seemed to disagree that replied to that comment and said, 'You must have been in the literary pathway in your early days, weren't you?' and then they inserted an emoji, like a laughing face next to it... like making fun of him.*

Students' comments showed how the internet memes about pathways could be influential in reinforcing stereotypes on pathways and the students on these pathways. For example,

Asma's comment highlighted an already discussed concept of the pathways in terms of depth and breadth of content covered by them. In the previous chapter, the students reported that the two pathways had the same subject coverage (except for technology, which is a science pathway subject). However, the depth of the subject content was not exclusive to the core subjects of each pathway as it was supposed to be, but the science pathway has more depth in its core subjects and peripheral subjects (i.e., literary subjects such as geography, history, languages etc.). In contrast, the literary pathway only has more depth in its core subjects and no greater depth in its peripheral subjects. Asma's comments depicted the projection of the depth of pathway subjects onto students' skills and abilities as suggesting students were more intellectual and knowledgeable because they expanded their knowledge in all subjects, not just in their core subjects like their counterparts on the literary pathway. The rest of the comments provided a vivid picture of how lower value is attributed to literary pathway students. Internet memes seemed to play a significant role in the representation, reproduction and transmission of stereotypes around students and their pathways.

Social media usage is regarded as a sociocultural source of influence on people's choices, behaviours and values as it provides the opportunity to fields that are increasingly central to nations' development and growth. However, in this study, a few participants (four) provided a limited and vague account of how other pathway values were promoted via media. Students' data showed that the media did not particularly portray values related to courses and career access as was the case with their schools and families.

5.3 Chapter summary

Chapter 4 described an engrained sense of pathway hierarchy in the students' perspectives. This chapter showed the significant influence of the institutional and social context in shaping and maintaining students' values. For instance, the enactment of streaming policies as represented by students demonstrated a structure that sustained a narrative of relative values. Social agents such as parents, pedagogic counsellors, peers etc. fed into this narrative through constructing a hierarchy of values separating the science and literary pathways.

Students' values were a product of their interactions with their school system. This interaction was reinforced through the regular contact of students with their families and school

environments, in particular during the period of making their choices. Their social networks considered the literary pathway to be perceived as less valuable than the science pathway. Generally speaking, many students were aware of the societal values of pathways and held similar values themselves. However, others were aware of the perceived pathway values but held different values and were even challenged by the social discourse – literary pathway students, in particular. Students often discussed whether they considered others in their social environment would agree or disagree with their opinions on the relative values of different educational pathways. Students who perceived the science pathway as the most important due to its open options generally considered their environment would agree. In contrast, students who described the literary pathway as being as valuable as the science pathway generally considered that their environment would disagree.

Chapter 6. Pathway values and the construction of students' choice narratives

After exploring the students' values regarding educational pathways in secondary schools and analysing the role external structures play in shaping their values, this chapter presents the process through which students construct of their pathway choices in relation to the different narratives of pathway values. The research question leading this chapter asks:

RQ3: How do educational pathway values in Algerian secondary schools influence students' pathway choices?

Choice is seen as a process that is flexible and unfixed as it is performed, constructed and negotiated inter-subjectively in an ongoing manner (see sections 2.4 and 2.5). Therefore, the aim of this chapter is to go beyond retrospective accounts of students' choices and present the way they construct their choices within the broader narrative of pathway values. It discusses how students' choices are negotiated and informed by their social and cultural settings and highlights how the institutional practices and social discourses relating to pathway values set the scene for students to construct and reconstruct their choice narratives, the meanings they associate with their choices, and the way they position themselves and others within that narrative. Reflexivity plays a crucial role in shaping students' agency to act and make decisions within these narratives.

This chapter is divided into two main parts. Section 6.1 presents a range of factors connected with students' accounts of choices, including their interests and perceived academic ability. However, the key role of this chapter is to show how these separate factors interacted within the individual students' accounts regarding the values associated with particular pathways, and the focus is therefore on the students' narratives and how they position these different factors in relation to their particular choice processes. Then, section 6.2 further discusses how educational policies and social discourse and relations set the scene for students to negotiate their choices through providing them with a repertoire of information about their choices in relation to the values associated with the pathways.

6.1 Negotiating perceived academic ability and interests within the narrative of pathway values: choice as an ongoing process

When students started talking about their pathway choices, they emphasised two main factors. Interest (in the subject and future career) and perceived academic ability were the first and most dominant components that students talked about when they were first asked how they selected their chosen pathway. However, given that the choice process is not definitive or singular but a set of decisions that are evolving and changing over time (Holmegaard et al., 2015; Lykkegaard and Ulriksen, 2016), and that in this study three interviews with each student were conducted over time, the complexity of their accounts needed to be reflected through a narrative approach (see sections 3.2.1 and 3.5.2 in the methodology chapter). The key role of this section is to show how these separate factors (interest and perceived academic ability) interacted within individual students' accounts, hence the focus on students' narratives. Students negotiated their choice-making process by constructing and reconstructing a narrative based on the interaction among these two components in the light of pathway values. The table below displays the key differences between literary pathway and science pathway students in terms of their subjects and course/career interests and academic attainment.

| Pathway students | | Interest | | Academic attainment |
|--------------------------|------|---------------------------|---|---|
| | | Subject interest | Course/career interest | |
| Science pathway students | Asma | Literary pathway subjects | Economics, business studies, drama, arts, law, medicine, writing, pharmacy, biology | Low attainment in science pathway subjects, high attainment in literary pathway subjects |

| | | | | |
|----------------------------------|---------------|---|---|---|
| | Hadi | Literary pathway subjects and physics | Physics, medicine, biology, religious education | Low attainment in science pathway subjects (except physics), high attainment in literary pathway subjects |
| | Karima | Literary and science pathway subjects | Languages, pharmacy, medicine | High attainment in all subjects (except maths) |
| | Fares | Literary and science pathway subjects | Medicine, politics | High attainment in all subjects (except maths) |
| | Rukaya | Literary and science pathway subjects | Religious education, writing, medicine | High attainment in all subjects (except science) |
| | Ryhem | Science pathway subjects (maths) | Aviation | High attainment in science pathway subjects, especially maths. |
| Literary pathway students | Dhikra | Science pathway and literary pathway subjects | Languages | High attainment in literary pathway subjects, low attainment in science pathway subjects |
| | Insaaf | Literary pathway subjects | Psychology | |
| | Nouri | Literary pathway subjects | Law | |
| | Shiraz | Literary pathway subjects | Journalism | Above average to good attainment in science |

| | | | | |
|--|---------------|---------------------------|--|--|
| | Doria | Literary pathway subjects | Journalism/wanted to be TV anchor or hostess | pathway subjects, but higher attainment in literary pathway subjects |
| | Nabila | Literary pathway subjects | Translation | |

Table 6.1: Key differences between literary pathway and science pathway students in terms of their subjects and course/career interests and academic attainment

Table 6.1 shows that analysing students' construction of their choices in relation to pathway values identified differences between science pathway and literary pathway students. Although not all students within pathways fit this picture so easily, two broad patterns were identified overall, which will be discussed in sections 6.1.1 and 6.1.2.

6.1.1 Science pathway students' choice narratives: negotiating diverse range of interests and perceived abilities

Table 6.1 demonstrates that all science pathway students (except Ryhem) negotiated a diverse range of interests that included fields related to both literary and science pathways, with some demonstrating more inclination toward the humanities. The concept of '*breadth*' in students' choice narratives was not restricted to pathway interests but also perceived academic ability, and table 6.1 shows that the majority of science pathway students (except Hadi and Asma) demonstrated high-level academic abilities in both literary and science pathway subjects. Therefore, the wider the students' interests and ability ranges, the more negotiations they had to perform and the more conflict their choice narratives showed.

It is a rule that all students from both pathways had to negotiate and re-negotiate their choices to reach a balanced and coherent narrative in the face of ongoing choice processes (Holmegaard et al., 2014b; Holmegaard, 2015). As a result of negotiating a diverse range of interest and abilities, renegotiation occurred continuously among the science pathway students (except Ryhem), and some struggled to reach a final adjustment in their choice stories with their narratives therefore being more conflicted. The conflict in the narratives of the science pathway students was a result of a mismatch between their perspectives on pathways' relative values and their intrinsic interests and, sometimes, their perceived academic ability. Most science pathway students assigned higher value to the science pathway

than the literary, though many of them showed more genuine interest in humanities-related fields than the sciences (except Ryhem). Therefore, in order to justify choosing the science pathway, they had to show themselves and the other (the interviewer) that their choice narrative was coherent and had a degree of meaning, incorporating their genuine interests (which happened to relate to literary pathway subjects for the majority of them) and other science pathway subject interests that turned out to be less intrinsic than driven by external motivations. (Sections 6.2.1, 6.2.2 and 6.2.3 will elaborate further on this point.) Therefore, their narratives were conflicted, with some making repeated changes in their narratives and often finding the adjustments unsuccessful in terms of maintaining key aspects of their pathway choices and future aspirations.

Hadi and Asma, to give two examples, are average-achieving students (with higher attainment in literary pathway subjects), who negotiated a balance between greater interest in literary pathway subjects and a broader interest in future university courses and careers, which meant choosing the science pathway, despite their interest and better performance in humanities subjects. When Asma was asked about her subject inclinations, she replied:

The subject that I loved most is Arabic, especially the written expression part. I have a good writing style. My teachers used to compliment me on my writing style. They loved reading my essays. They said I was the best student who wrote eloquently in the classroom.

Elsewhere she said:

I had loved Arabic in the previous year, but this year my passion for Arabic and writing grew stronger.

Although Asma has always been interested in Arabic, a central subject in the literary pathway, she did not literary pathway, explaining that, ‘*French was the only subject that made me think of choosing the science pathway besides it is a main subject in the literary pathway*’. Similarly, Hadi reported his enjoyment and high ability in many literary pathway subjects, such as Arabic, but explained that his choice of science pathway was based on his poor attainment in foreign languages, reflected in the exchange quoted below:

Hadi: *I love memorisation, so I thought I would memorise science. If I chose the literary pathway, I would not be able to get good grades in foreign languages. I have tried to make the best decision because their [foreign languages] weighting is so high on the literary pathway.*

Researcher: *But the literary pathway has many other subjects apart from foreign languages; have you thought of choosing the literary pathway in your first year and then selecting philosophy as a sub pathway in your second year?*

Hadi: *I only thought about foreign languages. I never thought of philosophy. I totally forgot it; it never crossed my mind.*

Two points can be taken from Hadi's comments. First, in a previous interaction, Hadi stated he believed that the science pathway was dependent on comprehension, but he still chose the science pathway even though he mentioned he was drawn to memorisation by nature. Second, the literary pathway is divided into two sub pathways – 'foreign languages' and 'philosophy' (see table 1.3) – and, as the name suggests, the former is based on foreign languages and the latter on philosophy, Arabic and religious education. The philosophy sub pathway would have been the optimal option for Hadi to avoid foreign languages, given that he was mostly interested in Arabic (which is a main subject in the philosophy sub pathway), but Hadi reported that he forgot the option existed.

In general, foreign languages were the reason Asma and Hadi kept away from the literary pathway and contributed to their decision to pursue the science pathway. However, the data for the two of them showed they struggled in sciences during their middle-school studies and continued to find science pathway subjects challenging in secondary school. Although Hadi mentioned that his performance in physics improved during his first year of secondary school and that he developed an interest in the subject because of his physics teacher, his choice of science pathway was way prior to his improvement and growing interest in the subject.

It turned out that Hadi and Asma chose the science pathway without articulating an interest in the pathway's subject matter. When undertaking their choices, intrinsic interest in the pathway was not crucial and the narratives around their choices were based on what did not interest them and what they were not good at. There was a clear clash between their choices

and their interests and academic ability perceptions. This clash was more apparent in the second interview, when the negotiation kept unfolding, with Asma and Hadi feeling like they had to engage in a repeated negotiation and re-negotiation of their choice narratives in the hope of reaching a satisfactory adjustment, only adding more confusion. As the conversation went on, they juggled with images of themselves in various career paths, which often included careers based on the science and non-science pathways with Hadi, for example, considering physics, religious studies, medicine and biology while Asma considered arts, drama, economics, law, business studies and medicine. The two quotes below illustrate the variety of future interests that Hadi and Asma displayed:

***Hadi:** Since I was young, I wanted to be medical doctor; whoever asked me about what I wanted to be, I was like 'doctor'. But I love religious education a lot, and started to like physics and chemistry from this year on because of our teacher. He teaches so very well that doing activities about equations and formulas became like playing a game for me. So, my first dream was medicine, and in this year I liked physics because of the teacher, and I actually thought of becoming a physics teacher... and I have always loved religious education... So, I really don't know what my dream is; I will find out later, after I get my baccalaureate exam.*

***Asma:** ... There are three courses I will focus on, and I will choose between them. By that time [after the BAC exam], I will find the answer. I will choose either law to be a lawyer, or arts and theatre or cinema studies, like something related to films and drama. I really like this stuff. I mean they are among the study programmes I loved.*

Asma and Hadi's narratives showed how they struggled to resolve diverse interests that ranged between careers related to the science and literary pathways and that these negotiations of future interests were ongoing. They mentioned a mixed range of careers including business, economics, medicine and biology, and pharmacy, but while business, economics and biology were still on her career list, medicine and pharmacy were ruled out. At the beginning of the interview, Asma explained that medicine was among her career options; however, she stated, '*I feared the experience I had in the first and second semester*

of my first year in secondary school because science was difficult'. These two students mentioned briefly and implicitly that medicine was a childhood dream and that taking up a science pathway career identity was what all these science pathway students aspire to. However, this dream career faded away due to its demanding requirements being too far-reaching for them, and these institutional demands meant they reconstructed their choices, with Asma stating that she did not feel that she belonged on the science pathway, and when probed to explain, she said: *'In the future, I will not be a doctor, an engineer or some sort of genius, as I told you before; law, arts, these are the sorts of careers for me'*. Asma and Hadi felt like they had to engage in a repeated negotiation and re-negotiation of their choice narratives to reach a coherent story; however, they struggled to achieve this aim, with Hadi reflecting towards the end of the interview that he did not know why he chose the science pathway, and Asma reporting, *'I just chose it. I had no clear ambition; I am still trying to figure it out.'* Their interests and perceived academic ability were effectively in competition and integrating these factors into one choice narrative was challenging. Their struggles to reach an agreement was the result of the discrepancy between their inner interests (what they genuinely wanted to be), and their academic abilities (having a low potential for success in science pathway subjects).

The analysis, therefore, highlights a key dilemma, that these students reported lack of interests and low abilities in science pathway, but they still chose the science pathway due to its higher value. These students aspired to an identity as a science pathway student, not paying enough attention to the importance of genuine interest and strong ability in shaping the choice that would best fit their identity development.

Fares, Karima and Rukaya are higher-attaining students in almost all subjects (though all these students struggled in one science pathway subject) and having broader subject interests was reflected in their broad career interests, as they all showed a broader array of career/course interests across the humanities and sciences.

In his choice narrative, Fares mentioned that he chose the science pathway because his grades in science were slightly better than his grades in literary pathway subjects (though he was a high-attaining student in almost all subjects). He did not refer much to his subject interests but was more career-oriented, and the study programme and career were therefore strongly present in his narrative. Fares had been considering two course options, medicine and politics,

and remained uncommitted to one path, stating that politics was the future career he pictured himself in. When he was asked about medicine, he replied: *'I don't know, I don't think so!'* On the one hand, he enjoyed some literary pathway subjects and literary pathway-related courses (politics), although he did not have an image of himself on the literary pathway or choosing a literary pathway course. On the other, he spoke about his intrinsic interest in a science subject, without any particular interest in medicine. Trying to reach a balance between the complexity of choosing one interest over another, Fares detailed his passion for politics and the utility of medicine:

I believe that politics is a better fit for me, I can give more in politics, and I can make a change, and I have knowledge about it, but when it comes to my future, not many jobs are there in politics. In medicine, I might encounter many difficulties, but I will become used to it later, and I might even end up liking it!... Look, most of those who chose medicine, their parents told them to choose it, but they got used to it eventually and it is secure in the future.

Fares described his interest in politics as offering an opportunity for self-realisation; however, he argued that being in medicine was the optimal option when looking at the variety of job opportunities. He was unsure that studying politics would result in a future job but felt medicine provided him with a sense of security; therefore, these two career paths competed in Fares's narrative with conflicting interests, which Fares tried to manage by negotiating his options and choosing what he had to do over what he wanted to give his narrative stability. Furthermore, his quotes highlight the role his social environment played in shaping his choice.

Rukaya chose science pathway because she wanted to be a medical doctor, being more career-oriented than subject-oriented. She mentioned that she could do well in almost all subjects, and her interests included both humanities and sciences, namely, religious studies, writing and medicine. Rukaya explained that she was interested in those three career paths, but she decided to consider her literary pathway interests such as writing and religious studies as hobbies to enjoy in her spare time, while medicine was considered part of her professional life. Unlike Fares, Rukaya wanted to pursue medicine as a career, albeit without any particular interest in science, which was apparent when she expressed her personal interests and motivations, when she passionately spoke about her interest in Arabic because of its writing

component of it: *'my preferred subjects are Arabic and written expression. I adore written expression class, especially in middle school. We don't have it anymore in secondary school; it is really disappointing!'* One interesting point that appeared in Rukaya's narrative was that she did not refer to her medicine-related interest until she was asked where her interest in medicine came from.

Karima also had a broad range of interests in science and non-science-related fields, mentioning that she loved languages and her dream was to become a teacher. However, she argued that studying foreign languages was not the perfect choice for her:

My thinking was so limited back then. I thought of choosing the literary pathway then study languages at university, but then I realised that languages can be studied outside the school. It is not big a deal. I can learn them on my own at home. So, I thought to myself, 'Why I don't go for the science pathway and study scientific subjects, and later, I can study pharmacy, which I can't do with the literary pathway?'

Karima said her early interest in the literary pathway was immature, because she realised that languages were easy to learn by oneself and she could acquire a degree in them with no need for a formal educational setting, while science pathway-related fields such as pharmacy and medicine would be difficult to learn independently and acquire a degree in, meaning that formal educational settings are a must. In the first chapter, the easy–difficult distinction between pathways resulted in the science pathway being more valued than the literary, which was among the reasons for Karima shifting her choice from foreign languages to science pathway interests. She thought of medicine as a first option, but because she had a 'blood phobia', she decided to study pharmacy instead. She engaged in a choice negotiation narrative which was based on the pathways' values, which ended up resolving the tension between the various interests by explaining that she could balance her interest in languages, which she could learn individually, and pharmacy, which was difficult and required external support.

It was noticed that science pathway students (except Ryhem) (still) hoped to pursue the medicine route, suggesting that the science pathway students had a limited understanding of what constitutes science pathway domains. While Hadi and Asma's interest disappeared due to their perceived lack of ability and after reviewing the demanding requirements of the

course, Fares, Karima and Rukaya remained interested in that route, and as higher attainers, the possibility of them meeting the medicine entry requirements was real.

The students' pathway choice processes were a continuous process, as students negotiated identifying their interests and abilities, constructing a convincing narrative, and trying it out in their surroundings. This became evident when some of the students were interviewed for the second time, others for the third time, and a few in the same interview as their choice narratives kept unfolding. Asma, in the first interview, considered many programmes and career paths like law and business among others, though arts, cinema, drama and theatre were not among them. However, Asma emphasised these three courses during her second interview, when she said, '*I really like this stuff. I mean they are among the study programmes I loved.*' Her narrative showed changes in what she wanted in the future but also her viewpoint on the past as she articulated her interest in these courses as something she had been interested in for a long time. When Asma was asked to clarify the change in her account between the first interview and the second, she responded:

Back then, I wanted to be a businesswoman, but after our meeting, I did some searching; I found these courses, theatre and arts and cinema... After our meeting I thought to myself that I must start thinking about my future from now... I watched a TV show in which a theatre actress was interviewed about her job. It is really a good job. She spoke about how she travels a lot to perform on stage. I like to be in such places, where there is change, I travel and I see new things.

Asma's quote shows a major change in her choice narrative occurring between the first and second interviews, illustrating how Asma's choice process and those of the rest of the science pathway students were not complete but a continuous process of reflections on which university programme and careers they would settle for in the future and reflections about their past considerations regarding pathway choices. Their choice narratives were negotiated and re-negotiated as they continued to acquire new experiences and information.

6.1.2 Literary pathway students' choice narratives: negotiating a limited range of interests and perceived abilities

Table 6.1 shows that the literary pathway students in this study negotiated a limited range of interests, which were mainly limited to the literary pathway fields, with mild-to-no interest in science pathway-related courses or careers. The concept of '*breadth*' in students' choice narratives was did not include pathway interest but perceived academic ability, as all literary pathway students negotiated their high academic abilities in the literary pathway-related subjects. After negotiating a limited range of interest and abilities, the literary pathway students (except Dhikra) managed to renegotiate their narratives in a few steps, so their narrative was less conflicted and did not show a mismatch between their relative values and their intrinsic interest/perceived abilities. Most literary pathway students attributed equal values to the science and literary pathways, while the literary pathway was dismissed within their social contexts, and they showed intrinsic interest in the literary pathway subjects with no particular interest in the sciences (except Dhikra). Furthermore, they all bridged their current interests in literary pathway subjects with a future interest in literary pathway careers and courses, meaning that their narratives were less conflicted because their values and interests were aligned.

Nabila, Doria and Shiraz reported that they had above-average performance in science pathway subjects and showed the ability to be on the science pathway and do well academically, but they claimed they would not have excelled on the science pathway if they had chosen it.

***Nabila:** I did not rely on the pedagogic counsellor talk; I relied on my abilities and tendencies. I have always been at the top of my class in languages, history, geography, Islamic education and Arabic. I decided to choose the literary pathway. Since I was in my first year in middle school, I have loved languages... I have always dreamed of being a translator...*

Nabila expressed how she relied on herself to make the pathway decision, arguing that she relied on her own abilities and tendencies and had always been a high-attaining student in literary pathway subjects, and her interest in translation as a study programme and as a career was genuine as it derived from her interest in foreign languages as school subjects. Nabila was

the only literary pathway student who made a distinction between her perceived objective values and the subjective values around pathways, as the following quotes demonstrate:

Nabila: *Though I value science pathway subjects more than literary pathway subjects, but I am more drawn for the literary pathway not the science pathway, I have to admit that the science pathway is way more important than the literary pathway because it serves the country more... One should be logical and admit that the science pathway is more important than the literary pathway. This is my opinion.*

Researcher: *How come you chose the literary pathway when you perceive the science pathway to be more valued?*

Nabila: *If I chose something that is important but I have no ambitions in it, how am I going to finish my education in something I don't like?*

Speaking from a perceived objective perspective, Nabila was the only literary pathway student who argued the science pathway was more valued than the literary pathway and willingly opted out of the science pathway, stating that the higher value of science pathway was justified by its economic and social usefulness. However, speaking from a perceived subjective perspective, Nabila explained that literary pathway was more valuable to her because it represented a path to get her where she wanted to be and she seemed to be very convinced with her decision. Elsewhere in the interview, Nabila articulated that even if she had the ability to do well on the science pathway, she would not have reached her highest potential on the science pathway as she did on the literary pathway, which was another reason behind her choice of the literary pathway. Her choice negotiation ended with prioritising her academic ability and pathway interests over the perceived objective values of the science pathway, with no apparent conflict, as she emphasised that she did not care that there was a higher status attached to the science pathway in society. All she cared about was fulfilling her interests.

Doria was the extreme opposite of Nabila in terms of her values, as she discussed that both pathways should be valued in the same way, though she generally considered the literary pathway to be more worthwhile than the science. Doria was the only student on either pathway who believed that the literary pathway could be of higher importance. As a result, she showed greater interest in the literary pathway (and foreign languages, in particular),

emphasising many times that her passion in life was to learn languages. Therefore, she chose the literary pathway in her first year and was willing to choose foreign languages as a sub pathway in her second so that she could fulfil her enjoyment plans for foreign languages. Doria not only completely figured out her future career but she pictured her future self as communicating with people using many languages, relating this image to jobs like hostess and TV anchor.

Like Doria and Nabila, Shiraz articulated that she was interested in science subjects early in middle school, but her interest in literary pathway subjects were more dominant:

At middle school, I was half-and-half, like... I loved science and Arabic and English. I did not have a specified subject, but then I found out that my interest in the literary pathway subjects was more dominant. In general, I love humanities subjects more than scientific subjects, though I am capable in both of them.

Shiraz looked at her interests as being 'half-and-half' and articulated that she thought for a while that she could be a science pathway student just like she could be a literary pathway student, though the possibility of the literary pathway was always higher. She said that she liked science subjects, but maths and physics/chemistry were not her favourites, and she later found these subjects challenging. Shiraz did not claim that she had top grades in science pathway subjects but she insisted in her narrative that she could have chosen the science pathway, adding that many of her peers tried to convince her to do so and told her that she performed well in science. She argued too that her grades were good enough to earn a place on the science pathway. Instead, Shiraz showed a strong sense of agency as she wanted to attribute the decision of her pathway choice to herself despite all the social pressure from her peers and the social discourse that attached high status to the science pathway and low status to the literary pathway, thinking that she belonged on the literary pathway and that her favourite subject was Arabic. She was vaguely thinking about pursuing a course in journalism at university but made it clear that she was still trying to figure out what she wanted. In this sense, she clarified many times during the interviews that she perceived both pathways to be valued, though she stated that literary pathway was more important for her.

In contrast, Nouri, Dhikra and Insaaf reported good performances in literary pathway subjects and lower performance levels in science pathway subjects with Nouri, when asked whether he was considering other options in case he could not pursue law school, replying, *'Yes, I have. If I could not study law or I find it difficult, I can be a teacher of history or geography'*. During all the interviews, Nouri spoke in detail about his passion for law and how he wanted to step into the world of law and become a lawyer like his grandfather and two of his aunts, referring to times when he used to visit his grandfather's library, select a few law books and read them for pleasure in his own time. However, toward the end of the last interview, when he was asked whether he was considering other options in case he could reach law school, Nouri was open to the idea of studying geography or history, seeing how these two subjects might connect to law: *'Law requires someone to have high knowledge; that's why I love history and geography. I feel they make me intellectual and give me lots of information that I need in the future.'*

Just as the narratives of the science pathway students changed and was ongoing, partly due to the breadth of their interests and academic abilities, the narratives of the literary pathway students showed, to a lesser degree, the continuity of their choice process. Nouri's and Shiraz's accounts illustrated how the narratives of their choices, despite seeming more stable and less competitive than the narrative of the science pathway students, was also continuous and could not be taken at a specific point of time.

Dhikra was the only literary pathway student who shared the narrative pattern with the opposite group (science pathway students) in that her choice narrative seemed to be conflicted. She had to negotiate a genuine interest in the English language, and her high abilities in languages in general, and her career path was not clear, despite the fact her narrative, for the most part, was clear in that she wanted to study English at university. Despite her interests and high performance in literary pathway subjects (English in particular), Dhikra did not choose the literary pathway willingly. Her narrative showed a sense of the low value of the literary pathway's curriculum content compared to that of the science pathway, and she was among the very few students who assigned more values to the curriculum content. She hated being on a pathway in which knowledge content, as she described it, was outdated, unexciting and not useful, and when asked why she choose literary pathway if she valued science pathway more, she replied,

Because I am weak at sciences. I love to study them, but I am not good at them. For example, maths is an important subject in the science pathway; its subject weighting is so high, if I don't do well in it, my grade will drop drastically. If I was good at sciences, I would have chosen the science pathway. I could have chosen science pathway and chosen English at university.

She chose it as a result of her under-achieving performance in the scientific subjects, despite the content being of interest to her, her values regarding pathways seemingly having no influence over her choice. Dhikra's perceived lack of ability in scientific subjects outweighed the high value she attached to the science pathway, and, saying that she wanted to study English at university, she showed no particular interest in any science pathway-related programme or career. However, she later articulated that she would have chosen the science pathway and selected a science pathway-related programme if she was good at science. Dhikra shared the same pattern of interest with the science pathway students, justifying her change of narrative by explaining that one can learn English by oneself, the same argument Karima used to rule out studying languages. Dhikra's narrative showed the struggle of achieving a stable sense of self, as there was clear lack of alignment between her choice of literary pathway and what she aspired to become.

In addition, Dhikra's first and second interviews were further apart than any of the others', with the first interview taking place when in her first year, and the second during her second; the concept of time featured in her choice narrative in a more accentuated way than for the rest of students. Dhikra (in her first interview) argued that the science pathway was more important than the literary pathway, and she aspired to fulfil an identity requirement as a science pathway student; however, her perception of her lack of competence meant she ruled out the option of choosing the literary pathway after choosing the science pathway. Although Dhikra was interested in one particular literary pathway subject, the desire to be on the science pathway seemed to outweigh that interest. In her second year, there was a major change in Dhikra's narrative. The literary pathway is composed of two sub pathways (foreign languages and philosophy), and Dhikra chose to be in the foreign languages sub pathway, which meant she was in a different place, and her values regarding the literary pathway changed as a result. Her moving up in the grade and being in contact with content she

perceived as more meaningful compared to what she had studied in her first year meant that Dhikra's values regarding the pathways appeared to reflect a more complementary relationship rather than one of a superiority–inferiority relationship. Not only did her choice narrative change but her values too, which meant she revised her choice narrative as being the best decision she made:

Being in the foreign languages sub pathway is so important to me, and it is the starting point for my future, because I never liked the literature we studied last year. I could not deal with it. Now, I am drawn to the foreign languages sub pathway and it inspires me.

Dhikra revised her narrative mainly because her sub pathway curriculum was more engaging and exciting than her first-year curriculum. Her new experiences in the foreign languages sub pathway fed into her narrative the idea that the literary pathway was a valuable one and that she made the right choice. Her choice was not a one-time decision, and Dhikra's major revision of the narrative is an example of how students' choices are influenced by different relational considerations.

6.2 Choice narrative and students' exercising of agency: as socially and institutionally embedded

This section continues to unpack how students construct their narratives and continuously make meaning out of them. Students' choice narratives are understood as being shaped by social and institutional structures and their own agency with those structures that surround pathway values shaping students' sense of agency, as revealed through the constructing and re-constructing of their choice narratives. Students negotiated with the social and institutional structure less consciously, and their data indicated that these were embedded in students' choice narratives in the following slightly overlapping aspects. First, parents played a key role in students' choice narratives by transmitting their pathway-related resources (interest, values and educational levels) and their influence, thereby affecting how students on both pathways formulate narratives around their choices (section 6.2.1). Second, institutional and social structures acted as a source of information that provided students with knowledge about

what pathway was suitable in terms of variety of job access (section 6.2.2) and whether students might fit in the culture of pathways achievement (section 6.2.3).

6.2.1 Narrative negotiation within social relations: parents' pathways values, educational and occupational backgrounds

Parents emerged from the data as contributing to students' choice narratives by transmitting their pathway-related resources (interest, values and educational and occupational backgrounds) and influences regarding how students in both pathways formulate narratives around their choice.

Students often reported at the beginning of the interview that their parents often advised them to base their choice on interests and abilities and left the choice to them. However, when their narratives started to unfold, parents emerged as contributing to students' choice narratives as all students constructed narratives drawing on their families – their parents, in particular – and some of them had to renegotiate their narratives and reconstruct new narratives to make the choice sound meaningful and coherent, as parental approval was of great importance to them. Even though the parents were not forceful, as explained by the students, their opinions were accepted in the students' narratives. A key difference between the science- and literary pathway student narratives is explained below

Findings showed that the majority of parents of science pathway students were more inclined to value the science pathway (except Ryhem's and Rukaya's), and the choice of the science pathway had always been validated by the wider social network of science pathway students, including their families (and parents, in particular). Science pathway students often were equally receptive to information, advice and support regarding which pathway they should choose from their close families (especially, parents) and the outside circle of their families like teachers, peers and pedagogic counsellors.

Asma demonstrated some independence in her choice-making, mentioning that she took the decision by herself without seeking help from her other family members (only her parents) or her school (such as teachers and pedagogic counsellors). Starting her interview describing her parents as supportive, Asma articulated that her parents provided her with freedom of choice. Her parents did not prefer any particular pathway as they perceived

both pathways to be equal in value, advising her only to study well and do her best in whatever pathway she wanted to choose. She said, *'my parents did not say a thing, they just told me to study well and succeed in what I am doing'*. However, Asma's narrative took a turning point when she stated:

Asma: *As a matter of fact, I wanted to be on the science pathway, and they [her parents] told me if that's what I wanted, then so be it. But soon after that, there was a period when I told them that I wanted to choose the literary pathway, No, emmm (hesitation). I mean, I just wanted to test them; so, I told them I would choose the literary pathway, and they just kept saying no, then I insisted, then they said 'Suit yourself. If you don't succeed, we will have nothing to do with you.'*

Researcher: *Why did you want to test them?*

Asma: *I just wanted to know to what pathway they were leaning towards more. They wanted me to do like my brother did. He chose the science pathway. They told me it was better if I chose the science pathway like my brother.*

In the interviews, Asma did not explicitly state that she considered the literary pathway as an option; however, her quotes above showed that Asma possibly thought of selecting the literary pathway, and this represented a dilemma for her. On the one hand, her parents advised her to choose what she wanted and what she could succeed at; on the other, the literary pathway was not recognised by her parents as a pathway to success. The term success was often used by participants in this study, and it was often related to professional and career success. Eventually, Asma chose the science pathway.

Asma's parents did not consider Asma's sudden change in preference as a suitable choice for her, even though they seemed to make no demands regarding Asma's choice. The above quote showed how Asma sought her parents' approval; although, throughout her interviews, she strived to exercise her agency, the validation of her parents was important for her. Contrary to her assertion that her parents did not particularly value any one pathway over the other, the quote she shared seemed to suggest that her parents may have leaned towards valuing the scientific path more than the literary. Students' choice should be recognised by their

parents. As in the case of Asma, her quote showed what she thought of the literary pathway, but because her choice was not recognised and validated by her parents, it was difficult for her to maintain it.

Similarly to Asma, Fares mentioned that the science pathway runs in his family, and he would always listen to the discussions in his family around the differences between the pathways in terms of difficulty or whether their learning content was based on comprehension or memorisation. Fares said that their positive talk around the science pathway and their experiences provided him with a good impression of the science pathway, even though the topic of *'which pathway to choose: science or literary pathway?'* was not discussed in Fares's family as it was a given that he and his twin brother would choose the science pathway as high-attaining students. The conversations were simply to confirm these choices to each other and their parents (particularly their mother, who would consistently verify that Fares and his brother remained committed to pursuing their science pathway). Fares explained this point in the following quote:

We [Fares and his brother] were just asking each other. He [brother] would ask me: 'We are choosing the science pathway right?' And I would say yes.

Fares's parents used to ask him and his brother about their choices just to be reassured and to confirm that their decision had not changed. In a hypothetical situation, Fares said that if he had thought of choosing the literary pathway, his mother and his brother would have been disappointed because they were unaware of any experiences others had in the field of literature. All they had heard about was the successful experiences of the science pathway selectors in the family. Fares constructed a narrative in which he was confused between choosing a humanities or science university programme; however, he resorted to the latter as humanities were not recognised by his family as a suitable choice.

Fares and Asma accounts are examples of how science pathway students negotiated the tensions in their narratives because some of them were more interested in literary subjects, while their parents tended to value the science pathway over the literary. By contrast, most literary pathway students depicted the literary pathway as always being dismissed within their wider social network. However, this was not the case for their close family members like their parents (except for Doria's father). Overall, literary pathway students constructed

a narrative in which their parents ascribed equal value to both pathways, were supportive of their choice and showed favourable views towards the literary pathway. Unlike the science pathway students, literary pathway students' system of support came from their close family members. Though their choices needed to be validated by their parents, the majority of them did not experience as much tension in their narratives as the science pathway students, which could be because both parents and students valued the literary pathway and students are interested in pursuing subjects related to the literary path.

Nouri explained that his parents did appreciate the literary and science pathways and were supportive of his interests, constructing a narrative in which he was responsible for his choice. It was often repeated in his narrative that they provided him with a freedom of choice; however, Nouri insisted that his choice needed to be validated by his parents and he asked his mother to give her opinion regarding his choice. He clarified that he wanted to take the literary pathway, but he was a bit hesitant; therefore, he was in need of his mother's input:

She told me to choose what would fit me, but said that I was good at the literary pathway subjects, and she was right, because if I had chosen the science pathway, I would have to retake the year.

However, in contrast to the other literary pathway students' parents, Doria's parents held different ideas about perceptions and careers. Doria's father was a dentist, and her mother was a French-language teacher, and her father disapproved of her choice of literary pathway while her mother, as well as her two older sisters, were very supportive of her choice so that she could stand up for her decision.

When they [the school administration] gave us the orientation cards, I discussed it with my mother. My mother welcomed the idea. She was already leaning languages, and she loves French. She knew what I would be successful at, and she would always tell me that one should choose what they want... She doesn't have that low view of the literary pathway, that it is of no importance, like my father and all society... My father is drawn to the science pathway. He would always tell me the literary pathway would not work for you. It would get me nowhere .

Doria also said the following:

I feel he doesn't encourage me. I don't mean he doesn't encourage me; I mean, he definitely wants me to study well and be a good student, but when I tell him my grades or I give him my report card, and he looks at it, I feel like he is thinking no matter how excellent the grades I might get are, I will not succeed being in the literary pathway, and it will get me nowhere, and it is not as useful as the science pathway. I spent a really long time trying to convince him that the literary pathway was what I wanted.

After some refusal, Doria's father grudgingly approved of her choice of the literary pathway, given that her attainment in scientific subjects was not very high, and Doria mentioned that her father's perceptions did not affect her decision or make her second-guess herself, perhaps because of the support she received from her sisters (who took up the science pathway courses) and her mother. Doria mentioned that her older sisters, while all taking up science pathway-related courses, never made her feel the literary pathway was not a proper choice for success but supported her decision instead.

Again, the concept of success came up in Doria's narrative to highlight how her father did not perceive her choice of literary pathway as a success. The two examples of Doria's father and Asma's parents demonstrate how many of parents perceived success to be a component that existed on the science pathway and was lacking on the literary pathway, and they did not recognise an identity in the literary pathway as successful. While Doria's father associated success with a future prominent career, Asma's parents related success with the literary pathway memorisation. Unlike Asma, Doria applied her own definition of success by being a literary pathway student, a meaning that did not correspond with her fathers' perspectives. Furthermore, a strong sense of agency was embedded in Doria's narrative.

Although Doria showed agency in her choice, in that her father's disapproval of the literary pathway did not make her back down, the support she perceived from the rest of her family was in favour of her decision. She said that she loved languages, the French language in particular, and although her interest in this field was thought to have been inherited from her mother, Doria put forward that her choice was made by herself and she exercised her agency by convincing her father to approve of her choice, seeking advice from trusted close family

members such as her mother. Doria also exhibited agency when drawing a line between her mother's interest in French and her interest in the same subject.

Doria: *My love for the French language started when I was in primary school, like, third grade. It feel like it was born with me, and also I was influenced by the movies I watched.*

Researcher: *Is not maybe because your mother was a French teacher?*

Doria: *I don't think so. It is true that when you love someone, you want to follow in their footsteps, but I don't feel that this was the reason.... It is true that I love my mother, but not to the extent that I let her decide on my behalf what I study. I look at what I want to be, and then I have to succeed at it... So, nobody influenced me.*

She positioned herself as someone who could make her own independent choices while choosing the same trajectory as her mother. However, the support and validation of her mother was needed:

I only asked my mother. Like, we had a discussion, and she encouraged me to go for it. I don't take any advice from anyone else, only the close people like my mother. I mean, even if I asked others about their opinions, their opinions didn't affect me at all.

These students' quotes depict how their social backgrounds greatly influenced their choices. This influence is not limited to when parents encourage or discourage students' decisions but also when they expose them to specific knowledge and experiences that become valuable resources through shaping their choices. Through their educational and professional backgrounds, parents provide insights into the education system and various career opportunities, which students can use as a basis for constructing their own narratives. Consequently, it is understandable that students often lean towards choices similar to those their parents made because of the familiarity and understanding they have developed. The majority of students' interest in their chosen pathway was driven by their families – their parents, in particular – who possessed qualifications or careers related to that pathway. Four students on the science pathway (Ryhem, Rukaya, Fares and Karima) inherited their interest

in the science pathway from their families. Similarly, five of the literary pathway students inherited their interest in the literary pathway from their families. It was noticed that the more educated the parents were, or if they had a university degree, the more they tended to transmit their resources to the students. (This is also discussed in Chapter 7.) For example, Nouri claimed that his family initiated his interest in law school: *'in our family my grandfather was a judge, my uncle and aunt are lawyers... We used to talk for hours about law. So, I liked this field a lot!'* Elsewhere Nouri articulated that his long-running interest in law started when he was at primary school, describing his love of reading law books in his grandfather's library, picking some of them up and taking them home with him to read as how his love for the law grew strong. Fares, Karima and Rukaya mentioned that the science pathway ran in their families, such as Fares's father being an engineer and his sister going to medical school. Fares's twin brother, who studied with him in the same classroom, was considering medical school too and Fares said that his family members followed the science pathway.

However, the degree of influence differs among the science pathway students, related to the level of relative values their parents attach to the pathways and their educational levels. The more the parents are educated (achieving degree-level educations), the more value they assign to the science pathway and in certain cases dismiss the literary pathway (as with Fares's and Karima's parents) and the more they exercise a degree of authority over the students' choices. The more a science pathway student is a higher attainer, the more their parents would strongly advocate for the science pathway, and this situation was evident in the pedagogic counsellors' accounts and in students' findings (see chapter 7). As for the parents of the literary pathway students, the more educated the parents were, the more they tended to value the pathways equally and support the students' choices without noticeably exercising any authority over the students' choices.

6.2.2 Negotiation of discourse around job security and variety of options

The aim of this section is to build on how students' choices were socially and institutionally embedded, providing an insight into how the institutional practices and social discourses around the instrumental value of pathways (i.e., job security and open access to varied university courses and careers) shaped students' choice narratives and the exercise of their agency. It highlights the relationships between students' breadth of interests/perceived

abilities (see sections 6.1.2 and 6.1.1) and the broader structure. Science pathway and literary pathway students related differently to this issue. While science pathway students were more driven by extrinsic motivations, literary pathway students were more driven by intrinsic ones.

6.2.2.1 Science pathway students' choice narratives: extrinsic motivations

Section 6.1.1 demonstrated how the majority of science pathway students tried to construct a narrative in which their choice of science pathway appeared to reflect their intrinsic interests and aligned with their abilities, however, their negotiation of a broader set of interests and perceived abilities resulted in conflicted and competing narratives. This section provides a further explanation for the reasons behind students' narratives around broader negotiation and conflict. The more students relied on broader interests and ability, the more their choices were driven by extrinsic motivations, hence a sense of agency was less prominently evident among these students as their intrinsic interests were strongly circumscribed by external structures.

All science pathway students (except Ryhem) negotiated the extrinsic side of choosing this pathway (i.e., various university courses and job opportunities). Science pathway students who negotiated the extrinsic motivations of their pathway choices reflected on how science pathway-related qualifications were in demand in the job market, as the science pathway prepares students for the future workforce, where science-related qualifications are a prerequisite. Participants were under the impression that pursuing science would guarantee a secure job. Besides this argument, they relied on the streaming policies regarding changing pathway and university courses (see sections 4.1.2 and 5.1.2), which meant a variety of career paths were open to them that did not necessarily fall within only the sciences sector but the in the humanities sector as well. This factor was prominent in students' narratives, which might explain to some extent the broader negotiation of their subject interests and career aspirations. These students rarely drew on these extrinsic motivations unless probed. For example, Asma discussed the career perspectives that the science pathway would open up for her:

*I wish I could have selected the literary pathway because I love it, in my heart, but **because of all that is happening in the country**, I had to follow*

my head over my heart ... for my own sake, I had to follow my head.

[researcher's emphasis]

When Asma was asked to elaborate on her statement about following her head over her heart, she responded:

I will give you an example; many liberals would argue that religion and politics should be kept separated because religion will get in the way when ruling the country. It will cause a disturbance. I am the same; I have to separate these two, [heart and head]. I want to work on my future; I need science pathway because it provides many possibilities [job opportunities]. I can't do the literary pathway, even if I love it, because I will not be able to figure out my path down the road.

These quotes were shared towards the end of the final interview, as Asma articulated her negotiation between her heart and her head. In the first chapter, in which students reported their pathway values, on many occasions, Asma stated that society ascribed a higher value to the science pathway; however, even though she agreed with the points made in society, she could still see value in the literary pathway. Her estimation of the literary pathway was not enough for her to select it because of certain external influences (see her comments below in bold), and she in no way dismissed the literary pathway like some other science pathway students did. When Asma said '*because of all what is happening in the country*', she meant she could have chosen the literary pathway if the science pathway was not a more valued pathway in her country. She was the only science pathway student who referred to the pathway's extrinsic value first rather than her interest or perceived ability, and recognising the tension in her narrative, she decided to deal with it. For Asma, securing a job is more important than following her intrinsic interests and this could be a driving reason for her choice of science pathway.

Similarly, Hadi, whose narrative illustrated his interest and competence in literary pathway-based subjects, thought he did not have much aptitude for the science pathway: '*I am a humanities kind of person, and I chose the science pathway for a future job ... Sometimes, I feel that the science pathway did not work out for me!*' After some probing, Hadi reflected that the job opportunities factor drove his choice:

Before, I had no clue what the science and literary pathways were, but the first thing I had in mind was the science pathway, and when I asked around, I found that I could find a job easily with science pathway. That's why I chose the science pathway: a job.

Elsewhere, he continued:

My aunt told me to select the science pathway, and so did my cousin. When I asked them why, they would say the science pathway provides lots of jobs, and all I would find on the literary pathway would be law, foreign languages, and teaching. That's all.

Social environment was influential in students' choices in terms of awareness and information about which university programme to study and which career paths to take up. Hadi's extracts show how his surroundings provided him with information about what future prospects each pathway might lead to. However, this extract also demonstrates that students' social networks had limited knowledge about what educational pathways constitute in terms of future courses. This limited repertoire of information might have been misleading to students, as the literary pathway is not all about '*law, foreign languages, and teaching*'.

The extrinsic motivations for pathway choices seemed to be a driving factor behind Fares's choice. Earlier, Fares discussed the issue of him choosing either medicine or political science, as he noted that medicine was the university study programme offering the best guarantee of securing a job. However, he also expressed his passion for political science. In response to the question of whether medicine was what he wanted or what he had to choose, Fares replied, '*Politics is what I want, and medicine is what I had to do*'. He explained further that '*what I had to do is more important than what I want because it guarantees the future. What's the point of keep following your preference and then end up having no job?*' Following the same narrative line as Asma's '*head over the heart*' decision, Fares, using different words, admitted the importance of prioritising job security over intrinsic interests.

Again, conflicts in interest appeared in the Fares's narrative, as he stressed over the concept that security is more important than an interest or, as he called it, '*love*'. He negotiated his

choice process in terms of a job and securing a livelihood, and elsewhere, he clearly articulated his control over his choices was limited by outside constraints:

I don't like motivation talk at all, the talk about 'be happy' and 'if you want to, you can', and 'you can do it'! If the situation and the circumstances you live in are not suitable, you won't be happy because you can do nothing... in that field [politics]. You can be nothing and do nothing, unless you receive help from your government. They [the government] are responsible for creating job positions.

Fares was not fully clear about his career intentions, but he expressed his opinion considering the long-term security medicine would offer him as opposed to politics. Fares argued that he had no control over the system of constraints, deciding not to resist the social reality and confirm it instead. The role of his environment (notably his parents) appeared to feature strongly in his decision when he said, '*most of those who chose medicine, their parents told them to choose it, but they got used to it eventually*'. Fares's narrative illustrated that he was more likely to settle for medicine at university, but the door of choice was still open. That was apparent when he commented on the streaming policies that would allow him to think through his options and choose between politics and medicine when the right time came. He commented:

The science pathway allows me to choose either the literary pathway or science pathway-related courses. If I had chosen the literary pathway, I might have wanted to select the science pathway course at university. I wouldn't be able to do, but now since I am on the science pathway, I can choose any of the two [sciences or humanities courses] ... I might want to change my mind, and the science pathway allows me to change my mind ... The opportunities in politics are not very guaranteed; that's why I chose the science pathway, but I can change my mind.

Asma's and Hadi's narratives shared similarities with Fares's. For instance, Hadi articulated that he '*might be a science pathway student now, but I can apply for an appeal at university and choose religious education*'. These students were originally interested in literary pathway-related subjects/courses. However, they chose the science pathway because of institutional

constraints that exist on the literary pathway that would hinder their ongoing, continuous selection process. The exercise of agency is a complicated process for these students, and their agency could be seen as bounded by the surrounding structure.

Rukaya consistently explained that her choice of medicine was based solely on her intrinsic interest in this career. However, as shown earlier, she did not show a huge interest in science (biology) per se; rather, she passionately spoke about writing and how she enjoyed Arabic class, reporting that writing was her favourite activity in her spare time. When she was asked to explain why medicine took over her interest for writing and Arabic, Rukaya stated that medicine would make her successful:

Rukaya: *I should choose what I love and can do. I mean, you can't choose something you like, but you figure out later that you are not well versed at it, or you choose something you are well versed at, but it doesn't open up job opportunities for you*

Researcher: *Does medicine open up job prospects?*

Rukaya: *Yes, because everybody wants medicine. They gave it so much importance; that's why they provide it with job opportunities.*

The possibility of choosing from a wide range of university courses, and hence a wide range of future careers, seemed to be a driving factor that interested science pathway students in pursuing the science pathway. The extrinsic value of the science pathway in enabling study or work in science pathway-related fields appeared stronger than the intrinsic value of choosing the science pathway for a genuine interest or passion in science fields. It is apparent that Rukaya's decision was swayed by the values that society assigned to the science and literary pathways.

Science pathway students' considerable interest in these extrinsic motivations was due to the educational system being influenced by market orientation and economic rationales, which are themselves associated with science pathway-related fields. Furthermore, when students take up this pathway in secondary school, the options to pursue science and literary pathway courses are wider than taking up the literary pathway itself, which may explain why science pathway students had a wider scope of interests (including humanities and sciences). The

future opportunities that the science pathway offers to these students broadened their interests and kept their options open so that they could choose any field they wanted and would not regret it later. The science pathway provides them with the possibility to postpone their choices until university. Similar to Fares's question, Rukaya was asked whether choosing medicine was what she wanted or what she had to choose, which she responded to by giving a percentage figure. She said that it was a ratio of 80% what she wanted to be, and 20% what she had to choose:

Rukaya: *20% because medicine is a prominent specialism in the country.*

Something I like and it is prominent in the country, so, who wouldn't choose it?! And also, there are some people who told me it was good ...

Researcher: *What do you mean by prominent specialism in the country?*

Rukaya: *I mean, a specialism that is given more importance.*

Rukaya reflected on embedded cultural features, negotiating her choice through institutional practices and everyday discourse, and her quote highlights how her choice of the science pathway appeared to be a product of a series of external and internal influences that interacted with her pathway choice and continue to interact with her future goals and aims.

One of the main factors that shaped students' values regarding pathways was the streaming practices and policies in secondary schools. The first streaming policy stated that students in the science pathway could change to the literary pathway, but students in the literary pathway could not change to the science pathway. The second policy stated that if students take up the science pathway in secondary school, the options to pursue other courses are wider compared than those presented after choosing the literary pathway. Once students go into the literary pathway, their university courses, hence their careers, are limited to the literary pathway. In the first chapter, the analysis showed that these policies proved to have a tremendous impact on students' values. All the students (except Nouri) recognised that the science pathway was more valued than the literary in their social environment, even though individual differences emerged among the participants. The majority of students (most of the science pathway and a few literary pathway students) reported that the science pathway was more valued than the literary because the science pathway provided access to more university courses and job opportunities, a situation they often related to school policies. Data showed that these

policies influenced the values students held regarding pathways and eventually influenced their pathway choices. While some students stated that they had known about that policy for a long time, others reported that they heard about it first from their pedagogic counsellors, who were the mediators that conveyed these policies to the students. Though there is no formal, explicit policy stating the variety of university courses or jobs accessible through the science pathway, the students' social structure played a vital role in shaping their values, and therefore their choices. This discourse is delivered by key socialisers such as the pedagogic counsellors and the students' teachers and families.

6.2.2.2 Literary pathway students' choice narratives: Intrinsic motivations

Section 6.1.2 demonstrated how literary pathway students tried to construct a narrative in which their choice of the literary pathway appeared to reflect their intrinsic interests and aligned with their abilities. Unlike their counterparts in the science pathway, their negotiations of a limited set of interests and perceived abilities resulted in a narrative that is less conflicted. This section provides an explanation for the reasons behind the students' less conflicted narrative, as the students who engaged in these negotiations tended to have a narrower set of interests and perceived abilities, which led them to make choices based on their inherent motivations.

Therefore, literary pathway students related differently to this issue than their science pathway colleagues did and were driven more by intrinsic rather than extrinsic motivations. All the literary pathway students (including Dhikra) had only narrow room to negotiate available when making their choices and their less conflicted narratives demonstrated how choosing a pathway was ultimately based on their genuine interest in a certain subject or future course/career that would fit who they are. These students placed an emphasis on exercising their own sense of control and influence with most of them, for instance, showing awareness of the streaming policies that enabled those choosing the science pathway to change their pathway during secondary school and access humanities courses at university. However, unlike the science pathway students, they did not seem to be swayed by that knowledge. Some literary pathway students commented that even though the science pathway provides more options in terms of careers and university choice options, they still had options and could succeed in following their endeavours.

On the face of it, one might say the students' capacity to make choices was constrained by structure. Nabila articulated that her pedagogic counsellor advised the whole classroom to choose according to their ability and interest but advised them to choose the science pathway:

Yes, but later on we asked her what pathway she preferred; she said she would prefer it if we selected the, and she said this also depends on our parents' opinions and directions ... She said that we need the science pathway, and it offers many university programmes...

Nabila carried on to report that the pedagogic counsellor told her:

She wondered why I did not choose the science pathway and, at university, have a long list of choices to choose from, but I said that the literary pathway was my only choice and nobody would change my mind. And I feel I am very successful in this pathway. So, I don't like to hear other people's opinions. I do what I feel confident doing, and if I don't feel confident in doing something, I just don't do it.

Nabila's quote highlights an acute sense of agency. What Nabila meant by being confident is that if she felt she fitted her choice in terms of interests and mostly abilities. Nabila defined success as her being where she felt she belonged.

Shiraz, on the other hand, spoke about some positive experiences. She talked about how, for the most part, the science pathway was more valued than the literary in her school environment (by her teachers and peers), but she picked up on a few positive experiences she had in middle school with some of her teachers, who argued that both pathways would provide opportunities for choice and success.

They told us that there are no differences between the science pathway and literary pathway. Both pathways will get us where we want; both of them provide big programme options ...

Extrinsic reasons for choosing pathways were central in the narrative of the science pathway students, but the literary pathway students related differently to this issue. While science pathway students' interests in the science pathway were aimed at future job possibilities and

security, students' interests in the literary pathway did not particularly revolve around the variety of job opportunities or securing a job but rather more intrinsically oriented.

These literary pathway students expressed a belief that even though the science pathway opened more programme options and job opportunities, this did not limit the existence of literary pathway-related careers. As was mentioned earlier, most of these students were subject-oriented and predominantly aimed to study on courses or working at a job out of interest and enjoyment, and there were no noticeable concerns regarding securing or guaranteeing a job as intrinsic interest was identified as a priority for them. Two literary pathway students, Shiraz and Nouri, offer two illustrative examples:

Shiraz: *I know that I will have many options at university; my brother studies psychology, and my cousin did media studies. I know other people who did journalism. It is not like what the science pathway students think; that literary pathway students will not find what to choose at university ... If medicine is the only good profession and science pathway is the only role for getting a job and being successful, why there is literary pathway in the first place? Even the literary pathway has many university courses and can easily get a job.*

Nouri: *There is no difference between the science pathway and literary pathway. Both of them get us where we want, and both of them give plenty of university options...*

In general, the majority of literary pathway students (except Nabila) believed that both pathways possess the same value, and all of these students (except Shiraz) knew about the streaming policy before making their decisions. The literary pathway students' voices ranged between those who were tolerant and those who disagreed about the values attributed to the science pathway based on this policy. They were asked if they had doubted that opting for the literary pathway would limit their chances of changing their choice trajectories in the future, and their responses showed the conviction which they felt about their decisions. In fact, they argued that the wider opportunities available to the science pathway would not limit the literary pathway's opportunities.

Shiraz: *I am not like the rest. I did not have any idea that I would be limited in the literary pathway, and even if I remained on the literary pathway, that would work for me perfectly.*

Doria: *No, I never had those thoughts because I wanted to learn Spanish in the second year and third year... I wanted a literary pathway BAC ... Then If I chose the science pathway, I would probably get an 11/20 as a grade because one can't be successful in what they don't like ... I really wanted the literary pathway from the bottom of my heart.*

Their choice of literary pathway, knowing that their choices would be limited, might be interpreted as showing that this policy did not affect students' values. However, in the case of Insaaf, who was on the science pathway but retook the year twice, she could change her pathway because of that streaming policy:

It [the streaming policy] is good. If there had been no such policy, I would have dropped out of school, for sure. There are some students who make mistakes in their choices, just like me. I followed my friends ... I did not follow my abilities and interests, and then I struggled. So, when I heard of this policy of whoever can't be a science pathway student can go down to being literary pathway student, I just went down to the literary pathway. It is a good policy.

This quote includes many related points. First, it demonstrates how educational policies frame students' choice in particular ways. Some science pathway students referred to this policy as a back-up in case they could not achieve their aspirations on the science pathway: '*I might be a science pathway student now, but I can apply for an appeal at university and choose religious education*'. Some students, like Insaaf, experienced failure on the science pathway, but having realised that her choice was not suitable, she still had a chance to revise her choice. However, the same thing would not have been possible for her if she had been on the literary pathway, even though many of the literary pathway students were not bothered by this policy, as they were pretty much determined that their choice would be to pursue the literary pathway-related fields. These students' choices, though they sounded stable compared to those of the science pathway students, might be subject to change, and this institutional practice can be very limiting. The curriculum framed the process of choice differently for each of these two

groups of students. The pathway choice is easily included into the ongoing development of science pathway students' identity development; however, that is not the case for the literary pathway students.

6.2.3. Negotiation of pathways' achievement culture

Students' choice narratives continue to unfold, and students continue to form narratives that negotiate the extrinsic motivations for their pathway choices. Along with key socialisers such as parents, pedagogic counsellors, teachers etc., students often used the word '*they*' to mean society⁷ at large. It was noticed in the students' findings that when students did not consciously refer to family members or schoolmates, they would often use the plural pronoun '*they*', and when asked who '*they*' were, the students would reply, '*the people*'.

After discussing discourses related to the economic values of the pathways (jobs) that students drew upon, they negotiated their choices in the light of these structures while constructing their choice narratives. This section presents the discourse related to the achievement value of the pathways, and its consequences for the status and prestige of the pathways as they relate to university programmes and career paths.

Student narratives throughout the interviews demonstrated that social discourse around the concept '*the science pathway is for higher achieving/smart students, and the literary pathway is for low achieving/stupid students*' was a crucial factor, as both terms were used interchangeably in those narratives. Social discourse fixed the achievement values on the pathways' levels of difficulty, entry requirements, and sometimes the type of knowledge presented in the curriculum, and this discourse was mediated to the school through sets of laws and policies that fed the concept that the science pathway was meant for highly capable students and the literary pathway was meant for lower-ability students. Socialisers like pedagogic counsellors, teachers and peers were the mediators of this educational value system.

⁷ Students did not draw explicitly on the influences of their families, but this influence was noticed directly in the students' narratives, and society's influence ('*they*') was negotiated indirectly as students referred to '*they*' playing a significant role in their narratives while rarely explaining '*they*' referred to.

Nabila discussed when she told the pedagogic counsellor about her choice and the counsellor asked them, *'Why do you want to go to the literary pathway when you are high-achieving students?'*

Researcher: *Why is it only low-achieving students go onto the literary pathway?*

Nabila: *Yes, this is how they see it.*

Nabila: *Students make a mockery of the literary pathway... They don't choose the literary pathway so that others don't think less of them, like they are low-achieving or something. So, they go for the science pathway instead.*

In another example,

Dhikra: [...] *You may find science pathway student who are literally stupid, and are weak at scientific subjects, but still they go onto the science pathway just to show other people that they are not weak... I know someone, who used to be my classmate, I am not going to talk about his grade, but I'm talking about the way he thinks. He is the type of student who absorbs information and memorises very well for tests but with no deep understanding or he was nothing like an inventor, ideas generator or unconventional in his thinking... He knows he is not apt for the science pathway but chose it anyway, so as to not be looked down upon and called stupid!*

In the above quote, Dhikra and Nabila spoke about the cultural setting, demonstrating how students negotiate their agency and choice in a social context. In general, students have to adapt their narratives/themselves to the social/discursive practices and cultural conceptions that they want to be recognised within, and these discursive practices set the scene for students to position themselves and each other as either smart or stupid and make a choice accordingly. Dhikra highlighted the high achievement value social discourse assigned to the science pathway, and how this discursive resources to reflect science pathway and literary pathway related identities. Science pathway students are expected to fulfil certain requirements before they can be recognised as belonging to this pathway, like being a thinker

and not simply absorbing information, and identification. Although Dhikra apparently believed that the majority of those choosing the literary were lower attainers, elsewhere she expressed how this was not always the case when she offered the example of her classmate Nabila (a participant in this study), who was a higher attainer and chose the literary pathway despite all the social expectations that she would choose the science pathway. She described her as a ‘*exceptional person*’ who is not afraid to be called ‘*weak*’ by others just because she opted for the literary pathway.

As I told you before, not all of them are smart... Take Nabila, for example... Even though she is good at both sciences and humanities, she strongly decided to follow the literary pathway because this is what she wants, and she did not fear people’s views of her... She never considered science pathway students to be better than literary pathway students... She is a content and exceptional person.

This concept was strongly reinforced by the students’ social networks (outside the school) with students constantly being told, directly and indirectly, that being on the smart pathway or the stupid pathway will define who they are and shape their future identities. Some students’ choices seemed to have been influenced by this social discourse around pathway values, while others did not seem to have been greatly influenced, including Nabila, who responded to others reacting to her pathway choice as follows:

Nabila: *They [teachers and peers] were extremely surprised when I chose the literary pathway. The literary pathway for them is nothing, like a pathway for low achievers... They asked me, ‘Why did you choose the literary pathway when you have great capacities for scientific subjects and the literary pathway is only for those who retake the year?’*

When asked about her reaction, Nabila responded:

I did not look for their advice because I know that whomever I ask, even a random person walking on the street, would advise me to opt for the science pathway, [that] it is better. I don’t need them to tell me what is good and what is not.

Nabila described a dominant discourse in which pathways are constructed along different lines, and many other students emphasised the point raised by Nabila and Dhikra, expressing how this type of discourse assigns students certain descriptions based on the values ‘they’ ascribe to different educational pathways. In her narrative, Dhikra related herself to the ‘stupid and smart’ discourse:

I used to hear that science pathway students are better than literary pathway students. So, I wanted to choose the science pathway, but when I realised that I was weak at scientific subjects, I backed out and decided to choose the literary pathway. Now the only thing that is keeping my hope alive is that I am actually good at foreign languages, especially English. If I was not good at it, I would have dropped out of school for sure... I am already on the literary pathway – I came to terms with this reality – but I could never stand the idea of being terrible at languages as well!

She chose the literary pathway because of her under-achieving performance in the scientific subjects, though the content was interesting to her, but her values regarding the pathways did not seem to influence her choice as her perceived lack of ability in scientific subjects overtook the high value she attached to the science pathway. Her quote showed how she wanted to study English at university but via the science pathway route as the science pathway would make her ‘cultivated and more intellectual’. She was not motivated by the utility of choosing the science pathway to secure more job prospects as the majority of science pathway students were. Rather, she was motivated by the achievement value the science pathway curriculum held for her. Many times during her interview, she said that, if given the option, she would have chosen to be clever in the science pathway subjects and not the literary pathway ones. Dhikra used the word ‘weak’ many times during her first interview to describe those students lacking high attainment and ability in scientific subjects. The idea that the science pathway is discursively ‘for smart and higher attaining students’, a pathway which lacks a discursive space for students with no scientific abilities, meant Dhikra resisted the idea of being on the literary pathway and becoming a literary pathway student.

Dhikra and Nabila manifested their agency differently. In her literary pathway choice, Nabila’s agency manifested itself in actions and thoughts in her pathway choice. She expressed her

decision in her behaviour (action), while also displaying individual control over her thoughts (not believing that she was a less able student). Despite the social expectations that she would select the science pathway, Nabila had the power to think for herself and act in ways that shaped her trajectory.

Dhikra exercised her agency by taking the action of choosing the literary pathway (despite its negative representation), based on her perceived academic ability, even though she assigned a higher value to the science pathway. However, she used language to describe others and herself that showed her sense of agency came from the structure surrounding her, that is, calling whoever was not good at sciences '*weak*', including herself (thoughts). These two ways of expressing agency were dissociated from one another in Dhikra's narrative.

Doria talked about how most high-attaining students were attracted to the science pathway, and how '*this idea has been implanted in their minds*'. In this sense, Doria was asked to express how this social perception affected her choice:

I already know how they think. Many people in my life have the same ways of thinking; so, it doesn't surprise me and I feel nothing because I know who I am, I know how I behave and I know that I did not choose this pathway because I had a low grade. That's why I don't get anxious or embarrassed.

Like Doria and Nabila, Shiraz refused to be identified as a lower-attaining student based on her choice of the literary pathway, and her sense of agency was strong. These literary pathway students achieved agency by challenging the common social conceptions around pathways.

Shiraz was the only literary pathway student who gave an account of how she had been influenced by the extended family talk around the literary pathway being easy and for less able students before making her decision, stating that her '*family believes that the literary pathway is a good pathway, but for some other family members, the literary pathway is for someone who is weak; this is very common*'. She corrected all the misconceptions around the literary pathway in this regard, mentioning that her experience of being literary pathway students proved that the literary pathway was not as easy as others said. Elsewhere, Shiraz spoke about her friend who was a year older than her and said that the science pathway is better than the literary pathway and the literary pathway is meant for low achieving students

‘whose families are not really intellectual and literate’. Shiraz detailed how she reacted to that, revealing how the conflict first arose within her and how she resolved it:

[...] Back then, I did not really have the desire to choose the literary pathway... My reaction to what she said was that I believed her because that was the first time I'd heard about pathways. I hadn't really understood what the literary pathway and science pathway were or that there was streaming, and I'd started to lean more towards the science pathway, but after some time I understood what the science pathway was and what was the literary pathway. My teachers told me and I spoke to my siblings... I started searching about what fields there are in the literary pathway and what fields in the literary pathway.

Findings in this study demonstrate how literary pathway students exhibited agency in deliberately disidentifying themselves from the others and from the social talk. In her quote, Shiraz rejected the social labelling of the literary pathway as ‘an easy pathway for weak students’ and refused to identify with that framing, exercising her self-agency by expressing how she had matured in her thinking. Shiraz changed from someone who believed every word said about the literary pathway, out of a lack of knowledge, to someone who took the responsibility to learn about the literary pathway through searching. She was spurred on to search about the literary pathway in order to find a solution and seek help from trusted others, like her siblings and her mother.

6.3 Chapter summary

This chapter continued to unpack how students construct their narratives and continuously make meaning out of them. Students’ choice narratives are understood as being shaped by social and institutional structures and their own agency as the institutional and social structures surrounding the pathways’ values shape the students’ sense of agency, as revealed through the constructing and re-constructing of their choice narratives.

The participants expressed their agency differently in their choice narratives. While the majority of literary pathway students resisted the external structure and the majority of

science pathway students conformed to it. Science pathway students' narratives were generally more conflicted than those of literary pathway students because they were more influenced by the surrounding structure (parents' resources, discourse around access to jobs, a smart identity, advice, streaming requirements, etc), and their narratives were shown as more embedded within that social structure. As a result of this influence, science pathway students had to negotiate various conflicted interests and perceived abilities, and their interests were more extrinsic than the intrinsic, less conflicted narratives of the literary pathway students, who were less influenced by the surrounding structure and only negotiated a limited range of interests and perceived abilities related to the pathway they chose. Their interests were more intrinsic, and the narrower the range of interests, the less negotiation they had to perform and the fewer conflicts their narratives involved.

Chapter 7. Pedagogic counsellors

Following the analysis of students' findings, this chapter aims to introduce pedagogic counsellors' data and provide insights into all research questions. This chapter is divided into three sections with a summary at the end, and section 7.1 presents the instrumental values of educational pathways, including economic values (7.1.1) and the achievement value around curriculum structure, content and assessment (section 7.1.2). Section 7.2 then presents the external structure that have constructed pathway values and relative values; these are related to complex streaming policies (7.2.1) and societal values in different geographical areas (section 7.2.2). Section 7.3 presents structural constraints (allocation policy and parental authority) over students' agency of pathway choice. Finally, section 7.4 presents a summary of the findings.

7.1 Instrumental values of educational pathways: professional and personal perspectives

An important outcome of the analysis is that pedagogic counsellors predominantly talked about the instrumental values of pathways. They focussed on economic values to a greater extent, especially when they reported how university courses and job options contributed to the value of pathways (7.1.1). They also focussed on the achievement value that pathway subjects hold in terms of their structure, content and assessment (7.1.2).

Another important outcome of the analysis was that all pedagogic counsellors, unlike students, tend to talk about values and relative values separately. The distinction they made between values and relative values may reflect the distinctions between their professional (explicit) and personal (implicit) values. Although a tension between these two types of values appeared at times, overall, pedagogic counsellors could manage dividing the two. All pedagogic counsellors hold values in terms of both pathways, but when expressing the relative values implicitly or explicitly, two of them (Nasira and Sameh) tended to place a higher value on the science pathway compared to the literary, without dismissing or devaluing the literary pathway, while the other two (Amel and Jamila) often perceived these pathways as equally valuable. Pedagogic counsellors were mostly more formal and diplomatic in their responses

than the students, who were more spontaneous. This may explain why they could sustain a balance between their professional and personal values.

7.1.1 Economic values of educational pathways

This theme attracted the largest number of comments from the pedagogic counsellors. Participants' comments referred to the belief widely shared in society that the science pathway would economically benefit those that chose it. Similar to the students' perspectives, the pedagogic counsellors explained the pathway future options in two senses. First, they explained that science pathway-related qualifications are in demand in the job market as the science pathway prepares students for the future workforce and science-related qualifications are considered a prerequisite; participants explained that society is under the impression that pursuing science will guarantee job security. The second sense implies that the science pathway opens a variety of career paths that do not necessarily fall within the sciences sector but the humanities sector as well. This is due to the school policy that enables those choosing the science pathway to change pathway in secondary school and access humanities courses at university. Therefore, pedagogic counsellors noted that students' social networks, especially their parents (whose approval is vital in the streaming process) would advise students to choose the science pathway because the options to pursue other courses (in particular, literary pathway courses) are greater than taking up the literary pathway initially. Here is an extract in which pedagogic counsellor Amel expressed university prospects following each pathway:

You can't say which one [pathway] is more important than the other, but you can say that one pathway has more university prospects than the other. For example, science pathway students have four sub pathways, but literary students have two sub pathways. Science pathway students have more university prospects than literary pathway students. The higher the grade science pathway students have, the more programmes they will have, but literary pathway students have few programmes which they had to share with science pathway students. So, here science pathway students kind of jostle for the programmes of the literary pathway students.

Amel heavily stressed the variety of opportunities offered by the science pathway, from the many sub pathways to the ample options in terms of university and career paths. She referred to the policy allowing science pathway students to opt for humanities programmes while literary pathway students can only choose from the humanities programmes. Nasira's perspective has similarities with Amel's. She discussed how society constructed images of the science pathway based on their interests in the variety of programmes and career possibilities. Nasira expressed an opinion that both students can have a range of university and career options they can access if they work for them; however, she stressed that *'more chances are on the side of the science pathway'*.

In this quote, Amel made a distinction between pathway values and pathway-relative values. Although she perceived the science pathway as having more open opportunities and prospects than literary pathway, this distinction did not influence her relative values. She still attributed a high value to the literary pathway. Her professional values were aligned with her personal values. However, Nasira held a different position. The greater opportunities afforded the science pathway over the literary pathway made her reconsider her relative values regarding pathways, and this was shown in later discussions. This may suggest that her professional values were different from her personal values. Amel went on to express her opinion regarding the appropriateness of this policy, discussing how opportunities are unequal between pathways, not only in terms of academic education (university programmes or professional careers) but also in terms of vocational and non-academic education. She commented the following:

Another problem literary pathway students suffer from is that if they ever want to join military institutions, literary pathway fields are not in demand in most of these military institutions. If they [literary pathway students] want to join vocational training or national institutions, their chances are so low because most of these national institutions teach science-related programmes such as accounting, agriculture and many more programmes, but there are two literary pathway fields, emm, human resources and library studies or something like that... To get admission to some of these institutions, you have to sit three exams: maths, physics and another test related to general knowledge.

To explain the context of Amel's quote, higher education in Algeria is offered at universities, university centres, national schools, national institutes, teacher-training institutes and university annexes. Universities and university centres are centrally administered by the Ministry of Higher Education and Scientific Research. However, unlike universities and university centres, specialised schools and institutes fall under the joint control of the Ministry of Higher Education and Scientific Research and another associated ministry, i.e. agriculture, health, industry etc. (Ministère de l'Éducation nationale, 2016). In her quote, Amel referred to military universities, vocational training and national institutes. She was trying to explain that if science pathway students were not able to access university for any reason, they could still access many other institutions (e.g., national institutions) that offer more science pathway-related programmes than literary pathway-related programmes. Moreover, if science pathway students did not get their baccalaureate degree and did not access higher education, they would still be able to join vocational training (supervised by the Ministry of Vocational Training), through which they could obtain a diploma. Amel noted that most vocational training programmes demanded a scientific baccalaureate. As a result, she explained that the lack of opportunities available to the literary pathway fields, either academic or vocational, made parents even more eager for students to choose the science pathway as the breadth of science pathway opportunities is not limited to different academic and vocational sectors.

[...] Because for them, even if student couldn't access university, they can do a lot with the scientific baccalaureate; they can join in any national institution or any vocational training centre. But if a student took up the literary pathway, if they [the students] did not pass their baccalaureate, then in their parents' eyes, their literary baccalaureate is worthless because almost all national institutions offer science pathway fields.

The pedagogic counsellors' statement depicts how the education structure framed society values around the pathway values. Following the same line of argument, Sameh reflected on the wider social view of the pathways, and from the parents' and students' perspectives in particular. She mentioned that, *'students and their parents have an understanding that the science pathway will take them to the future job, and it provides many jobs'*. While the accounts of Sameh, Amel and Nasira showed that they and those in their social surroundings

believed that science pathway leaves students with more options in the future and the prospects of the job market were higher following the science pathway than the literary, Jamila thought that both provided opportunities:

They [parents] think that those who opt for the literary pathway will not find any jobs, unlike someone who chose to study the science pathway, but in reality, this is not true. Both pathways have university prospects, and career prospects. (A9)

Surprisingly, Jamila commented elsewhere that in certain fields like teaching the literary pathway provided more access than the science pathway fields.

Jamila: *I tell them [students] it is all based on society's needs. For example, psychology is a programme that no one heard of in the past; people did not even know what psychology was, and it showed a very low rate of employability, but now it is a highly recognised field. People can easily work with a diploma in psychology in many places such as different institutions, clinics, and schools. I studied psychology at university.... Also, English graduates suffered to find jobs, but after the recent announcement of the president to include English teaching in primary school, many job opportunities will be created. So, there is a huge difference between the past, and now. I always tell the students not to make quick judgements about job opportunities because they are always changing. I advise them to choose what they can do well in and leave jobs for the future. (A52)*

Researcher: *You said it is all based on society's needs; what are the needs of our society? (Q53)*

Jamila: *Before, science pathway students used to have a higher employability rate than literary pathway students, but I think it is less the case nowadays, I see that literary pathway students are more employed than science pathway students especially in teaching. There many job opportunities in teaching literary pathway subjects. Employment contests give priority to literary pathway subjects... So, yeah they [literary pathway students] have lots of opportunities in teaching. (A54)*

Jamila mentioned that she has more job opportunities than would be available following the literary pathway, she restricted its variety of opportunities in teaching. In fact, the teaching profession often came up in students' and pedagogic counsellors' accounts. Participants argued that teaching is among the very few lines of work the literary pathway could offer in the future. Jamila discussed this idea with positive intonation, but other participants brought up teaching with a negative intonation. For instance, Sameh noted that parents, in general, refuted the idea of the student choosing the literary pathway because it limited their future careers to teaching. She stated that parents *'believe that if one chose the literary pathway, all they find is teaching!... We try to convince them that literary pathway offers many other careers, but they want all students to be medical doctors or pharmacists.'* She highlighted two points that were extensively portrayed by students. First, literary pathway future careers were widely perceived as restricted to teaching only. Second, medical programmes were the most wanted occupations in the science pathway, which might imply that not all science pathway-related careers had the same importance. Furthermore, while the students often showed massive interest in medicine but hardly ever explicitly referred to the financial outcomes of taking it up, Sameh directly reported the most common reason for students to choose a medical school:

That's why these careers are successful here because the majority of students think of the future career just to make a living out of it only but not learn it or build knowledge in it. (A71)

Pedagogic counsellors explained that many students were attracted to science pathway-related fields – and the biomedical fields in particular. Their analysis often identified that students were driven by instrumental education aims rather than intrinsic ones. However, they rarely referred to the intrinsic value they saw in the pathways. Sameh believed that medicine was the top career in Algeria. Most students pursue it for instrumental reasons because it provides a safer long-term option, but Nasira provided a different opinion: *'... I think lately, the interest has started to shift to technology and IT fields because this is what the job market needs'*. While technology is a dominant field worldwide, it has rarely been referred to in this study by the participants.

The analysis of the pedagogic counsellors' data identified largely instrumental values. Most of the pedagogic counsellors (except Jamila) reflected on the economic rationale for education in terms of future prospects, explaining that some subjects open more doors to higher education and high-earning careers than others. All the pedagogic counsellors were united in their views regarding what values their social contexts ascribed to each pathway. However, they were divided in their own relative values concerning pathways. While Nasira and Sameh valued the science pathway more than literary one, Jamila and Amel believed these two pathways had the same value. For instance, in the context of the economic value of pathways, **Jamila** stated,

... it doesn't make any sense; there should be an equilibrium in society. There should be a science pathway and a literary pathway. These pathways complete each other. Personally, I don't see any difference between someone who chose the science pathway and someone who chose the literary pathway. All that matters is for someone to follow their interests, ambitions, and what they want to achieve in life. (A12)

It was noticed that among the four pedagogic counsellors, two – namely Sameh and Nasira – made a clear distinction between their professional and personal values. Although these two counsellors believed that the science pathway was more important than the literary pathway on a personal level, they did not expose the students to their personal values so that they would not affect their choices. For instance, when Sameh was asked about her personal opinions of the importance of both pathways, she said,

Researcher: *Do you personally think that the science pathway is better than the literary pathway?*

Sameh: *Let's be direct with each other; there are more jobs in the science pathway than the literary pathway. If somebody can't study science pathway subjects, they can switch to literary pathway subjects, but not the same thing in the literary pathway. I say these words to someone who has high capabilities in science pathway and literary pathway subjects, but someone with no capabilities in science pathway subjects, do I tell them that the science pathway is better than literary pathway!!? (A51)*

Sameh made it clear that her streaming to students and her advice was purely based on what they wanted and were capable of. However, speaking of her personal values, Sameh appeared to ascribe more importance to the science pathway. This was more prevalent when she was asked whether she would give her opinion regarding her children's choices:

Well, I will advise them based on their abilities first and preference next, but I won't lie to you, I would love for my children when they grew up to choose the science pathway... It is true that I was on the literary pathway, but the way I see it, science pathway students have a better future in Algeria. They can choose the profession they want, and if they access university they can study any humanities subject... Literary pathway subjects are limited, and with no future in our country, all you have is teaching... (A84)

These quotes showed a tension between professional values and values. Sameh reported that she tried to convince students' parents that the literary pathway was not limited to teaching. She tried to open the parents' horizons to realise that the literary pathway offered more jobs than teaching, but then she turned out to hold the same belief as the parents. She joined with the social discourse, which she had disapproved of earlier, when she said that literary pathway is limited to teaching and added that the science pathway opened more job possibilities when she said, *'job opportunities are created based on what the country needs and science pathway jobs are in high demand... All I can see in the literary pathway is teaching!'* Moreover, while she stated many times that she would advise her students to choose based on their capabilities and interests, she would rather her children choose the science pathway over the literary when they grow up. These pedagogic counsellors' quotes brought up the tension between their personal and professional values.

7.1.2 Achievement value of educational pathways

The pedagogic counsellors explained that streaming distributes students to either the science or literary pathway based on their preference and attainment. They stated that while students that are academically strong in scientific subjects (maths, science, physics/chemistry) are assigned to the science pathway, academically strong students in literary pathway subjects (Arabic, foreign languages, history/geography) are assigned to the literary pathway. Streaming

policies, as explained by the participants, meant that both pathways possess high-attaining students in a specific set of subjects as students have capabilities in different fields. Nasira said the following:

We tell them about the core subjects of each pathway. Let's say if you are good at Arabic and foreign languages then the literary pathway is the pathway for you; so, students have to choose for themselves. (A5)

However, the pedagogic counsellors illustrated a concept they described as rooted in Algerian society, which was associated students' intelligence and capabilities with pathways. The four pedagogic counsellors noted that society perceived students who opted out for the literary pathway as low attainers (slow and not bright enough to study on the science pathway), and students who chose the science pathway as high attainers. They admitted that parents strongly influenced students' choice of pathways because of this preconception.

***Jamila:** A student would say when they choose the science pathway, they will be better than someone who chose the literary pathway... Science pathway students perceive themselves as better than literary pathway students in terms of their educational level. Even if their academic level in scientific subjects is low, they still believe they are better than literary pathway students. They'd say at least I am in the science pathway! (A6)*

Although the pedagogic counsellors' reflections on the explicit policy of streaming did not seem to imply that the science pathway was for higher attaining and literary pathways for lower attaining, their accounts vividly focused on how this image widely prevailed in society. On the face of it, all of them showed some disagreement with this common belief.

***Jamila:** Students believe that someone in the science pathway must be intelligent and a high attainer, and someone in the literary pathway is a low attainer, but in fact, all this has nothing to do with intelligence... They think that anyone can just memorise and easily get a good grade, as if memorisation does not need a minimum amount of intelligence. They don't know if you do not comprehend something, you just can't memorise it, and*

if they memorise a subject with no comprehension, they will not go too far!
(A86)

Researcher: *How do you see this dichotomy of memorisation and comprehension?*

Jamila: *Well, in fact, the science pathway contains a lots of memorisation. Students have got the wrong idea that only literary pathway content is memorisable... Well, the literary pathway requires more memorisation, but when you go back to reality, you find that science pathway students do more memorisation than literary pathway students. They memorise science; they memorise laws in physics. I think only maths needs to be comprehended... Now, looking at the literary pathway side, literature and foreign languages do not need to be memorised... Also, I know many literary pathway students who never memorise history and geography (A87).*

Jamila's statement was the opposite of what the majority of students claimed, that only the literary pathway work is memorised and hence less valued. However, in the accounts and views that some of them shared, it was found that they implicitly articulated the same dominant discourse around pathways while not consciously using the language of devaluing the literary pathway itself (literary pathway is for lower-attaining students). These pedagogic counsellors revealed some preconceptions, practices and beliefs that explained why society assigned the higher value to the science pathway. While Jamila's personal values were often consistent with her professional ones, others like Nasira and Sameh implicitly expressed that the science pathway held more achievement value than the literary one. Sameh gave the impression that she disapproved of this widely held belief, continually confirming that student streaming should be completely down to students' capabilities and interests instead of making up labels of lower and higher attainers. However, Sameh exhibited inconsistency in her opinions. Despite the sense of disagreement in her words, she often implied that students who ended up choosing the literary pathway did so due to their lack of ability in science pathway subjects.

Sameh: *Choosers of science pathway already have good grades; science pathway students can study literary pathway subjects, but literary pathway*

students can't study science pathway subjects... When a literary pathway student chooses the literary pathway, they do so because they are weak in science pathway subjects. (A19)

Her use of this statement suggests that the only reason behind students' choice of the literary pathway is their inability to be in the science pathway and not necessarily because of their interest in a particular subject or career. In addition, Sameh discussed the policies of pathway changes. While detailing her views around it, Sameh used a word that some students often used – 'going down' or 'degrade': *'this was mandated in the ministry pamphlet, if a student could not study in the science pathway, they should be degraded to the literary pathway'* (A49). Her use of this term indicated a hidden hierarchy between the pathways. Her account highlights the tension between explicit and implicit views, between their professional and personal values. The pedagogic counsellors (especially Sameh and Nasira) discussed the explicit policies concerning streaming, painting a picture that both pathways were equally valuable and this was a professional value. However, when probed deeper, more subtle points within their accounts were noticed. They implicitly referred to the higher values of the science pathway by implying that science pathway students are higher attainers while the literary pathway is for lower achievers, and by this, they expressed their personal values.

Sameh seemed to agree that the policy was appropriate as she explained the rationality behind it, saying, *'it is totally normal the literary pathway students cannot change their pathway; they went to the literary pathway in the first place because they can't do well in maths and physics'* (A56). On another occasion, Sameh depicted the differences between the pathways curriculum contents and inferred these reflected students' abilities:

Sameh: *Let's say maths. Science pathway students study maths in huge depth; it is like a maze. Literary pathway students won't be able to catch up. They [literary pathway students] study superficial and simple maths. (A58)*

Researcher: *Doesn't this apply to science pathway students who can't study literary pathway subjects in which literary pathway students expand their knowledge? (Q59)*

Sameh: *The philosophy subject that literary pathway students study is much deeper sense than the philosophy content of science pathway students, but*

still, science pathway students can study it and learn it simply, but when it comes to maths! I think it is all down to personal capabilities... I mean, if someone is not good at maths, they can do nothing about it. It is more about comprehension, but anyone can memorise literary pathway subjects. So, each has their own capabilities. Someone has the capability to be in the science pathway, and someone has limited abilities. They can't! (A60)

The pedagogic counsellors' accounts provide insight into why society perceives the literary pathway as of low value and the science pathway high value, and they also provided insight into how they articulated that dominant discourse in their accounts. They often expressed these values implicitly or explicitly by shedding light on the nature of the pathway curriculum content in terms of its difficulty level and depth and whether it is memorised or comprehended. The more the pathway contains these features of difficulty, comprehension, and in-depth coverage, the more value it possesses. This was apparent in Sameh's statement, in which she repeated the same idea discussed by the students when she said that maths, as a science pathway subject, was difficult as it was based on comprehension, which somehow determined the relative value of the two pathways.

Jamila also discussed the policies of changing pathways, and she repeated the same social discourses regarding the justification she provided to explain why pathway change was only permissible to science pathway students. This justification revolved around the high difficulty of the science pathway that hindered literary pathway students from changing their pathways. She claimed that literary pathway students already had difficulty in science pathway subjects, explained that:

The nature of the scientific subject is difficult and not easy for one to improve oneself in it, but let's say the Arabic subject, anyone can improve their level with effort because Arabic is not that difficult after all. (A89)

In the above quotes, Jamila and Sameh heavily stressed the idea that the scientific subjects' high difficulty (maths, in particular) would make it impossible for students to improve in it, while this was not the case for literary pathway subjects. Jamila did stand apart from Sameh in terms of the relative importance she assigned to the educational pathways. While Sameh's quotes suggest that pathway difficulty and level of comprehension determined its relative

value, Jamila still believed that both pathways had an equal value. Another difference between Jamila and Sameh is whether these pathways' features are concerned with the nature of subjects or other external factors. Sameh perceived subject features (difficulty, comprehension and depth) as inherent to science pathway subjects with no doubt that these might be, at least to some extent, dependent on student capabilities/motivation, a result of government policy-makers' policies, school authorities, or teaching methods, etc. In addition, her quote showed how potential in science pathway fields was much more appreciated than potential in the literary pathway fields. This may validate Sameh implicitly assigning a higher value to the science pathway than the literary. However, Jamila took a more central position as she might have perceived the nature of maths as inherently difficult, but it is all dependent on students' capabilities. The following quote illustrates this point:

I always tell students that we cannot say that this subject is difficult and this is easy. it all depends on their capabilities. Those who are more able at literary subject will find science pathway subjects difficult and vice versa. Every one of them is good at something! (A88)

Amel joined her voice with the rest of the pedagogic counsellors by depicting the social view of literary pathways and those that choose them. She made the following comment:

Normally, the pathway which we should give more value is the literary pathway, but, unfortunately, in our country the literary pathway is only dominated by those with no endeavour or those with very low attainment, those who can't do well in maths and physics. Speaking of intelligence levels, geniuses are the artists, musicians, thinkers, writers. Intelligent people, however, are the astronauts, physicians, and mathematicians. In our country, the whole thing is reversed upside down. Normally, the literary pathway should only be for excellent students because later these students will be future writers and thinkers, which is not easy at all. For others [science pathway students], it is more about $1+1=2$; it is more of an exact science. But literary fields are not exact science; they are more about subjectivity and reading, the gist of your experiences and... and understanding oneself and those around them. It is basically what makes you human! So, it is not an

easy thing at all to be a literary pathway student. Here [Algeria], only weak students go for the literary pathway, students who can't even form grammatically correct sentences, students whose writing is full of mistakes and then later these students become bad lawyers and not efficient teachers! (A72)

Amel's quotes contradicted all the discourse repeated by either the pedagogic counsellors (Nasira and Sameh, in particular) or the majority of the students, which was that the literary pathway or literary pathway-related fields are easy, less worthwhile and for lower-attaining students. Amel argued throughout the interview that both pathways were valuable. However, in her quote, she seemed to attach more value to the literary pathway than the science one, when she said *'going back to your question of which pathway is more valuable, normally the pathway which we should assign more value to is the literary pathway'* before adding, *'speaking of intelligence levels, geniuses are the artists, musicians, thinkers, writers. Intelligent people, however, are the astronauts, physicians, and mathematicians. In our country, the whole thing is reversed upside down.'* She discussed levels of intelligence, with geniuses being considered higher than people with intelligence. She then linked genius with literary pathway students and intelligence with science pathway students.

7.2. Factors underpinning educational pathway values in Algerian secondary schools

The results presented in the previous section explored the values that pedagogic counsellors hold regarding educational pathways. The purpose of the coming sections is to provide insights into research question two and present the leading factors that underpin pathways values from the pedagogic counsellors' perspectives. These factors are mainly institutional factors (related to streaming policies that are transmitted from the Ministry of National Education to local secondary schools and enacted by pedagogic counsellors) (section 7.2.1), and societal and cultural factors (related to the ongoing discourse around pathways in students structure parents in urban and rural areas) (section 7.2.2).

7.2.1 Complex streaming policies and pathway uptake: perceptions of policy and policy enactment in practice

This section explores how the streaming enactment process operates across the educational pathways and how pedagogic counsellors perform this policy work when streaming students towards either the science pathway or the literary pathway. When the pedagogic counsellors were asked to explain how students were streamed into the educational pathways, they expressed that pathway streaming was a common practice in middle schools and secondary schools in Algeria and was meant to provide students with better opportunities to direct their academic tendencies. They stated that they made it clear to students that their pathway should be chosen with great care. Pathway selection is a critical decision for students because choosing the wrong pathway might prevent students from following a career in the right direction. One should have an awareness of their interests, abilities, and skills and also be able to analyse their strengths and weaknesses.

The pedagogic counsellors reported that they organise a session at the end of every term of the fourth year in middle school, which they called an *'information session'*. These sessions were held after the termly exams when students received their exam results. Pedagogic counsellors visit students in the classroom to introduce them to the pathways and explain how streaming is practised. Answering this question, the pedagogic counsellors explained that streaming distributes students to either the science or literary pathway based on their preferences and attainment. Based on their discussion around the concept of attainment, five important policies were raised. The coming sections highlight these five streaming policies and explore what streaming policies the pedagogic counsellors explained differently than many students did.

7.2.1.1 Attainment and preference policy

Pedagogic counsellors said that the Ministry of Education's policy stressed attainment and preference as the two criteria of pathway choice, without an explicit prioritisation of one criterion over the other. However, all the pedagogic counsellors stressed that ability should come before preference. For example, Amel argued that ability was more important than interest, and she stated that she advised her students based on her belief. The following quote is illustrative:

[...] I tell students not to look at their interests but abilities; so, abilities first and then preference next because if a student is so weak at a particular subject and chooses it, they would struggle a lot and they may pass their grade as they may not. So, ability and then preference. (A15)

The policy of streaming demonstrated the distinction between formal/explicit policy and the detail of policy enactment in practice. Though the pedagogic counsellors tended to claim that both attainment and interest are important criteria for streaming, in practice, the way they passed on these policies to students demonstrated a hidden hierarchy of these two criteria of choice. Attainment seemed to be the main criterion that could overtake students' preferences. This highlights a major distinction between perceptions of policy and policy enactment in practice.

7.2.1.2 Distinction between overall attainment and attainment within each subject

The pedagogic counsellors compared students' overall grades on the science pathway subjects with the overall grades of main literary pathway subjects; then they made their decision. A key difference between the pedagogic counsellors' data and student data is that the pedagogic counsellors explained the process of streaming differently than many students did. Students' understanding of the second criterion of streaming, '*attainment*', was not quite clear. They expressed the concept of academic attainment in two overlapping and mixed ways. Sometimes, they referred to streaming as being based on students' attainment of the main subjects in each pathway (what pedagogic counsellors confirmed); at other times, they referred to streaming as being related to students' overall attainment in all subjects (see section 5.1.1). The gap between students' understanding of attainment and the pedagogic counsellors' explanations of it suggest the existence of a gap between policy and practice. This gap may mean that students were more likely to be streamed according to their overall attainment, which may explain the social view regarding pathways as being either for high-attaining or low-attaining students.

Describing pathways as either for higher or lower attainers was not apparent in the pedagogic counsellors' talk; however, their unconscious use of language indicated a hierarchy of values between the two pathways. For instance, Jamila described how streaming was conducted, and

the way she described it did not suggest she meant to imply that this student was smart and that student was not. However, she said the following:

The majority of students ask for science pathway even if they perceive themselves as weak, they do still ask for it. (A1)

The word weak is too general a term to describe a student's level, especially when we are speaking about the streaming onto two different pathways; each pathway is composed of a different set of skills and abilities. This pedagogic counsellor did not explain what she meant by the word, which may indicate that she was referring to the overall attainment/capacities of a student. In another example, Nasira discussed a major streaming decision that pedagogic counsellors take, streaming students who have failed their BEM exam. This policy states that students who do not pass their final national test in middle school (BEM) are given a second chance through considering their academic performance throughout the year. Nasira commented,

Those who failed their middle school test don't fit in the science pathway. There are some of them who choose the science pathway, but after they fail their BEM exam, we usually change them to the literary pathway. Even their maths and physics teachers think the same, that these students are weak and not capable of being in the science pathway; so, we change their choice. (A17)

Nasira's quote indicated that she did not follow the same course of action in streaming students who failed in their national middle school exam, the course of action that meant looking at students' preferences and their attainments in the science and literary pathway core subjects. Rather, she discussed not mentioning their academic attainment as a whole and related that to the difficulty of some subjects such as maths. Like Jamila, Nasira's use the word 'weak' in this context is too general a way to describe performance. This showed their relative values and the contradictions existing between the pedagogic counsellor's perceptions of policies and the structure.

7.2.1.3 Top 10% students' policy

The pedagogic counsellors discussed how the top 10% of high-achieving students were streamed directly according to their preferences, as confirmed by Jamila:

Look, we list students' general attainment from top to bottom and then the first 10% of students are steamed according to what they want. Either they want to go to the science or literary pathway. The rest of students are streamed according to their preferences and attainment in the core subjects of each pathway. (A29)

These were the students whose grades were high in all subjects and could choose any pathway they wanted. However, the criteria of attainment and preferences applied to the rest of the students. The previous policy mandated that students should be streamed according to their attainment in each pathway's main subjects and their preferences, stressing general attainment rather than attainment within specific subjects. The 10% policy, as explained by the pedagogic counsellors, seemed to contradict the first policy.

7.2.1.4 Pathway and university course change policy

Another practice that internalised the power of attainment when sustaining a narrative of pathways' relative values in more implicit ways were the policies of pathway change and, latterly, university course change. All the pedagogic counsellors discussed this policy in detail, explaining that students in the science pathway could change their pathway to the literary one, but literary pathway students could not make that switch. This allowed science pathway students to change their university courses and choose literary pathway-related course. This policy was not reversible for literary pathway students.

The majority of participants explained that the reason behind these policies went back to the pathways' curricula content, structure and assessment. They reflected that the science pathway was more difficult, more comprehension-based (content and assessment), and possessed more depth and breadth (structure and content), than the literary one. Therefore, attainment in science pathway subjects was more valued than attainment in literary pathway subjects. The more difficult, deep and comprehension-based the pathway was, the higher the ability it required and the more value it attracted. As section 7.1.2 demonstrated, Nasira and

Sameh were closely related in terms of their relative values, and they both used language that showed how this policy shaped their relative values. However, Amel and Jamila, who tended to believe that both pathways held the same importance, were more conscious of the appropriateness of this policy. In fact, Amel argued against it:

If they had kept humanities courses at university for literary pathways students only, students would have taken the time and energy needed to choose carefully and not just followed others blindly. We would not have all this mix-up... This is not fair! (A44)

Amel expressed how prospects are unequal between pathways not only in terms of academic education (university courses or professional careers) but also in terms of vocational different national contests and institutional level. Higher education in Algeria is comprised of universities and national institutions, 90% of which are administered by the Ministry of Education.

This policy created around attainment was one source of the pathway values. Participants tended to overemphasise the value attainment (valuing the science pathway more than they did value attainment in the literary pathway). The science pathway tended to be reserved for higher-attaining students and the literary pathway for the lower-attaining. All the pedagogic counsellors' accounts discussed how society believed high-achieving students were placed on the science pathway and weaker ones typically streamed onto the literary pathway. The former students were perceived as intelligent and high-attaining, and the latter as less able. This perhaps meant that students were more likely to be streamed according to their overall attainment, which might explain the view of pathways as for either high-attaining or low-attaining students.

7.2.1.5 Pathway allocation

Another important policy all the pedagogic counsellors shared was concerned with pathway allocation. All the pedagogic counsellors asserted that the Ministry of Education provided more allocations to the science pathway, with 70% for the science pathway and 30% for the literary. When asked about the disparity of the allocations to the two pathways, the pedagogic counsellors did not provide much detail, but they mentioned different reasons, such as

administrative factors, the popularity of the science pathway, and the number of sub pathways. For instance, Nasira, Amel and Sameh mentioned that due to the popularity of the science pathway students, it attracted higher demand among students.

***Nasira:** Most students want to choose the science pathway; that's why the academy of education at our province provided more allocation seats. (A15)*

While Nasira related pathway allocation with student demands, Sameh related it to the number of science sub pathways and literary-sub pathways:

***Sameh:** Maybe because there are so many science sub pathways, and there are only two literary sub pathways, we need more science pathway students so that we can fill in these classes. (A34)*

When students move on to their second year at secondary school, they have to choose a further sub pathway to follow. The science pathway has four sub pathways and the literary two (see table 1.3). Sameh reflected that this might be the reason behind the disparity in pathway allocations. It was, however, surprising that none of the pedagogic counsellors thought of economic reasons for the higher seat allocation for the science pathway over the literary.

7.2.2 Family structure and pathways' relative values: urban and rural areas

The pedagogic counsellors' data identified differences in relative values between different school areas. Putting aside the 70% to 30% enrolment policy, they generally expressed that science pathway uptake was higher than literary pathway. However, they clarified that a smaller proportion of students followed the science pathway in rural schools (and sub-urban areas, as noted by Amel) compared to the urban areas. Sameh explained that students and their social networks were more accepting of the literary pathway compared to families in urban areas:

The science pathway in the city [meaning urban] is in higher demand than in rural areas... I know a pedagogic counsellor who works in a school in the city. She once told me that she had around 140 students in the middle school, 120 of them chose the science pathway, and only 20 went for the literary

pathway... I mean, even in the countryside, students still opt for the science pathway more than the literary pathway, but there is much more balance compared to the city. (A74)

Amel also continued in more detail by explaining the difference between rural, urban and sub-urban, explaining that inhabitants of sub-urban areas in Algeria came originally from rural areas. Therefore, Amel explained that these two areas (rural and sub-urban) are similar in terms of balance between pathway uptake, while urban schools did not demonstrate such balance in terms of the science pathway:

There is a real difference between streaming in rural and urban schools. When I was working outside the city, the literary pathway was in demand; I could easily form two to four classes. But here in the city, I struggle to form one classroom of literary pathway students. It feels like I am fighting a battle. (A2)

Amel reported that she found streaming in urban schools more problematic than streaming in rural ones. While Sameh and Amel referred to the pathway percentage difference between rural and urban schools, Jamila spoke about the differences in sub pathway uptake between urban and rural schools:

For example, students in the city are more likely to go to experimental science and students who live in rural areas are more likely to choose technical mathematics. (A97)

As a result, all pedagogic counsellors argued that they found streaming more challenging in urban areas and less challenging in the rural due to disparities in the relative values between the two areas. They also seemed to link values/relative values and pathway uptake with parents values regarding pathways – their relative values in particular.

7.2.2.1 Parents' relative values and pathway uptake: between urban and rural areas

The pedagogic counsellors' accounts went beyond what pathways were chosen most in which areas. They also emphasised how the values of society, and particularly parents, varied between these two areas. The two following quotes by Jamila and Amel are illustrative:

Jamila: *Most of city students are more interested in the science pathway and experimental science sub pathway because of the parents' influence, and students in the countryside don't have a specific pathway they are interested in; their choice is based on what they are good at... Their parents [parents of students in rural areas] are not very much interested in students' choices. When I call up for a parents' meeting, and I speak to them, they are understanding. They give students freedom of choice with no pressure. In the city, the influence of parents is much bigger. (A103)*

Amel: *Streaming in the city is horrible because everybody wants to choose the science pathway, not only students, even their parents... At the very beginning of the academic year, they [the parents] talk to me, they talk to the headmaster, and they talk to the teachers. They are ready to literally speak to everyone in the school who is remotely involved in student streaming just to get their offspring streamed onto the science pathway!... In the countryside, whatever your advice to the students is, parents listen. If a student perceives their ability as low in maths, they don't choose the science pathway on their own. (A30)*

These pedagogic counsellors emphasised that the majority of students in urban schools tended to choose the science pathway under the influence of their parents, meaning that the science pathway was more valued than the literary in these areas, while students in rural schools were not very attached to the literary pathway as their parents had less influence over their choice.

7.2.2.2 Parent educational level: urban and rural areas

All four counsellors discussed how parents in urban areas valued the science pathway more than the literary and tended to be more influential and more controlling of students' choices. Moreover, their data showed there was a close link between parents' educational level (qualifications) in these areas and their relative values and choices. They all expressed an opinion that pathway enrolment is related to parents' educational/ achievement level. She noted that the science pathway was a popular pathway in urban areas where parents were more controlling of students' choices while explaining that the science pathway was not as

popular in rural areas and that parents had no demands on students' choices. This implies that pathways' relative values were not similar across rural and urban areas, with the science pathway being more important in urban areas than in rural areas. Sameh's and Amel's quotes are illustrative of his point:

Amel: *In this school [high-attaining school] only three students wanted the literary pathway, out of 75 students. This school is known for students parents' being in highly ranked positions and most of them are intellectuals.*
(A7)

Sameh: *Those parents in rural areas don't interfere a lot in students' choices; I don't know why. It might have to do with their intellectual level or maybe they just don't want to be controlling. But here in the city, parents would come and argue with us. They are like, 'My son will get nothing out of the literary pathway', and they just want to see their offspring in the science pathway regardless of their abilities.* (A75)

The pedagogic counsellors' quotes emphasised how the science pathway was more valued in urban cities. As a result, parents tended to be pushy about students' choices. While that was not the case in urban areas, interestingly, they related the parents' level of interest in science with their educational level, and their statements (Amel's statement) implied that parents with high qualifications tended to value the science pathway and urged students to choose it.

7.3 Students' agency of pathway choice: between parental authority and streaming constraints

7.3.1 Parental authority

All pedagogic counsellors stressed the importance of students' agency to choose a pathway that suits their tendencies and abilities. These two criteria of choice were stressed by the pedagogic counsellors to emphasise the agency of students in making decisions.

Nasira: *They [students] are their own best counsellors; they know themselves. We just help them by telling them if you want to choose the*

literary pathway you should be good in this and that, and if you want to choose the science pathway, you have to be good at this and that. So, they should decide for themselves... (A22)

Amel: *I always tell students to choose according to their capabilities, and I tell them not to choose something just because their friends like or their father or mother studied it before because it's only them who is going to study and put in effort and sit the BAC exam... So, choose what you can do so that you succeed. (A34)*

However, the story is more nuanced than these two quotes suggest. The two criteria of choice, attainment and preference, did not always seem to be expressive elements of students' agency in being responsible for their decisions as institutional and societal structure get in the way and frame their choices in certain ways. The pedagogic counsellors' findings showed that parents and streaming practices had power over these two choice criteria. Although the pedagogic counsellors emphasised the concept of students' freedom to choose, each time they would highlight the role of other external bodies like the Ministry of National Education, and especially parents, in restraining students' agency to choose. Jamila reported how parents could be highly influential over students' choices regarding pathways and sometimes misguided:

Jamila: *We face difficulties with parents. Students choose a pathway based on what they want, and then parents change their preferences, and then we have to find the most delicate way to convince parents to let students choose what they can succeed at!... Well, some parents listen, but some others don't! (A11)*

Amel: *If my son wants to be a journalist, so be it! I help him get there! But parents here [Algeria] don't advise students to make a decision based on their abilities and interests. They don't let their offspring figure out what they want to be in this world (A83)*

The pedagogic counsellors explained that they also organise ‘an information session’ for parents in order to introduce them to the pathways and their future prospects. Nasira and Jamila reflected on the reason behind including parents in the pathway choice:

Nasira: *We involve them [parents] to keep them in the loop and help them be aware of everything that was already explained to the students. (A6)*

Jamila: *It is just a consultation. We conduct a session with parents yearly. So that they get an idea about the two pathways. The role of the parents should be just helping the student to decide because they normally know about students' abilities. (A67)*

The participants said that the parents’ role was to provide advice and consultation, and they organised these sessions just to enlighten them. However, parents appeared as key stakeholders in the way the pedagogic counsellors talked about the pathway choices. While this was less strong in the students’ accounts, the pedagogic counsellors’ accounts provided a strong impression that parents have a crucial role in the pathway choice. For instance, they discussed that at the end of third term in the fourth year of middle school, they sent the orientation cards with the students' decisions to parents to sign. For this reason, they were asked whether the school or ministry policy authorised parents to take part in students' choices. Sameh and Jamila provided the following answers:

Sameh: *It is not a law or anything. The pamphlet says students consult their parents. Maybe students couldn't make up their minds; so, the parents here could be of great help. (A78)*

Jamila: *No, it is not a law. There is no official document that says parents' approval is obligatory. Parents have to sign it [the orientation card] so that they are aware of students' choices, but we included it anyway, just because we don't want to find a contradiction between parents' opinions and students' choices... We want to prevent any problem or misunderstanding between the parent and us, so that later, at the end of the academic year, they don't come to us complaining or wanting to apply for an appeal to change the students' choices to the science pathway. (A67)*

All the pedagogic counsellors explained that there was no official and explicit policy mandating parents' approval of students' choices. However, they claimed it was a long-standing practice. Jamila's, Nasira's and Sameh's explanations as to why parents are required to sign students' orientation cards did not seem very problematic in that it was a way of keeping the parents informed on the one hand as well as more of a precautionary measure that they took to preventing any possible misunderstanding or miscommunication between the school and parents in the future. However, Amel disapproved of the parents' signature requirement:

***Amel:** The real problem comes from the orientation card that allowed everybody to interfere with students' choices... I am against all this. I would prefer students choose for themselves... you know, in the nineties, parents had no role in streaming... but now they do because the orientation card is changed... If I was a decision maker, I would eliminate the last card students take to their parents to sign. (A29)*

Based on the statement of these pedagogic counsellors, there are two inter-related policies coming from the Ministry of National Education. The first policy states that the role of parents is 'consultation' (as mandated in the formal document pedagogic counsellors receive). The second policy, however, involves issuing orientation cards to parents for their signature (i.e., approval). While the former document did not seem to centralise parents' role, the latter (with orientation cards) did. This might suggest that policies around the parents' role in streaming students were vague and might need more demarcation because the parents' role as pictured by all the pedagogic counsellors became crucial, as the signature manifested and strengthened their authority over pathway choices.

In response to the question how pedagogic counsellors resolve the tension that is found between the parents' authority and students' pathway choice, it was found that they could not do much more about it than speaking to parents to convince them. As a result, the pedagogic counsellors were challenged due to the interference from parents in the process of streaming students. They expressed issues of being constrained during streaming. On one hand, they had to follow the ministry guidelines. On the other, they have to satisfy students' wishes (often, they articulated, directed by their parents), who most of the time favoured the science pathway.

Another interesting issue that the pedagogic counsellors reflected on regarding parents' authority and how attainment and preference were not sufficient conditions for students to choose was when they addressed the top 10% students policy. Their data showed that high attainment, which was supposed to give students the opportunity by education law to choose what they wanted, turned out to be restricted by parental approval. To explain, all the pedagogic counsellors stated that the first 10% of high-attaining students could choose what they wanted. Nasira continued, *'even if they got 18/20 and wanted the literary pathway, they can go to the literary pathway'*. However, their accounts also showed that ability and interest are not enough for students to choose, even for high-attaining students, and this was due to parental approval; even if students had high attainment, they needed their parents' signatures despite the top 10% students policy. When Nasira was asked if a student who fell within the top 10% of students and could choose what they want still had to get their parents approval, she replied:

***Nasira:** Yes, they still have to get that orientation card signed by the parent. We are not going to open an investigation about whether the parents signed the orientation card or not. If, later, the parent comes to us complaining, we'll have proof that the card was sent and was signed. We do not want the responsibility to fall on us. (A8)*

Adding on Nasira's statement, Sameh revealed that when a student was among the high attainers showed interest to follow the literary pathway, pedagogic counsellors should call up the parent to check with them whether they agree on the student choice

I had an excellent student last year who got 18/20 and wanted to be on the literary pathway. I had to call her father. You know, if we get a high attaining student who is capable of being on the science pathway and they choose the literary pathway, we have to call the parents first. So, yeah, her father was ok with his daughters' choice. (A112)

7.3.2 Streaming constraints

After depicting how students' choice is shaped by their parents, the pedagogic counsellors' accounts demonstrated how restrictions on pathway allocation constrained them when

streaming and constrained the students' choices. In this regard, the pedagogic counsellors played a dual role when they had to adhere to the pathway allocation policy while satisfying the wishes of the students (and sometimes of their parents).

All the pedagogic counsellors discussed the restriction of pathways allocations (see section 7.2.1) and how policies around this practice determined the agentic role of attainment and interest. All participants asserted that the Ministry of Education assigned more places to the science pathway than the literary, with 70% for the science pathway, and 30% for the literary. The pedagogic counsellors reported when they send their final list of student enrolment to the local academy of education in the region, this academy often sends back a revised list that requires the counsellors to make amendments to the groups. The local academy of education demanded that the pedagogic counsellors modify the streaming lists of students according to the ministry policy of 70%-30% and the available places in the respective secondary schools that the middle school students will move to. In most cases, this process mandates taking some students off the science pathway classrooms and onto the literary pathway classrooms because, as explained many times by the pedagogic counsellors, the science pathway was the one chosen most by students. In the following quotes, Sameh and Jamila explained how they go about the process:

***Jamila:** It depends on the number of seats in the respective secondary school that students will go to. They recommend to us to send them, say, 116 science pathway students and 65 literary pathway students... If students' choices matched this numbering, it's a good thing; if not, then we have to do a listing of attainment in main science pathway subjects and another of the main literary pathway subjects. (A1)*

Sameh continued:

For example, last year, we were asked to change 10 students from the science pathway to the literary pathway... We list them [students grades in the main subjects of each pathway] from the highest grade to the lowest grade and when it comes to changing students' preferences. (A12)

The participants discussed that due to streaming restrictions during pathway allocation they had to make changes to the streaming by moving more students into the literary pathway as the science stream is chosen more often. All the pedagogic counsellors were unhappy with the 70%-30% streaming policy. Amel's and Jamila's quotes illustrated this disagreement:

Amel: *The problem is that I hate to stream students against their will. If it was up to me, I would satisfy 100% of their preferences or at least 90% of their preferences, but the ministry documents restrict us, which is really annoying!* (A14)

Jamila: *Sometimes, they restrict us. Like, we should send them a certain number of students in each pathway. There are some occasions in which we get almost all students achieving good grades in the science pathway subjects, and all of them deserve to be on the science pathway. So, with this restriction, I find myself obliged to take some of these students who stand a chance to be in the science pathway to the literary pathway. This brings them down, some of them lose motivation to carry on! They want something and we give them something else!* (A15)

The pedagogic counsellors shed light on how students' choice was restricted by societal preconceptions (i.e., from parents) on one hand and policy practices (pathways allocation) on the other. Jamila argued that she sometimes got a science pathway class with high attainment in the science pathway, and they all deserved a place in the science pathway, but they had to be re-assigned to the literary pathway to fulfil the Ministry of National Education's requirements. Her quote implied that attainment or ability (as they referred to it) may not be enough for students to obtain their desire. For instance, they get good grades to join the science pathway, but because of pathway restrictions, they get streamed onto the literary one. In addition, the pedagogic counsellors' accounts also showed that ability and interest are not enough for students to exercise their agency of choice, even for the high-attaining students, and this is due to the conflicting instructions from the Ministry of National Education focussing, on the one hand, on students abilities and preferences, and restrictions on pathways allocations on the other.

In this quote, Jamila disapproved of the effect the 70%-30% policy had on students, but she was implicitly disapproving of the attainment- preference policy which was not always a sound measure to follow with streaming students:

Jamila:... We can really mess up students' opportunities. Even if one's grades were not so good, they might have abilities to improve in secondary school. So, by re-assigning them to the literary pathway, they wouldn't go so far. Some students might accept that, but some other times , some students who have ambitions in the science pathway, find it so hard to get over it! (A16)

Though pedagogic counsellors often use the terms ability and attainment interchangeably, Jamila's quote reveals a difference between these two terms, explaining that attainment is not always a validated measure to detect one's abilities. For instance, this policy was limiting students' agency in terms of allowing them to choose for themselves and realise their potential.

7.4 Chapter summary

In response to the first research question, the values that the pedagogic counsellors held regarding educational pathways are summarised in the following points:

- The pedagogic counsellors expressed a more limited set of values than the students did. Students predominantly expressed instrumental values and intrinsic values to a lesser extent; however, the pedagogic counsellors took a more instrumental and pragmatic view of pathways values, and hardly ever referred to the intrinsic values of educational pathways (except Amel).
- The pedagogic counsellors made a distinction between their professional and personal values. While professional values stand for the explicit values pedagogic counsellors attributed to pathways, personal values are the implicit values they assigned to pathways and in most cases, these expressed relative values. Though tension between these two types of values might appear, pedagogic counsellors, unlike the majority of students, could manage to separate between these two types of values overall. In general, all pedagogic

counsellors hold values regarding both pathways, but when expressing the relative values implicitly or explicitly, two of them (Nasira and Sameh) tended to place a higher value on the science pathway compared to the literary pathway, without dismissing or devaluing the literary pathway. Amel and Jamila appeared to perceive these pathways as equally valuable.

In response to the second research question, the factors that underline educational pathway values are summarised in the following points:

- The pedagogic counsellors reflected on the influencing factors behind pathway values; they discussed how the streaming policies portrayed the role of high attainment in constructing values and maintaining a hierarchical structure between the science pathway and literary pathway through reporting five central streaming policies. These are attainment and preference; overall attainment and attainment within subject' top 10% student policy; policies around pathway and university course change; and finally pathway allocations. Moreover, their accounts around streaming policies revealed a tension between perceptions of policy and perceptions of policy enactment in practice.
- The pedagogic counsellors' findings showed a disparity of social values in different geographical areas in Algeria – namely, the urban and rural – explaining that people in urban areas tended to ascribe higher value to the science pathway than the literary one, more than people in the rural and sometimes sub-urban areas did.

In response to research question three, the influence of the pathway values on students' pathway choices is summarised across the following points:

- All pedagogic counsellors stressed the importance of students' agency to choose a pathway that suits their tendencies and abilities. However, the two criteria of choice attainment and preferences did not always seem to be expressive elements of students' agency of being responsible for their decisions. Parents (via orientation card signatures) and streaming practices (pathway allocation, in particular) had power over these two criteria of choice.

- Parents came through as key stakeholders in how pedagogic counsellors talked about pathway choices, while this was less strong in the students' accounts. The pedagogic counsellors' data suggested that the formal policies did not overstate the parents' role in pathway choices, but parents had considerable authority in this streaming process due to the grey areas of the policies that gave them access to the students' choices.
- The pedagogic counsellors' accounts demonstrated a disparity of the pathways' relative values between rural and urban areas, with parents in urban areas tending to be more educated and controlling of students' pathway choices (favouring the science pathway), while parents in rural/sub-urban areas tended to be less educated and less controlling of the students' pathway choices with more neutral views towards the pathways' values.

Chapter 8. Discussion

This chapter discusses key findings from this study in relation to research about educational pathways' relative values and students' choices. This chapter is organised around the key research questions:

1. What values do different stakeholders hold in relation to pathways in Algerian secondary schools?
2. What factors underline educational pathway values in Algerian secondary schools?
3. How do educational pathway values in the Algerian secondary schools influence students' pathway choices?

This chapter pulls together the findings from the literature review and the four analytic chapters. The students are the main focus of the study; their findings are presented in Chapters 4, 5 and 6. However, the pedagogic counsellors have a complementary role to the students' findings, and their findings are presented in Chapter 7, which provides insights into all the research questions. The key findings are presented in the following sections, each section addressing one of the research questions and in ascending order. First, section 8.1, as a summarised response to the first research question, presents the main findings of the analysis in Chapters 4 and 7. Second, section 8.2 discusses the core findings regarding the factors underpinning educational pathway values in secondary schools in Chapters 5 and 7, and these respond to the second research question. Finally, section 8.3 discusses how pathway values influenced students' choice narratives in relation to the results in Chapters 6 and 7, which are relevant to the third research question.

8.1 The predominance of instrumental values regarding educational pathways: the science pathway is more valued than the literary pathway

Contribution 1:

- Students and pedagogic counsellors expressed predominantly instrumental values regarding educational pathways and argued that the science pathway possessed more instrumental values than the literary.
- The science pathway was perceived as more valued than the literary.

The stakeholders interviewed for this study are secondary school students in the literary pathway and science pathway, and pedagogic counsellors who have working experience in middle schools and secondary schools. In response to the first research question, chapters 4 and 7 present students and pedagogic counsellors on pathways' values (see summaries in sections 4.2 and 7.4).

In general, students and pedagogic counsellors expressed predominantly instrumental values of education. They both focused on the economic values to a greater extent, especially when they reported how job options contributed to the value of pathways. These are values that are realised to serve as outcomes of benefits. Both also focussed on the achievement value that pathways' subjects hold in terms of their structure, content and assessment. The last value was intrinsic values, expressed only by the students and referred to least by the participants. The students expressed more about pathways' intrinsic values than the pedagogic counsellors did, the latter taking a more instrumental and pragmatic view of pathways values, and hardly ever referring to the intrinsic values of the educational pathways (except Amel).

Sections 8.1.1 and 8.1.2 present the main findings of the analyses in Chapters 4 and 7, focusing on the economic and achievement values, respectively. They discuss how findings identified the science pathways as more valued than the literary pathway primarily due to its economic and achievement values being perceived as higher. Furthermore, it highlights how these values outweigh the intrinsic values of the pathways.

8.1.1 Predominant expressions regarding the economic values of educational pathways

The majority of students and pedagogic counsellors expressed that the economic values of pathways are mostly realised in serving certain beneficial economic outcomes. This finding is in line with the literature discussed (see section 2.2.1.2). Many researchers argue that due to the rapid progress of technology and the growing interconnectedness of trade, competition in services and finance has intensified at local, national and global levels. As a result, there is now a greater focus on the importance of education in this evolving landscape (Mansfield and Reiss, 2020). Biesta (2009) argues that one of the primary aims of education is to acquire knowledge, skills and understanding from various school subjects, enabling individuals to receive specialised training for specific jobs and professions. This, in turn, contributes to the promotion of economic development and growth (Biesta, 2009). Many educationalists who argued for the economic benefits of education, like Winch (1996), argue that liberal education would not have achieved its goal if it did not assist young people in becoming contributing, autonomous members of society; any educational system that chooses to call itself liberal must include vocational training if producing productive members of society necessitates it, whether to a greater or lesser extent (Winch, 1996). This economic thinking has come to dominate educational policy as it becomes increasingly oriented towards teaching what is useful, when, in practice, what is useful is often reduced to economic terms (Gilead, 2017). The subjection of the educational system to economic modes of thought has translated into how school subjects are taught, studying, policy-making and even research. Government agendas shed light on how a country's political and economic goals might influence its educational goals and practises (Mansfield and Reiss, 2020). As a result of these agendas, education policy designers are reacting to these worldwide changes by emphasising STEM education (Mansfield and Reiss, 2020), as the role of sciences/STEM in modern society is crucial in promoting technological innovation and sustained economic growth. In tandem with this global recognition of STEM education, research on STEM education is increasingly rapidly as a response to this on-going call (see section 2.4). This has shown that sciences/STEM do not possess the same value as other, non-STEM disciplines. The end result of this economic modes of reasoning is that the societal standing of mathematics, sciences and literacy (in the case of PISA, 1990, 2016) is rising and that of the humanities, arts and social sciences is bound

to deteriorate further (Gilead, 2017; Marginson, 1997; Morris, 1995). This context has shaped perceptions of the worth of a subject choice, as students view their choices, which translate into future qualifications and credentials, as a valuable asset that gives them an advantage when it comes to the labour market (Tomlinson, 2008). This study adds weight to support this contention. Findings showed that science pathway subjects possess a higher economic value than those on the literary pathway, and it was accordingly conceived as more important. Sections 4.1.1.1, 4.1.1.2 and 7.1.1 showed how students (mostly the science pathway students plus Nabila and Dhikra) and two pedagogic counsellors (Nasira and Sameh) portrayed how the economic value of the science pathway, in particular, outweighed that of the literary. Their comments referred to the widely shared belief in society that the science pathway economically benefits individuals more than the literary pathway does in two senses: social utility (students only), and university courses and job options (students and pedagogic counsellors). First, students reflected on the pathways' social utility. They described the science pathway as an indispensable field that is continuously needed in society and never loses its daily relevance to people's lives, which also represents an expression of occupational value in terms of its benefits figure importantly in their narratives. They stated that science pathway-related occupations are more useful than literary pathway-related occupations. Therefore, they argued that the science pathway possesses more value than the literary. Second, both students and pedagogic counsellors reflected on the pathways' future options. This was discussed in two related senses. The first sense suggests that science pathway-related qualifications are in demand in the job market as the science pathway prepares students for the future workforce, where science-related qualifications are a prerequisite. The participants explained that society is under the conception that pursuing science will guarantee a secure job. The second sense implies that the science pathway opens a variety of career paths that do not necessarily fall only in the sciences sector but the humanities sector as well. This is due to the school policy that enables those choosing the science pathway to change their pathway in secondary school and access humanities courses at university. (This is explained in more detail in section 8.2.)

Even though some pedagogic counsellors believed that the science pathway held a higher value than the literary, they were professional in expressing their perspectives around the pathways' values; that is, they occasionally mentioned that literary pathway also allowed

access to a variety of jobs. This often came up when they advised students to choose either the science or literary pathway and made sure to let the students know about the promising employment opportunities available in the literary pathway-related fields. However, the majority of students did not see the literary pathway as possessing a high economic value. The literary pathway did not seem to attract the majority of them as a contributing factor to economic development. In fact, some literary pathway students who had a high appreciation for the literary pathway, like Doria, happened to discuss the importance of learning languages, but she would often relate these with intrinsic value of literacy rather than its economic value. Languages (either the mother tongue or foreign languages) as literacy subjects were not portrayed by participants as key to economic aims for education. This finding is not in line with research that shows how literacy is key to economic aims for education, such as international studies like the OECD's Programme for International Student Assessment (PISA) (OECD, 1999, 2016) and the Progress in International Reading Literacy Study (PIRLS) (Biesta, 2009). For example, PISA is a programme for international student assessment launched in 1997 with the aim to assess 15-year-old students' performance in the core school subjects of reading, mathematics and science in order to evaluate the level of readiness of these youths for adult life in a modern society (OECD, 1999, 2016) and to inform educational policy (OECD, 1999; Biesta, 2009). These studies (PISA reflects the OECD aims) are largely dedicated to economic growth, cooperation and development, with an emphasis on economic priorities, and the drive to create efficient education systems, offering value for money, and producing quality output (Eivers, 2010, p.95). The economic perspective is clear from the selection of mathematics, science and reading as the key skills or competencies for modern life (Eivers, 2010, p.95).

Findings demonstrate how the instrumental values – the economic, in particular – of pathways have overridden the intrinsic value of the pathways. This resonated with a study conducted by Ryder and Banner (2011), which examines the aims attributed to a major reform of the school science curriculum for 14- to 16-year-olds in England. Their analysis identifies largely 'instrumental' aims, with little emphasis on 'intrinsic' ones. Similarly, results in Chapters 4 and 7 showed that students and pedagogic counsellors often expressed predominantly instrumental values of education. This caused a tension of balance between the economic values and other intrinsic values of the science and literary pathways equally in the

participants' data, as demonstrated. Many educationalists argue that the role of education should not be limited to economic arguments only (Biesta, 2009; Fensham, 1988). Providing students with knowledge and skills is also important for other aspects of their functioning (Biesta, 2009) such as political or cultural literacy (Biesta, 2009), and scientific literacy (Fensham, 1988; Mansfield and Reiss, 2020). Fensham (1988) argues that the economic value overrides any other values, which is not promising (see Fensham, 1988, p.25). A limited but definite number of persons with scientific skills and expertise are needed in any society to maintain and expand a variety of aspects of its economy (Fensham, 1988, p.22). However, focusing on an oversupply of students who have completed a science-related degree has a counterproductive effect as the oversupply shifted more towards vocational terms and less toward scientific literacy (Fensham, 1988).

This was identified in the findings of this study. Students and pedagogic counsellors who emphasised the high value of the science pathway over the literary mainly focused on the qualification and vocational side of the science pathway. They stressed the short-term instrumental goals of science, like training immediately productive members of society with specific scientific or technical knowledge. Such instrumental concerns took clear primacy over more intrinsic values around '*learning subjects for their own sake*' and self-development. While pedagogic counsellors took a more instrumental and pragmatic view of pathway values, and hardly ever referred to the intrinsic values of educational pathways (except Amel), out of twelve students, only Dhikra, Doria, Nabila and Rukaya referred to the intrinsic value of certain school subjects (learning subjects for their own sake) (see section 4.1.2). Dhikra showed in interviews that the science pathway was more important for a sense of security, but she also demonstrated how science would help the individual understand the world around them. For instance, she communicated the sense of enjoying the knowledge that she encountered in the science pathway. She expressed her excitement about the field of science and shared an anecdote about how she would contemplate the decomposition process of a dead mouse she encountered while walking down the street. She found it fascinating to ponder over questions like what happens to the cells and how long it takes for the body to decompose. Dhikra did not perceive an intrinsic value in the literary pathway because she could not make a link between the literary pathway knowledge, which she described as old and outdated, and enjoyment. However, this pattern was not predominant among students' findings. Apart from

Dhikra, other students, whose accounts stressed the higher value of the science pathway, lacked consideration of the intrinsic side of the science pathway that emphasises scientific ways of knowing, and the process of thinking creatively and critically about the world in relation to science.

The data contradict the literature discussed in Chapter 2. Section 2.2.1.1 presented the claim of certain philosophers of education like Peters (1966) and Hirst (1974) regarding the right of certain subjects, those whose intellectual and cognitive content is high, to be included in the curriculum, describing these subjects as possessing an intrinsic value that would develop the mind and should be learnt for their own sake. While section 2.2.1.1 confined intrinsically worthwhile pursuits to intellectual and aesthetic ones, the account in section 2.2.2 is much broader as it emphasises how education should promote human flourishing and well-being (Biesta, 2009; Brighouse, 2006; Reiss and White, 2013). For instance, Reiss and White (2013) present two aims for education: to live a fulfilling life for themselves, and to assist others in achieving the same. These two aims both hold instrumental values; that is, individuals gaining an education help not only themselves (the individual) but also others (society). The instrumental values are very important as individuals need more than intrinsic merit to survive life in this modern world, but they also emphasise the intrinsic value of education and even implicitly prioritise it. Intrinsic here is defined by what the students see as important and intrinsic; that is, it does not lie within the subjects themselves but in the way students see them (Reiss and White, 2013, p.13).

Every student has inherent values and their needs should not be disregarded in favour of others; students should be treated with equal respect and importance. (Reiss and White, 2013). Instead, the findings of this study relate more to the literature discussed in section 2.2.1.2, in which students' value resides in their competency and ability to perform the functions needed for social productivity (Schiro, 2013). Society's needs are fulfilled through what is called the terminal objective, and students' role is to meet the terminal objective of curriculum adherence to fulfil society's needs. Hence, the policy-makers' task is '*to determine what the consumer market (society) wants in in terms of a finished product and finds the most efficient way of producing that finished product*' (Schiro, 2013, pp. 65–66).

8.1.2 Students and pedagogic counsellors perspectives on pathway values as a body of knowledge: a reductionist view of intellect

Findings in section 4.1.1.3 provide an insight into how the structure of the secondary school curriculum is defined in terms of pathways. Two educational pathways are proposed: the science pathway and the literary pathway. Each is defined in terms of subject content. This research showed how the curriculum in secondary school schools in Algeria is highly structured and based on a strict demarcation of pathways and subjects. While the science pathway's core subjects are physics, chemistry, maths and science (biology), the literary pathway's core subjects are Arabic, foreign languages, history and geography. In sections 4.1.1.3 and 7.1.2, the majority of students and pedagogic counsellors discussed the achievement value, referring to the extent to which pathways subjects' reflected deep thinking and intensive reasoning, and therefore require high ability and competence. The intellectual value refers to the ability to think intelligently and understand complex and abstract ideas. All participants expressed this value through shedding light on the pathways' structures, content and assessment, presenting this value in terms of the level of pathway difficulty, memorisation and comprehension (the nature of pathways when assessed and learned), and depth and breadth of the content covered in pathways (whether the distribution of the content covered is balanced between the core and foundation subjects in both pathways). These features reflected how pathway content, structure and assessment were set up.

The findings of this study are reflected in the literature discussed in section 2.2.1.1, which offered justification for the academic subject-based perspective, which conceives of education as a tool of knowledge transmission (Hirst, 1974; Peters, 1966). Different educational philosophers have divided knowledge into a number of distinct categories (Taylor and Richards, 1985). For instance, Peters (1966) and Hirst (1974) also aim to justify theoretical disciplines on intrinsic grounds. Peters (1966) argues that theoretical activities that should compose education are '*science, history, literary appreciation, philosophy, and other such cultural activities*'⁸ (p. 160). Similarly, Hirst (1974) claims that a curriculum should consist of forms of knowledge that are intrinsically worthwhile and develop the individual's rational

mind. These are mathematics, physical science, human science, history, philosophy, literature, the fine arts, moral knowledge and every discipline that has its own distinct ideas and standards for what constitutes truth (ibid.). These philosophical analyses promote a certain understanding of knowledge, a knowledge that is highly cognitive and possesses an absolute truth (Hirst, 1975; Peters, 1966). For example, Plato differentiated between intellectual and practical subjects, contending that intellectual subjects involve abstract/transcendental reasoning and the acquisition of universal truths, and this method of inquiry is used in mathematics and philosophy. The practical subjects, such as trades and crafts, lack such advanced and sophisticated cogitation. Therefore, these two types of knowledge do not possess the same status (Bleazby, 2015). Similarly, Peters argues that not all forms of knowledge have the same level of cognition. He stated that the question '*why this rather than that?*' is a good starting point to decide which content to include and which to exclude, and that only highly cognitive knowledge should be included, not including some other forms of knowledge like practical subjects (Peters, 1966). These philosophical analyses are reflected in today's day and age where curriculum planners tend to select, organise and prioritise some subjects whose intellectual and cognitive content is higher than for other subjects. Some contemporary examples of curriculum planning demonstrate how the traditional curriculum hierarchy continues to influence Western education and its focus on the development of intellectual excellence (Bleazby, 2015, p.3). This narrow definition of education is responsible for the establishment of subject stigmas, whereby some subjects are valued over others.

The findings of this study support this work of literature. The majority of participants ascribed a higher achievement value to the science pathway than the literary. In sections 4.1.1.3 and 7.1.2, the majority of students and pedagogic counsellors ascribed high cognition to the science pathway and low cognition to the literary. This cognition was expressed in terms of educational pathway structure, content and assessment, and was seen in a set of differences between the pathways, such as the level of difficulty, the nature of pathways when assessed and learned (memorisation/ comprehension), and the depth of the learned content (whether the distribution of the content covered is balanced in the core and peripheral subjects in both pathways). Students' stories were nuanced and complex. However, the overwhelming gist of their narratives was that the level of cognitive skills in the science pathway were estimated as

higher in importance than those in the literary. They were in receipt of more advanced highly cognitive knowledge that had broadened their learning

However, while the discussed literature in section 2.2.1.1 focused on the intrinsic values of subjects and bodies of knowledge – that is, learning them for their own sake as knowledge organised in different subjects is intrinsically valuable and meant for the intellectual development of the mind (see Hirst, 1974; Peters, 1966) – students and pedagogic counsellors related the perceived intellectual and cognitive features of pathways to what they might lead to in the future in terms of academic achievement (i.e., instrumental value). They often focused, to various degrees, on how the learned skills and knowledge are used to achieve other ends like high grades, high attainment, qualifications, and university entry requirements. This last point can be linked back to the previous section (8.1.1) in that the economic value of subjects is related to their achievement value. The value that cognitive subjects hold primarily lies in their capacity to drive breakthrough and technological progress, as these factors are essential for economic growth (Gilead, 2017).

Additionally, the evidence in sections 4.1.1.3 and 7.1.2 shows that these subjects' features (i.e. comprehension, difficulty, depth and breadth) were perceived as inherent to the subjects with no doubt that these might be, at least to some extent, either dependent on students' abilities and motivation or a result of government policies, school authorities, or teaching methods, etc. For example, the majority of participants argued that the science pathway was more difficult than the literary pathway due to the nature of these subjects. Very few participants, who often tended to perceive the science pathway as just as valuable as the literary pathway, argued that these feature are not related to the subjects themselves but more about how educational pathways are structured and assessed. For example, Rukaya was one of the few students who recognised that the difference between the science and literary pathway in terms of the '*easy–difficult distinction*' does not decide which pathway possesses higher value. She even argued that that sciences (science pathway) and humanities (literary pathway) are both difficult as fields of study or branches of knowledge. She added that the literary pathway is marginalised mainly due to its easy assessments in comparison with the science pathway. The way in which subject content is designed, delivered and assessed affected students conceptions of the educational pathway. Her statement may call for the authorities to pay attention to the curriculum because it reflects how educational authorities

design the curriculum of each pathway differently so that they fall into the description of easy and difficult. Similarly, Shiraz made a distinction between difficulty as a personal capability and difficulty as inherent in the subjects. She stated that she found the science pathway was more difficult than the literary, based on her abilities. She also argued that while others view the science pathway as more difficult than the literary, she believed that both pathways are difficult in their own ways. Shiraz argued that both pathways were difficult, and the level of difficulty did not determine which pathway was more important as it is relative depending on individuals' varied abilities. However, the accounts by many other students like Fares, Karima and Nabila – and even by two pedagogic counsellors, Nasira and Sameh – were clear that these pathways' differences are inherent in these subjects rather than other possible reasons like designed school assessments or government policies or just being dependent on students' capabilities. Another example to explain this point is to refer to the memorisation-comprehension distinction. There is a general consensus among most of the participants that the science pathway is based on comprehension and the literary on memorisation. Participants described this distinction in terms of the nature of pathways' content learning process, meaning how subjects are learnt by students and how they are assessed. Many participants accorded lower value to the literary pathway because of its dependency on memorisation and higher value to the science pathway because of its dependency of comprehension. Interestingly, many students viewed these features as inherent to the subjects, and not due perhaps to the way these subjects are assessed and delivered.

Many educationalists (Bleazby, 2015; Goodson, 1983, 1985; Kelly, 2004) criticise the idea of equating knowledge with certainty. They concluded the way knowledge is differentiated either in terms of cognition or the socio-historical factors of a given context rather than inherent in the very logic of knowledge (Taylor and Richards, 1985). The argument that equates knowledge with certainty is consistent with claims that elite curriculum content is abstract and theoretical, while low status content is associated with concreteness, the body and practicality (Goodson, 1983, 1985). This unproblematic and unquestioning view of curriculum content overlooks that we are dealing with ideologies bound by certain parameters and contexts rather than eternal and absolute truths (Kelly, 1999, 2008). According to this view, knowledge is perceived as the dynamic product of inquiries into concrete social problems; inquiry is not seen as an abstract, disembodied process, but as a

transformative interaction with one's social-cultural environment. Thus, knowledge is contextual, applied and fallible. This epistemology entails a curriculum grounded in authentic social problems that provoke students to integrate diverse disciplinary knowledge. Such a curriculum overcomes the inadequacies of other alternatives to the traditional curriculum hierarchy (Bleazby, 2015, p.3).

8.1.2.1 Moving from subjects' achievement value to students' attainment and ability

The language used by participants to reflect on pathways' subjects in terms of achievement value did not only shapes views around pathways but also shapes views around individual attainment and abilities. The perception that the science pathway is difficult, comprehension-based, etc. implies that it demands a high level of attainment and ability, which leads to the assumption that only students with higher abilities choose it and can excel in it. On the other hand, the literary pathway is seen as easier, making it more suitable for students with lower abilities. This belief has led people to associate the literary pathway with students who have lower levels of attainment and abilities. In this regard, all participants seemed to equate attainment with ability. Eisner (2002, p.2) argues that *'when we define intelligence as the ability to deal with abstraction and identify abstraction solely with the ability to use words and numbers, we impose on schools standards that reflect those conceptions and, thereby, limit other possibilities'*. In the context of this study, intelligence is defined by the majority of participants in terms of *'scientific aptitude'*. For example, Karima and Fares were among the most vocal students who argued that intelligence was defined in terms of whether one was gifted with scientific thinking. Fares argued that due to the difficulty of science pathway subjects, one needs to be intelligent and able to achieve high grades. When asked if he meant that literary pathway subjects do not need a certain level of intelligence, he explained that *'science pathway subjects need a better form of intelligence'*. This statement shows a direct link to values through which Fares linked subject difficulty with intelligence, explaining the common belief that students with higher abilities and better attainment in scientific subjects choose the science pathway.

8.2 Institutional and social structure constructing and sustaining a narrative of pathways' relative values

Contribution 2: Students and pedagogic counsellors' perspectives on pathway values demonstrated that social and institutional structures construct and sustain a narrative of relative values between the science and literary pathways.

Research question two is about the factors that underpin educational pathway values. Chapters 5 and 7 presented how students and pedagogic counsellors reflected on the narrative of the institutional and social structures surrounding them and how these provided an insight into the factors that underpinned the values that participants' data generated, as well as feeding into the narrative of the pathways' relative values. This section is discussed through shedding light primarily on Bourdieu's theory of social reproduction.

Starting with the institutional structure, in Chapters 5 and 7, the findings with all participants (students and pedagogic counsellors) showed that students and pedagogic counsellors discussed the institutional practices around pathway streaming. In this regard, five main policies were discussed in relation to pathway streaming (five policies were discussed by pedagogic counsellors and three were discussed by students):

- Policy 1: Attainment and preference
- Policy 2: Overall attainment versus attainment within subject
- Policy 3: Top 10% students (pedagogic counsellors only)
- Policy 4: Pathway change
- Policy 5: Pathway allocation (pedagogic counsellors only)

All these five policies reflected on how attainment appeared to be a crucial concept in the national curriculum for secondary school education to satisfy other economic and achievement outcomes.

Speaking of the first policy, students and pedagogic counsellors generally explained that streaming distributes students to either the science or literary pathway based on their

attainment and preference (see sections 5.1 and 7.2.1). Based on participant discussions, the formal policy (as described by the participants) states that attainment and preference are important for pathway choice without prioritising one criterion over the other, and the formal policy mandates that attainment is calculated by comparing the grades of all science pathway subjects (maths, physics, chemistry and science) with the grades of all the literary pathway subjects (Arabic, foreign languages, history and geography) (see section 1.2.3). However, local policy as reported by pedagogic counsellors and students suggested the reverse. For instance, pedagogic counsellors tend to claim that these two criteria are important for streaming, and took into account students' preferences and their attainment when they carried out the process of streaming. However, in practice, the way they pass on these policies to students demonstrated a hidden hierarchy of these two criteria of choice. Attainment seemed to be the main criteria and could overtake students' preference (see sections 5.1 and 7.2.1). A simple example is the students who did not pass their fourth year national test (BEM). These students are given a second chance by the Ministry of National Education to pass and go to secondary school by calculating their fourth-year academic grades plus the national exam grade. If they get 10/20 or more, it is a pass (see section 1.1). The majority of students and pedagogic counsellors explained that these students either get streamed or choose to be streamed onto the literary pathway based on their attainment only. Therefore, if streaming is about counting the literary pathway-related subjects, one might wonder why this policy (attainment and preference) did not seem to be applied for these lower attaining students who did not pass their middle school national exam.

As for the second policy, students and pedagogic counsellors and student explained that streaming distributes students to either science or literary pathway based on their attainment and preference (see sections 7.2.1.1 and 5.1.1). Though there are some differences between how students and pedagogic counsellors expressed this policy, they overall made the point that streaming is based on students' attainment in the main subjects on each pathway, and not their overall attainment in all subjects: that is, students' overall grade of science pathway main subjects compared with their overall grade of literary pathway main subjects. Based on those main-subject results, students are then streamed to the science or literary pathway (see sections 7.2.1.2 and 5.1.1). Students' and pedagogic counsellors' accounts showed that streaming and pathway choice is often conducted by taking into account the overall

attainment of students and not their attainment within certain subjects, which revealed that streaming students onto educational pathways was a matter of looking at their overall attainment across all subjects (see sections 7.2.1.2 and 5.1.1). Going back to the same example of students who failed their BEM national exam, the narratives of the students and pedagogic counsellors showed that even if these students are given a second chance by the education system to pass their final exam, most of them are either streamed onto the literary pathway involuntarily or choose the literary pathway willingly themselves. The criteria of checking students' attainment within subjects did not seem to be applied in this particular situation. Both scenarios explain the existence of a preconceived idea in society that attaches low attainment to the literary pathway and higher attainment to the science.

This last point takes us to the third policy (the top 10% students). Pedagogic counsellors discussed that overall high attainers (top 10%) are the only students who always get their first choice. The 10 % of high-achieving students were streamed directly according to their preferences, and the criteria of attainment within subjects is not applied to these students (see section 7.2.1.3). This suggests that students who are high attainers in science pathway-related subjects and choose the literary pathway are allocated to that pathway. This formal policy (as stated by all participants) stands in contradiction to the dominant public discourse, which was clearly demonstrated in students' findings in particular, which states that low attainers are steered to the literary pathway.

These policies showed a distinction between formal/explicit policy and the details of policy enactment in practice, suggesting the existence of a disjunction between formal policy and local practice within schools. The interplay between the stakeholders outside and within schools determine the nature of the curriculum and its enacted character (Fensham, 2009, p.1). In this regard, Ryder and Banner identified three policy contexts: context of influence (e.g., the Ministry of National Education); context of text production (e.g., the ministry's official documents); and context of practice (e.g., local schools and school agents like teachers and pedagogic counsellors). Of the three levels of policy context, practice is more relevant to the participants of this study – and the pedagogic counsellors in particular. Ryder and Banner (2011, p.711) state that '*context of text production*' represents the hidden values of those interested groups, while '*context of practice*' refers to the areas that the policy applies to, where it is understood and then reinterpreted. This process involves engagement with policy

documents, and more commonly unofficial commentaries such as interpretive texts and media reports, that aim to make sense of these policy documents (Ryder and Banner, 2011). Ball et al. (2011) explore the process of '*doing*' enactment, which involves interpreting and translating policy in two ways. The first way, which we will focus on here, is through interpretation and translation. They define interpretation as engaging with the language of policy while translation is closely related to the language of practice. Social agents (i.e., pedagogic counsellors) interpret policy by decoding it and understanding its relevance within their social and cultural context. This leads to translation, which can be seen as a middle ground between policy and practice. It involves implementing institutional texts through various tactics like discussions and meetings (i.e., informative sessions that pedagogic counsellors carry out with students and parents) and these translations also hold value for the policy in question (Ball et al., 2011).

The formal policies (attainment and preference, overall attainment and attainment within subjects, and the top 10% students policy), though highly driven by attainment measurement, did not seem to prioritise the attainment in one pathway over the other. In practice, however, pedagogic counsellors' and students' accounts showed the opposite. They present a contrasting scenario in which the students with achievements and success are primarily directed towards the science pathway. The science pathway holds greater significance than the literary.

Moving away from the tension and disjunction between formal streaming policies (context of policy text production) and their enactment in secondary schools (context of practice), which has resulted in the construction of hierarchical pathways of values, some formal policies (pathway change policy and finally pathway allocation) are initiated by the Ministry of Education (see section 1.2.6) and discussed by students and pedagogic counsellors (see sections 5.1.2, 7.2.1.4 and 7.2.1.5).

Looking at this policy (see table 1.5 in section 1.2.7), the table demonstrated that students in the science pathway can change their pathway to the literary pathway, but literary pathway students cannot change their pathway to the science one. This policy continues to have implications for the higher education sector, as science pathway students have the option to move to literary pathway-related degrees but literary pathway students will not be able to take up science pathway-related degrees. The table did not provide any further justification

for this policy. As a result, in practice, policy actors like the pedagogic counsellors and students translated this policy in a way that gave it symbolic value and explained it in a way that it became a reproduced pattern of a narrative of relative values between the science and literary pathways. For instance, findings in sections 4.1.1 and 7.1 showed the pedagogic counsellor and students often discussed how the content of the science pathway was highly demanding and challenging. Therefore, they explained that the pathway-changing policy was created to justify why students in the science pathway can change their pathway to a less demanding stream. They referred too to the economic value of pathways, explaining that when students take up the science pathway in secondary school, the options to pursue other courses are wider than for students taking up the literary pathway. Literary pathway courses are only limited to humanities and the arts. The majority of the students often related the pathway change policy with economic and achievement values. Therefore, the science pathway was assigned a higher value than the literary.

Despite the tension between formal policies (issued by the Ministry of Education) and school practices in enacting some of the streaming policies, the pathway change policy is another practice that internalises the power of attainment as a key institutional factor in the streaming process through which a narrative of the pathways' relative values is constructed and sustained implicitly. These findings around streaming are compatible with the research using concept tracking, which suggest that institutional practices have a significant impact on the process of social reproduction (Archer et al., 2018; Bol et al., 2014; Reichelt et al., 2019). Tracking is defined as educational stratification, ability grouping or differentiation, referring to the practice of placing students in educational settings that are more similar in terms of their cognitive abilities (Bol et al., 2014; Reichelt et al., 2019). Tracking between educational programmes, instead of within programmes, however, show schools representing a more pronounced form of student separation (Reichelt et al., 2019, p. 5).

Using different terms, this study explores how the use of school streaming highlights the influence of education on reproduction. For instance, streaming, on the surface of it, is the practice of sorting students into two main study tracks, the science pathway and the literary pathway, based on their attainment and preferences to help students choose what is best for their future. However, digging underneath the surface shows that streaming tends to categorise pathways and students based on their overall academic attainment in all subjects,

with high attaining students (in all subjects) streamed to the science pathway and lower attaining students streamed to the literary (see sections 7.2.1.2 and 5.1.1).

A number of influential research studies have called for attention to be given to the tracking, describing it as inequitable and problematic for the majority of students. For instance, some studies (e.g., Francis et al., 2017) point out that tracking leads to labelling that has negative effects on students' confidence, etc. Other studies (e.g., Higgins et al., 2015) find out that tracking widens the gap between higher-ability and lower-ability students with the latter more liable to get poorer results. Some other studies (e.g., Archer et al., 2018) argue that this practice duplicates social inequalities.

Bourdieu's theory (1984, 1986) of social reproduction is useful in exploring the role of society and schools in shaping the relative pathway values within secondary schools in Algeria. Bourdieu's concepts of habitus, field and capital are powerful ways in which to understand the streaming policies in relation to the pathways' relative values, and the secondary school educational pathways represent an example of field in this context. Based on the previous findings, educational pathways are governed through a set of rules, norms and hierarchies that determine which pathway has more value. Educational pathways are symbolic arenas for social interaction in which students compete for various forms of capital. Therefore, capital can be described as the force underlying pathways. In this study, the pathway whose capital is more approved by the school, its agents and society is the science pathway, as it is that is related to high attainment, high entry requirements, economic prosperity and employability. All this contributes towards legitimising valuing the science pathway over the literary pathway. Habitus in the context of this study might be how streaming policies and social discourse have constructed the narrative of the pathways' relative values in more or less explicit ways, and how this narrative are reproduced. These three core concepts influence the pathway streaming process and curriculum assessment, structure and content in a way that acts to determine the different values placed on the science and literary pathways in terms of attainment, later university course access, educational routes qualifications etc.

The findings of this study can be explained using Bourdieu's concepts of pedagogic work and symbolic violence (Bourdieu and Passeron, 1990). Bourdieu argues that when education represents a form of symbolic violence this is because it involves the imposition of an arbitrary

set of symbols and constructs on students in the social space governed by the school (English and Bolton, 2015) (see section 2.3.2.4). The domination of science pathway over the literary pathway is presented by many of the participants of this study as natural, normal and inevitable (English and Bolton, 2015).

Similarly, findings showed that the pedagogic work undertaken within the field of educational pathways plays a key role in the exercise of symbolic violence because they impose arbitrary meanings regarding which pathway possess more value than the other in terms of how students are streamed (streaming policies around attainment practices, pathway change, and pathway allocation); how knowledge is presented, assessed, structured between pathways; and how future opportunities are divided between the two pathways. All these identify an important form of pedagogic work, which reinforced notions of the pathways' hierarchy and play a key role in reproducing the doxa of attainment, ability and the discourse of the variety of future opportunities. Streaming might be understood as an example of pedagogic work which is undertaken to achieve the pedagogic action of social reproduction, such that dominant power relations are reproduced and students come to '*know their place*' (Archer et al., 2018, p.8). For instance, data from students and pedagogic counsellors show higher-attaining students were often implicitly and explicitly steered towards the science pathway route and lower attaining students to the literary by the school agents and school authorities. School agents and practices engaged in convincing students either in implicit or explicit ways that the science pathway was the better choice for them. These forms of pedagogic work undertaken by schools hide power relations through a notion of meritocracy (Bourdieu and Passeron, 1990).

This ideas of common sense reasoning are also reproduced in the social structure. Data from the students and pedagogic counsellors referred to the public discourse around pathways that also feed into the narrative of institutional relative values. While students reflected on the discourse of many social agents such as parents, pedagogic counsellors, teachers and peers, and even media (see sections 5.2.1 and 5.2.2), pedagogic counsellors reflected on the social structure but primarily reported parents' values as a source of influence and the geographical location of the schools (see sections 7.2.2.1 and 7.2.2.2). Overall, different social agents such as parents, pedagogic counsellors, teachers and peers etc. fed into this narrative through reproducing a hierarchy of values separating the science and literary pathways. The

science pathway is perceived as an entitlement for higher achieving students and constructed as more prestigious path for a university course and career.

The social and institutional structure plays a significant role in shaping individuals' long-lasting social behaviours and attitudes (known as *habitus*), which influence their perception and engagement with the world (Archer et al., 2018). As a result, many students and some pedagogic counsellors took these imposed meanings for granted and perceived many of the streaming practices, and perceived pathway values as normal, natural and even intrinsic to the pathways themselves. For example, when pedagogic counsellors discussed the fifth policy of pathway allocation (see section 7.2.1.5), explaining that the Ministry of Education allocated more places to the science pathway than the literary pathway (70% for the science pathway, 30% for the literary), they were probed to reflect on the reasons behind this policy. The pedagogic counsellors vaguely explained that the disparity of the allocations to the two pathways was related to administrative factors, the popularity of the science pathway, and the number of sub pathways. For instance, Nasira, Amel and Sameh mentioned that the popularity of the science pathway with students attracted a higher demand among them. While these pedagogic counsellors related pathway allocation with student demands, Sameh related it to the number of science and literary-sub pathways pathways (see table 1.3, in section 1.1). It was, however, surprising that none of the pedagogic counsellors thought of any economic reasons for the higher seat allocation for the science pathway over the literary, and this might represent a concerted pedagogic action implicitly steering and channelling students into joining what is believed to be an inherently popular pathway. Similarly, some students would describe the science pathway as being a popular pathway and would relate that popularity to students' intrinsic interests and its intrinsic outcomes like job opportunities. Some students – notably science pathway students – often consider the science pathway to be a popular choice. They associate this popularity with students' intrinsic interest in the subject and inherent values in terms of knowledge and potential career opportunities. Asma was prompted to consider whether the popularity of the science pathway could be attributed to the governments assigning higher pathway allocations to the science pathway over the literary pathway. However, she refuted the possibility that this could be the reason, pointing out that if it were true then why would students be provided with orientation cards to jot down their

preferences. Other students like Karima argued that the Ministry of National Education increased the number of entries in the science pathway based on students' interests.

As a further example to support how symbolic power and violence in educational pathway practices occurred and influenced the pathways' relative values, findings in Chapters 4 and 7 that reported pathways values showed that the way students and even pedagogic counsellors used words to describe pathways, either consciously or subconsciously, fed into this narrative of relative values. They often looked at the science pathway as a pathway to go/move up to, and the literary pathway as a pathway to go/move down to. Some students, like Insaaf and Nouri, though they are literary pathway students and advocated for the value of the literary pathway, used these two terms frequently whenever they expressed the academic features of the science pathway. Those students who cannot keep 'up' can move 'down' to the literary pathway. These phrases, 'going up' and 'going down', imply a negative construction of the literary pathway and even literary pathway students, while also demonstrating the arbitrary hierarchy between the science and literary pathways that is reinforced through institutional policies around streaming (pedagogic action and authority) and social doxa. Streaming is explicitly and implicitly driven by the values of those in education and school authorities and is designed to ensure that privileged students can reproduce their privilege through access to a variety of educational opportunities, and these values are covered by the notion that streaming reflects students interests and natural ability differences which in turn legitimises the practice of streaming even further and inculcates the conception that students position is a product of their natural and innate abilities (Archer et al., 2018). Although pathways are social constructs based on one or more sets of what is valued and then accepted by the most powerful social agents within the educational field and may have nothing to do with what is true or good (English and Bolton, 2015), the legitimisation of the science pathway capital by students and pedagogic counsellors is perceived as residing in the actual content or form of the capital itself rather than in the process of legitimisation. Such legitimisation of symbolic power essentially legitimises the pathway hierarchies and permits the reproduction of existing structures and maintaining the status quo (English and Bolton, 2015; Skeggs, 2004).

8.3 Factors influencing students' exercise of agency in their choice narratives: pathways' relative values and students' negotiating different tensions

Contribution 3

Students exercised their agency through continuously negotiating a set of tensions that are embedded in the structural narrative of pathway relative values.

The findings in Chapter 4 demonstrated how relative values have been an important outcome of this research study when participants reflected on pathway values or streaming practices by rating one as more important than the other. In general, students (science pathway students, in particular) and pedagogic counsellors perceived the science pathway as more important than the literary. Sometimes, the relative values were expressed explicitly, and at other times, implicitly and even unconsciously. Science pathway students (except Rukaya) ascribed higher value to the science pathway over the literary, while some of them, like Karima and Fares, exhibited noticeable dichotomies in their perspectives as they considered pathways to be more different than similar. They believed that the science pathway was more valued than the literary, adopting a dismissive view of the literary pathway for the most part of their interviews. Other science students like Ryhem, Asma and Hadi engaged in more intertwined, complex and sometimes ambivalent accounts of the relative values of these pathways whereby the science pathway was perceived as more valued than the literary pathway or the science pathway might have a higher value than the literary pathway, but this latter was still of value for these students. All the literary pathway students (except Nabila and Dhikra) showed more blended perspectives in their descriptions of the pathways, believing the two pathways to have a more complementary and integrative relationship in which the science pathway was perceived as equal in value to the literary pathway.

Findings in Chapter 5 showed that the narrative around educational pathways values and relative values is widely constructed and maintained by the institutional and societal structure. Students' data illustrated varied degrees of awareness of relative values with their accounts demonstrating different positions in their views regarding different policies and

discourses, and the majority of science pathway students (Fares and Karima, in particular) were receptive and tolerant of the institutional and societal structure. They often did not recognise that the broader narrative suggested relative values for both science and literary pathways. Their views were embedded in it, and some of them did not show awareness of this ongoing discourse. However, the majority of literary pathway students showed high awareness of the dominant ongoing narrative of the pathways' relative values. They were articulate, and explicit about it, and even resisted it in their narratives. Although not all the students easily fit within this picture, this broad explanation of how participants were aware of this structural narrative, and how they dealt with it, provides an understanding of how they expressed their agency of choice. For this reason, findings in Chapter 6 presented how the dominant narrative of pathway values embedded in the institutional practices and social discourses set the scene for students to construct and reconstruct their choice narratives. Similar to the discussed empirical studies in section 2.4., students' data provided insights into how science pathway and literary pathway students expressed their agency differently through negotiating their choices narratives in an ongoing manner. Taking a holistic approach, students' pathway choices were contingent and messy, and students' agency of choice was continuously negotiated within their choice narratives. The findings in this study provide insights into how students' choices were more process-oriented with students making meaning for their choices through their emphasis on two central concepts: time (Holmegaard et al., 2015), and agency. Students on both pathways engaged in the meaning-making process by negotiating their choice retrospectively and prospectively (Holmegaard et al., 2015). Therefore, reflexivity in narratives plays a crucial role in shaping students' agency to act and make decisions. In this study, the notion of agency examined how literary pathway and science pathway students were agentic in constructing their choice narratives in relation to the institutional and social structures and values associated with the narrative psychology providing an analytical tool to unpack how the students constructed their narratives and made meaning out of them over time. In this case, agencies and choices were not isolated constructs but co-constructions between individuals, their surroundings and their relationships, and consequently, the study focused on individuals, their actions and their agency (Shanahan, 2009). Biesta and Tedder (2007) argue that *'agency is not achieved in a vacuum but always depends on the interplay of agentic orientations, resources, and wider contextual and structural factors'* (p.145).

Using narrative psychology (see sections 2.4.3. and 2.5), it was found that students negotiated the complexity of their experiences, engaging in a process of making meaning in the hope of reaching a coherent narrative. Meaning-making requires students to draw on the institutional and social context in which their narratives take place, and the students made meaning through negotiating a set of tensions and factors that were associated with the dominant narrative of the pathways' relative values, including interest, perceived abilities, educational practices, social relations and discourses around the parents' role in their choice process, job opportunities and pathway achievement culture (Chapter 6).

Section 6.1.1 demonstrated how interest and academic abilities dominated students' narratives of their pathway choice. These findings seemed to reason with the discussed research (e.g., Caspi et al., Lauerman et al., 2017; Herniskson and Bøe, 2013) in section 2.4.1, as the studies explored students' underlying choice processes at upper secondary and post-secondary levels in different fields and in subjects such STEM, maths and physics and showed how students often exercise their agency in more or less conscious ways by referring to their perceived academic ability and subjects or career interests. For example, Eccles et al. (1993, 2002) presented two components, '*expectation of success and subjective value*', as the central agency-related constructs express the idea that expectations of success and subjective values are constructs that students consider predominantly when they make an educational choice (Henriksen, 2015). Similarly, studies discussed in sections 2.4.2. and 2.4.3 discussed how students perceive the decision as something personal. Nevertheless, it is evident that their social context provided them with different sources to rely on, including information and expectations that shape their stories (Holmegaard, 2015). Empirical research (see section 2.4) demonstrated the structural construct that is very likely to influence students' choices, albeit potentially in ways that are less direct and less recognised by the students themselves (Henriksen, 2015).

Many studies (discussed in section 2.4.2) based on Bourdieu's approach (e.g., Archer et al., 2015, 2022; DeWitt et al., 2016; DeWitt and Archer, 2015) developed the concept of science capital as an analytic concept to understand students' choices and career aspirations in STEM. These studies found out that science capital comes from a variety of sources which include school, home and family outside school learning and the students' daily experiences (DeWitt et al., 2016; DeWitt and Archer, 2015). Children from families with greater access to scientific

resources, such as parents who work in science-related jobs or have scientific qualifications, appeared more likely to be interested in a future in science or planned to pursue at least one science (Archer et al., 2013, 2014; DeWitt et al., 2016). Students with greater aspirations in science tended to report more favourable parental attitudes towards science (DeWitt and Archer, 2015). Moreover, encouragement from an adult plays a key role in maintaining and developing students' aspirations in STEM (Archer et al., 2022). Showing similar findings to these socio-cultural studies, section 6.2.1 showed how the students' backgrounds greatly influenced their choices, as the majority of students' interest in their chosen pathway was driven by their families – their parents, in particular – who possessed qualifications or careers related to that pathway. Pedagogic counsellors' data confirmed this evidence (see section 7.2.2) explaining that that parents emerged from the data as contributing to students' choice narratives by transmitting their pathway-related resources (interest, values, educational and occupational backgrounds) and their influence, thereby affecting how students on both pathways formulate narratives around their choices. For example, four students on the science pathway (Ryhem, Rukaya, Fares and Karima) inherited their interest in the science pathway from their families. Similarly, five of the literary pathway students inherited their interest in the literary pathway from their families. It was noticed that the more educated the parents were, or if they had a university degree, the more they tended to transmit their resources to the students. (This is also discussed in Chapter 7). Fares, Karima and Rukaya mentioned that the science pathway ran in their families, such as Fares's father being an engineer and his sister going to medical school. Fares's twin brother, who studied with him in the same classroom, was considering medical school too and Fares said that his family members followed the science pathway. The same point was also identified in Holmegaard (2015), who notes that the educational resources available in students' families influenced how they approached their narrative. Students from well-educated families mentioned that they felt a strong sense of obligation to pursue higher education. Their stories provided various examples of how their social connections gave them valuable insights into academic studies and career paths. However, their narratives also revealed that their parents had certain expectations for them to opt for prestigious higher education programmes. Conversely, students from less educated families did not feel compelled to choose a higher education programme. Holmegaard (2015) continues to argue that *'performing a proper choice must be balanced between negotiating, adjusting, and transforming individual interests*

to what is socially and culturally perceived to be a sensible career path' (p.1471). This study adds weight to this research. Findings showed that the majority of parents of science-pathway students were more inclined to value the science pathway (except Ryhem's). Therefore, students had to construct narratives in which their choices and interests were negotiate and validated by their parents. Their pathway choice should fit what is perceived to be the most valuable pathway, which was more the case in science pathway students' narrative (see section 6.2.1), and some of them had to renegotiate their narratives and reconstruct new narratives to make the choice sound meaningful and coherent. Unlike the science pathway students, parents of the literary pathway students attached equal values to both pathways (except Doria's father), which might explain why the majority of them did not experience as much tension in their narratives as the science pathway students. Although literary pathway students needed their choices to be supported by their parents, they did not need to keep negotiating their choices to fit what is socially and culturally believed to the most valued choice.

Continuing to discuss further tensions students included in their students construct their narratives and continuously make meaning out of them within social and institutional structures. Sections 6.2.2 and 6.2.3 demonstrated how institutional and social structures continued to act as a source of information that provided students with knowledge about which pathway was suitable in terms of the variety of access to jobs and whether students fitted in the culture of pathways achievement. Findings in section 6.2.2 showed how the instrumental value of pathways (i.e., job security and open access to varied university courses and careers) shaped students' choice narratives and the exercise of their agency. While science pathway students were more driven by extrinsic motivations, literary pathway students were more driven by intrinsic ones. In addition, some studies presented in section 6.2.3 highlighted the dominant discourse that science and STEM majors are only for '*the clever*', that they are demanding and challenging, and that in order to study science disciplines, students must believe they are 'clever'. This is evidenced in many studies (e.g., Archer and DeWitt, 2015; Archer et al., 2022) with the processes underlying the formation of 10- and 11-year-olds' engagement with science. Identity is understood as '*both embodied and performed constructions that are both produced agentically by individuals and shaped by their specific structural locations*' (Archer et al., 2010, p.619). Findings show some students' choices appear

incomprehensible and complex due to the predominant interplay of discourse on gender, class and race and around science and the identity of a scientist. For example, many students, even though interested in doing science, could not identify with the image of being scientists in the future due to constructing science as 'masculine', 'brainy' and 'hard'. These studies highlight that this is an image that many students, including high achievers, find it challenging to identify with. Thus, the discourse that '*science is challenging and for the clever*' prevents students of both genders and students from underrepresented groups from participating in science. For example, Archer et al. (2022) understand that one of the key reasons some students who studied advanced level chemistry at age 18 did not choose to pursue a undergraduate chemistry degree is the feeling they were 'not clever enough' and views associating chemistry jobs with masculinity. These findings are not necessarily surprising, as they also align with findings of this study that demonstrated that the science pathway culture is considered, to a large extent, as being for high-attaining and clever students, whom it provides with various job opportunities, while the literary pathway is recognised as being for less-able student and lower-attaining students, who are provided with a limited range of careers. However, regardless of students' levels of attainment, ability or the science pathway image of clever students, the students showed a tendency to follow the science pathway as a result of the dominant power of achievement value ascribed to the science pathway. The influence of socio-cultural capital, norms and stereotypical images concerning students pursuing the educational pathway affected students' negotiations of their agentic choices differently. Many science pathway students aspired to be on the science pathway to fit the socially valued image. This culture is not helpful for students to make a good choice that they feel is legitimised. This pattern was more noticeable among science pathways students who were not high-attaining students, like Asma and Hadi. These two science pathway students struggled the most to construct a narrative in which they recognised themselves and would be recognised by others as 'high-attaining students'.

Summing up, this study illustrated how pathway choices in Algerian secondary schools '*are regulated by social structures that are internalised and performed by the individual*' (Holmegaard, 2015, p.1474) with students constructing and negotiating their choices inter-subjectively. Their sense of agency did not just create itself without any influences, it rather needed to rely on established discourse and practices in relation to the pathways' relative

values. As a result of students negotiating different tensions, their sense of agency was differently expressed in their choice narratives. The more students were aware of the dominant discourse of relative values, and acted upon it, the more agency prevailed in their choice narratives. While most literary pathway students resisted the external structure (pathway discourse around job options, achievement value), most science pathway students confirmed to the structure. As a result, science pathway students' narrative was more embedded in the structural construct around them and was more conflicted than that of the literary pathway students because they were more influenced by the surrounding structure (parents' resources, available discourse around job, a smart identity, advice, streaming requirements, etc). Their narratives were seen to be more embedded in the social structure. As a result of this influence, science pathway students negotiated various conflicting interests and perceived abilities, and their interests were more extrinsic than intrinsic, which meant they struggled to reach a coherent story. In contrast, literary pathway students' narratives were less conflicted because they were less influenced by the surrounding structure. As a result, they negotiated a limited range of interests and perceived abilities that were related to the pathway they chose. Their interests were more intrinsic than extrinsic.

Chapter 9: Conclusion

This chapter examines how the findings from this study contribute to research into pathway values and student choices, including important implications for pathway structure and for their implementation at the level of local secondary schools, and suggests some methodological implications, directions for future research and limitations of this study.

9.1 Reflections

The finding chapters provided an insight into the structure of the education system in Algerian secondary schools through the eyes of students and pedagogic counsellors. This research showed how the curriculum in secondary schools in Algeria is highly structured, based on a strict demarcation of subjects and defined in terms of two pathways – the science pathway and the literary pathway – each defined in terms of subject content. While the science pathway core subjects are physics, chemistry, maths and biology, the literary pathway's core subjects are Arabic language, foreign languages, history and geography, according to the traditional understanding of curriculum based upon the long-standing idea of a “boxed set” of taken-for-granted, discrete school subjects’ (Reiss and White, 2013, p.67). This structure is similar to what many scholars (Biesta, 2009; Brighouse, 2006; Kelly, 2004; Reiss and White, 2013) call the conventional curriculum aims, which are organised within the specialist requirement of particular academic disciplines and the importance of which to education tends to be taken as read (Reiss and White, 2013).

Discussion of the traditional curriculum hierarchy and its various attributes is scattered throughout the educational literature (Bleazby, 2015, p.15), which discussed the subject-based approach of education, showing how two more perspectives are derived from it: the instrumental and intrinsic values. While both focus on the traditional structure of discrete subjects, the former emphasises the economic needs of society and the latter discusses the intrinsic value of the subject itself.

In this study, streaming policies, which are primarily focused on assessing achievement levels, were a vital factor for constructing participants' instrumental (economic and achievement) values. This research demonstrated that the aims associated with creating two pathways created tensions, with participants' data showing that the education policies provided the two pathways and suggesting this would create flexibility in meeting students' needs and interests. All the pedagogic counsellors stated that pathways are meant to satisfy students' needs and help them build their 'personal project'; however, in practice, these pathway choices follow on largely from students' attainments to achieve further instrumental aims. This heavy focus on measuring attainment creates an imbalance between instrumental and intrinsic values of education because subject assessments primarily aim to achieve economic gains at the expense of intrinsic values associated with one's self development and flourishing. Consequently, this leads to an emphasis on the pathways' relative values, with the science pathway being prioritised at the top of the hierarchy while the literary is given less importance. From this perspective, school subjects presented in the curriculum are only valued as far as they directly or tangentially increase anticipated economic productivity; the school subjects that are most likely not economically useful have no worth as an investment (Robeyns, 2006), and later qualifications in these subjects provide more opportunities in terms of social positions and career options (Biesta, 2009). As a result, the whole aim of education is being taken for granted and perceived as common sense, meaning the reproduction of inequalities continues through education (Bourdieu and Passeron, 1990).

Therefore, a question needs to be raised about where the individual sits in all of this. Reiss and White (2013) argue that the aim of schooling is not to merely acquire knowledge, or even to serve society's needs exclusively through economic means (Taylor and Richards, 1985; Walker and Soltis, 2004), but also to concentrate on the kind of person the student is becoming (Reiss and White, 2013) meaning that wants of students should be prioritised over the traditional curriculum that is based on school subjects. This means that the curriculum should be tailored to meet the individual needs and desires of students, rather than following a rigid structure of predefined subjects.

In this sense, they made a distinction between 'the conventional curriculum that is based on specialist requirements of particular disciplines' (Reiss and White, 2013, p.10) and the aims-based curriculum in which Reiss and White (2013) concentrate on students' wishes and

emphasise the importance of aims like autonomous, wholehearted and successful engagement in worthwhile subjects and experiences for personal flourishing (Reiss et al., 2011) similar to Biesta's (2009) third education aim, 'subjectification', which refers to the journey of students' becoming subjects and authors of their own lives. Similarly to Reiss and White (2013), Biesta (2009) argues that education is seen as a means to foster autonomy and encourage independent thought and action. Instead, subjectification is the least validated factor within our education system, which has shifted towards prioritising the measurement of what we value over valuing what we measure (Biesta, 2009). This is not to rule out aims for teaching school subjects and expanding knowledge, since in order to be autonomous, one needs a good understanding of the options available as well as of the social world within which one chooses one's goals (White, 2013). Knowledge is important as it is more important for schools to 'encourage students to connect knowledge and to see parts in relation to wholes', rather than in silos (Reiss and White, 2013, p. 42). However, knowledge is only one aim of education and not the only one.

As for the idea that the purpose of education is to prepare students for employment as members of society that will contribute not only to the overall well-being but also to their own well-being through their work, as individuals with autonomy students will eventually need to make decisions regarding the type of work they want to pursue. It is essential for schools to assist them in this process by providing information about a range of vocational options and the various pathways leading to them, along with their respective advantages and disadvantages (Reiss and White, 2013, p.19). However, it should be noted that preparing students for a working life is only one aim of education and not the only one.

Based on this reflection, the next section presents some implications for pathway structure and for their implementation at the level of the local secondary schools.

9.2 Practical implications

This section is focused on providing the main recommendations for policy and practice arising from this study.

Enhancing pathway popular culture discourse: This study's findings demonstrate that the science pathway culture is considered, to a large extent, as being for high-attaining students and clever students, whom it provides with various job opportunities, while the literary pathway is recognised as being for less-able student and lower-attaining students, providing a limited range of careers. This culture is not helpful for students to make a good choice that they feel is legitimised. Therefore, to bring back the balance between different school subjects, this study suggests that work should be undertaken to open up popular perceptions of the science and literary pathways to help students and key socialisers, such as parents, teachers and pedagogic counsellors, to experience and understand the literary and science pathway-related qualifications and careers not as pathways for higher- or low-attaining students or pathways that provide diverse or limited job opportunities, but rather as pathways 'for me' (Archer and DeWitt, 2015). In order to do that the following points can be taken into account.

More guidance for all students' educational choices: First, though the majority of students are driven by the pathways' perceived instrumental benefits, they know only little about the variety of the benefits both pathways can offer. The majority of participants in this study largely saw science pathway jobs only in terms of becoming medical doctors and pharmacists, and saw literary pathway jobs only in terms of teaching, law and languages, suggesting they had little awareness of the diverse types of jobs contained within these two fields of study. Educational institutions should increase families and students' awareness of more diverse routes through the pathways into higher education and provide more careers guidance for all students while in middle school about the implications of their future pathway choices. Surprisingly, the pedagogic counsellors often referred to the same limited number of professions in their interviews. Jamila was the only pedagogic counsellor who said that she would organise some sessions with students in which she would give students pamphlets about future careers and university programmes and discuss possible future careers in both pathways in order to broaden students' understanding of what options they have in the future. While this is an interesting initiative from Jamila, when she was asked to detail what professions and university programmes they would discuss, she mentioned the same careers (e.g., medicine, pharmacy, teaching and law). Students' and pedagogic counsellors' repertoire of career information regarding educational pathways can be described as limited, which

suggests that pedagogic counsellors might need specific training programmes to improve their career guidance knowledge and skills. This call for improvements in careers education has come from science education (Reiss and Mujtaba, 2017), suggesting that career guidance might include arranging career support sessions between pedagogic counsellors and students or maybe hosting guest speakers. Such initiatives might cultivate the institutional habitus to interrupt the patterns of hierarchism between the pathways.

Reforming subjects and pathways structure, content and assessment: Curriculum reformers may want to reconsider planning secondary school pathways' subject matter/content in order to make the literary (and science) pathways' subject matter more engaging, challenging and of more value to students. It was clear from the findings that students did not value the subject content, which they often mistook as the inherent nature of the subject, owing to the way educational pathways curricula are planned, designed and delivered.

Amending streaming policies: For more equitable educational opportunities among students, two policies, namely, the pathway change (Ministry of National Education) and university course change (Ministry of Higher Education) policies, should be abolished, bearing in mind that the choice process in this research is not a one-time decision but ongoing (section 9.3 explains this in more detail). Pathway change should be open for all, and students on both pathways should be given an equal opportunity to reconsider their choices.

If this policy is implemented, students will begin to gradually recognise that the literary pathway holds just as much value as the science one. This recommendation could signal to students and school authorities that the literary pathway is as important as the science pathway, and the criteria of streaming based on attainment and interest will start to make more sense as students, instead of running after the science pathway due to its privileges, engage instead in more reflective thinking before making a decision. Instead of being guided by external motivations (the open access the science pathway provides, following their peers, etc.), students would start considering their abilities, skills, interests, strengths and weaknesses. Findings showed that many students chose the science pathway because it would allow them to choose what they wanted later. Some showed a profound interest in many of the literary pathway-related subjects and careers, but they chose the science pathway to open up their horizons, among other reasons. As a starting point for change, implementing

a policy of 'pathway change open for all' would reduce the culture among students of following the crowd and enable them to make better decisions.

More equitable allocations for science and literary pathways in secondary schools: Another issue pedagogic counsellors discussed is pathway allocation, as they stated that 70% of places are allocated to the science pathway and 30% to the literary. Although the science pathway was already given more allocations, they still encounter difficulties in forming literary pathway classes as the demand for the science pathway among students seemed to surpass the 70% percentage allocated by the Ministry of National Education. Providing over half the allocation to the science pathway sends an implicit message to students and everyone else in the school that the science pathway is more needed, more in demand and therefore more important than the literary one. This had a counterproductive effect, as students will follow the crowd again and not be able to make a sound judgment over which pathway is best suited to them, which has been shown multiple times in their data. For example, Insaaf took the first year twice on the science pathway because she had made the wrong choice at first and followed her friend before coming back and changing to the literary pathway (Rukaya, Asma, Hadi and Fares). When they do follow the crowd, students will most likely take the wrong pathway. Later at university, they will go onto the literary pathway, as was reported by some pedagogic counsellors and students (Amel, Nabila).

Moving away from streaming: A more effective practice than balancing pathway allocations and amending the pathway change policy would be to stop the practice of streaming. It is a very long-standing practice in secondary schools in Algeria, but this study showed how channelling students into educational pathways is an ineffective approach of education. A number of influential studies have called for attention to be given to tracking, describing it as inequitable and problematic for the majority of students with some research (e.g., Francis et al., 2017) pointing out that tracking leads to labelling that has negative effects on students' confidence, etc. Other studies (e.g., Higgins et al., 2015) find that tracking widens the gap between higher-ability and lower ability-students, leaving the latter more liable to achieve poorer results, while other studies (e.g., Archer et al., 2018) argue that this practice duplicates social inequalities. Given the arbitrary allocation of values to pathways and projecting these values onto students (a majority of lower-attaining students in middle school end up on the literary pathway in secondary school), this study demonstrates how streaming acts as a

pedagogic framework that reflects the values of the Ministry of National Education and school authorities who are in power and reproduce the pathway and students hierarchies. Therefore, considering stopping this practice would be equitable and helpful for the students in question.

Raising awareness among parents regarding pathway choice: The role of parents in streaming students is vaguely addressed in the documents from the Ministry of National Education (2008, 2018): ‘students choose pathways according to their attainment and interest and by consulting their parents’. This undetailed description of the parents’ role in the students’ choices caused pedagogic counsellors issues when addressed the control parents had over the students’ choices. In this case, raising parents’ awareness reduces this pressure on pedagogic counsellors and possibly students. Moreover, during the informative sessions organised for parents, pedagogic counsellors can take the chance to explain to parents that the pathway choice should be the student’s responsibility and that their role as parents could be an asset if limited to support and advice only.

Include different stakeholders in making pathway choice: It is important that different stakeholders (pedagogic counsellors , students and teachers) are provided with a platform to share their voices and be active in the decision making regarding educational pathways. From the participants’ findings, the students and pedagogic counsellors showed many issues with the streaming to pathways, such as pedagogic counsellors raising many issues they faced with streaming students, including parental authority over students’ choices and pathway allocations.

Policy and practice: One wider problem is that these stakeholders lack a voice, which is caused by issues lying between policy and practice. Official policies should be aligned with how they are enacted by local schools, but there is a gap between the formal policy of the Ministry of National Education and enactment of this policy in local schools. Based on the data from pedagogic counsellors, the hierarchy of authority can be described as flowing from the Ministry of National Education at the top, via the Academy of Education and the guidance and counselling department to the local schools at the bottom. Pedagogic counsellors receive the ministry’s documents via the guidance and counselling department, which in turn receives orders from the Academy of Education.

One way to solve this issue is to establish an open discussion between different stakeholders, starting with policy-makers in the ministry through the pedagogic counsellors and teachers and ending with the students. The practices of the school authorities and pedagogic counsellors need to engage with the ministry's policies and vice versa. This is an important discussion that should include various stakeholders from different backgrounds in order to create a balance between the various curriculum aims (i.e., intrinsic and instrumental values). For example, some students reflected on some intrinsic pathway values, but this was overpowered by the economic and attainment demands of other more powerful stakeholders in the Ministry of National Education. Amel was the only pedagogic counsellor who openly recognised the need to acknowledge the existence of intrinsic aims in the curriculum.

9.3 Methodological implications

This study has significant implications for how we approach students' educational choices:

- This study support other studies whose methodological contribution involved employing longitudinal methodology along with narrative psychology, as this approach provides fresh perspectives on how we can understand the decision- making process around choosing what to study (see section 9.2). While the Eccles model and the rational studies of choice provide a valuable opportunity to recognise the range of factors influencing student choices, a crucial step in moving forward would be not just to tackle these various factors but also examine how they overlap and influence each other through longitudinal studies and narratives (Ryder et al., 2015). Choosing what to study does not rely on the student always wanting to do something but is an ongoing process (Holmegaard et al., 2014), and the theoretical viewpoints of narrative psychology highlight how students, to varying degrees, reconstructed their choice narratives over time and how the narratives of their pathway choices changed over time, including before and after important decision- making moments (Ryder et al., 2015). Therefore, secondary schools and university institutions should acknowledge that students' choice are continuous and that not all students have finalised their selections and provide equal opportunities for science and literary pathway students to rethink their choices.

- The European-Scandinavian approach to research views choice as a process that is performed, constructed and negotiated inter-subjectively in an ongoing manner, and the present study studied these ongoing processes, albeit conducted in a different cultural setting (Algerian secondary schools). This approach calls for a strong emphasis on future research to study these ongoing processes in other cultural and social settings that are similar to the Algeria's. For instance, pathways in the Algerian secondary school structure are close to those in many Arabic and North African countries.

9.4 Limitations of study

The original study research design was intended to take place in three schools (one urban, sub-urban and rural school) in order to present a variety of geographical areas. The researcher did manage to conduct fieldwork in the first two schools, but it was impossible to look at the rural school, as after the national lockdown due to COVID-19, the researcher had contact with only urban and sub-urban schools. Schools were closed until further notice, and there was no online teaching. Therefore, the researcher had to adapt to the imposed situation and consider only urban and sub-urban schools as part of the study.

This study was limited in terms of the participant sample, which was small. Participants could not be representative of all pedagogic counsellors and secondary school students. Therefore, no claims can be made involving generalisation in other contexts. Although similarities are likely to exist in other contexts where the secondary school structure is close to that of Algeria.

The participants in this study were students, teachers, parents and pedagogic counsellors, and the rationale of selecting participants from different backgrounds was to establish a comprehensive picture of how pathways are valued by different stakeholders (schools and society at large). However, due to time constraints, parent and teacher data were not included in this study.

9.5 Directions for future research

The findings of this study might serve as a platform for future research by exploring the following points:

- Further research can attempt to identify how secondary school curriculum documents on educational pathways represent and approach students' choice processes and streaming. The way educational pathways are structured is documented in the ministry's official documents and this might construct a particular view of reality, which might influence pathway values and student choices.
- Further research can explore what (relative) values other types of stakeholders (parents, teachers, policy-makers in the Ministry of National Education and Ministry of Higher Education) express concerning educational pathways in Algerian secondary schools.
- Given that the science and literary pathways branch out into sub pathways like maths, experimental science, economics and management (on the science pathway) or philosophy, literature and foreign languages (literary pathway), it is worth exploring what (relative) values are ascribed to them, especially since participants sometimes reflected on sub pathways during interviews.
- The study was conducted in two schools in a city in eastern Algeria that were different areas of the city (one urban, the other sub-urban). The findings of this study cannot be generalised across all secondary schools in Algeria, and further research might be conducted in other areas in the west, north and south of Algeria, and in schools with different characteristics (low- or high-attainment schools, rural schools).
- Although this study involved both male and female students, it did not address the question of the role gender may play with educational pathways, values and choice. Some pedagogic counsellors mentioned that streaming male students is different from with female students, explaining that male students did not tend to get their parents' signed approval, while female students did, and this caused many later misunderstandings with the parents of male students, in particular. Another point of difference between male and female students that pedagogic counsellors referred to

is that low-attaining male students were more likely to choose the literary pathway than low-attaining female students. The counsellors explained that even if low-attaining female students struggled with scientific subjects, they would still choose the science pathway and try to make up for their low attainment with effort.

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Appendices



School of Education

Appendix 1: Students' information sheet

Research Title: Values Ascribed to Subjects in Algerian Secondary Schools: Students' Experiences of Educational Pathway Choice

Who will conduct the research?

Souhila Kebassi, a doctoral researcher in Education at the University of Leeds, UK, and supervised by Professor Jim Ryder and Dr Lou Harvey at the University of Leeds.

What is the purpose of the project?

This study aims at exploring what values different stakeholders (pedagogic counsellors and students) hold in relation to secondary school pathways (science pathway and literary pathway), and how these values may shape students' choices.

Why have I been chosen?

I am recruiting 1st year secondary school students who are studying in the science pathway and literary pathway for at least three months. Your experiences are important for this study because you are the potential participants who have been and still engaging with school subjects and pathways and who may have developed an emotional experience in relation to the values assigned to different school subjects and educational pathways.

Do I have to take part?

The participation in this research is entirely voluntary, and it is up to you to decide whether to take part or not. Refusal to participate will never affect you in any way. If you decide to participate, you will be given an information sheet to keep and be asked to sign a consent form. If you choose to stop participation, they are free to withdraw.

What do I have to do?

Your participation in all research activities will be scheduled based on times convenient for you. You are going to participate in 2-3 interviews. All interviews will be from 1 h to 1:30h subject to your availability. If you decline to answer questions for any reason, you will not be penalised. You will be requesting your permission to audio-record. In addition, you will be asked if you are willing to be approached by email or phone number if you agree to participate so that meetings can be arranged.

Will I be recorded, and how will the recorded media be used?

If you approve of the idea that you are being audio-recorded, the collected data will be coded and analysed. The name of the school will be changed to a code, and your name will be changed to a pseudonym, which you may choose. The findings of the study will be presented in different national and international research publications, research reports and other relevant professionals.

What are the possible disadvantages and risks of taking part?

There are no potential risks that this study is likely to involve, but in order to prevent any risks of taking part, your personal data will be coded to ensure that security and confidentiality are maintained so that you cannot be recognised. The hard copies will be kept in a safe, locked place, and the electronic data will be stored in university servers, which are highly protected and secured.

What are the possible benefits of taking part?

There is no individual benefit but a collective benefit because this study will be read by academics from and beyond the UK who may have little knowledge about Algeria and the Algerian education system. Furthermore, the outcomes of this research will help different stakeholders in Algeria such as policy makers, pedagogic counsellors, and Teachers to improve upon the current national curriculum practices.

What will happen to the results of the research project?

This research study will appear in PhD thesis and may be later shared in academic communities through publications in research journals and presentations in conferences. The findings and research data of this research may be used in subsequent research projects.

Who is organising/ funding the research?

This research is funded by the Algerian Ministry of Higher Education and Scientific Research.

**Contact for further information**

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School of Education

Appendix 2: Pedagogic counsellors' information sheet

Research Title:

Values Ascribed to Subjects in Algerian Secondary Schools: Students' Experiences of Educational Pathway Choices

Who will conduct the research?

Souhila Kebassi, a doctoral researcher in Education at the University of Leeds, UK, and supervised by Professor Jim Ryder and Dr Lou Harvey at the University of Leeds.

What is the purpose of the project?

This study aims at exploring what values different stakeholders (pedagogic counsellors and students) hold in relation to secondary school pathways (science pathway and literary pathway), and how these values may shape students' choices.

Why have I been chosen?

I am recruiting pedagogical counsellors in secondary schools whose primary role in the school is to stream students to either the science pathway or literary pathway following a set of criteria for having interviews. Your participation is very important for this study as you are the potential participant who is aware of the nature of streaming in Algeria and the values ascribed to each pathway, and whose decisions regarding students' streaming may have an influential role on students' choices and even lifelong career path.

Do I have to take part?

The participation in this research is entirely voluntary, and it is up to you to decide whether to take part or not. Refusal to participate will never affect you in any way. If you decide to participate, you will be given an information sheet to keep and be asked to sign a consent form. If you choose to stop participation, they are free to withdraw.

What do I have to do? / What will happen to me if I take part?

Your participation in all research activities will be scheduled based on times convenient for you. You will participate in one interview, which will be around 1h to 1:30h, subject to your availability. If you decline to answer questions for any reason, you will not be penalised. You will be requesting your permission to audio-record. In addition, you will be asked if you are willing to be approached by email or phone number if you agree to participate so that meetings can be arranged.

Will I be recorded, and how will the recorded media be used?

If you approve of the idea that you are being audio-recorded, the collected data will be coded and analysed. The name of the school will be changed to a code, and your name will be changed to a pseudonym, which you may choose. The findings of the study will be presented in different national and international research publications, research reports and other relevant professionals.

What are the possible disadvantages and risks of taking part?

There are no potential risks that this study is likely to involve, but in order to prevent any risks of taking part, your personal data will be coded to ensure that security and confidentiality are maintained so that you cannot be recognised. The hard copies will be kept in a safe, locked place, and the electronic data will be stored in university servers, which are highly protected and secured.

What are the possible benefits of taking part?

There is no individual benefit but a collective benefit because this study will be read by academics from and beyond the UK who may have little knowledge about Algeria and the Algerian educational system. Furthermore, the outcomes of this research will help different stakeholders in Algeria, such as policymakers and teachers, to improve upon the current national curriculum practices.

What will happen to the results of the research project? This research study will appear in a PhD thesis, and may be later shared in academic communities through publications in research journals and presentations in conferences. The findings and research data of this research may be used in subsequent research projects.

Who is organising/ funding the research? This research is funded by the Algerian Ministry of Higher Education and Scientific Research.

**The Researcher's Contact for further information**

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Appendix 3: Informed consent form for participants

| | |
|--|---|
| <p>Consent to take part in: Investigating Regular Teachers' Attitudes towards the Reintegration of Learners with Learning Difficulties from Adaptive Units in the Algerian Context</p> | <p>Add your initials next to the statement if you agree</p> |
| <p>I confirm that I have read and understood the information sheet dated (00/00/0000) explaining the above research project and I have had the opportunity to ask questions about the project.</p> | |
| <p>I understand that my participation is voluntary and that I am free to withdraw at any time until a month after conducting the interview without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.</p> | |
| <p>I give permission for members of the research team to have access to my pseudonymised responses. I understand that my name and the name of the school where I work will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.</p> | |
| <p>I understand that my interview will be audio recorded.</p> | |
| <p>I agree to take part in the above research project and will inform the lead researcher should my contact details change during the project and, if necessary, afterwards.</p> | |



| | |
|-------------------------|-----------------|
| Name of participant | |
| Participant's signature | |
| Date | |
| Name of researcher | Souhila Kebassi |
| Signature | Souhila Kebassi |
| Date* | |

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/ pre-written script/ information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be kept with the project's main documents which must be kept in a secure location.

Appendix 4: Ethical approval

Dear Souhila

I am pleased to inform you that the above research ethics application has been reviewed by the AREA/FREC Committee and on behalf of the Chair, I can confirm a favourable ethical opinion with comments based on the documentation received at date of this email.

The comments are:

A favourable opinion is provided subject to the researcher complying with relevant University guidance regarding COVID-19. We note that currently the plan is to conduct face-to-face data collection, which may not now be possible, given the international pandemic. Attention must be paid to University of Leeds, UK government, and Algerian government, restrictions on travel, non-contact methods of data collection, health and safety and other local restrictions that may be in place. These restrictions may preclude the study taking place in its current form at this time, and a revised, non-contact, data-collection plan may be needed. In addition, the researcher needs to confirm (by email) that no-one under the age of 15 will be involved in the study.

Please retain this email as evidence of approval in your study file.

Please notify the committee if you intend to make any amendments to the original research as submitted and approved to date. This includes recruitment methodology; all changes must receive ethical approval prior to implementation. Please see <https://leeds365.sharepoint.com/sites/ResearchandInnovationService/SitePages/Amendments.aspx> or contact the Research Ethics Administrator for further information ethicstemp@leeds.ac.uk if required.

Ethics approval does not infer you have the right of access to any member of staff or student or documents and the premises of the University of Leeds. Nor does it imply any right of access to the premises of any other organisation, including clinical areas. The committee takes no responsibility for you gaining access to staff, students and/or premises prior to, during or following your research activities.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, risk assessments and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

I hope the study goes well.

Best wishes

Kaye

On behalf of Dr. Matthew Davis, Chair, Area Faculty Research Area Ethics Committee

Appendix 5: Students' interview guide

First interview

Streaming policy

- Could you tell me about the streaming policy in the Algeria? What do you think of it?
- Could you remember the first day when you were in your last year at middle school, and the pedagogic counsellor came to your classroom? How was it? what did they tell you about pathways' streaming?
- How did they advise you?
- What ideas, conceptions have you had about the two pathways before the pedagogic counsellor came to your class? Do you still have the same conceptions?
- How are those who retook their BEM test streamed? What pathway are they most streamed to? Why?
- Have you ever heard of experiences of others who were streamed to a pathway they did not want?
- Why do you think students, in science pathway, can change their pathway in 1st year to literary pathway, but it is not the other way around? Do you agree?

Second interview

Educational pathways' values

- How do you think school pathways are importance? How do you think science pathway and literary pathway are valued?
- How do pathways benefit the individual and the country?
- How is that changed at all since you were younger?
- What university courses and future careers science and literary pathway lead to in the future?
- What do you learn in the science/literary pathway curriculum?
 - What subjects are taught in each pathway?
 - What do you think about the content of the subject courses?

- Are there any subjects which are deliberately taught to in one pathway and not taught in the other pathway? What do you think of that?

Third interview

Students' pathway choices

- How did you come to be in the literary /science pathway?
- When did you first get interested in the literary/science pathway?
- Have you had a clear idea, back then, what pathway would you choose?
- What were you writing every time pedagogic counsellor came to your classroom asking you to write down your preference on the orientation card?
- Was it an easy decision for you to make?
- did anyone help you with your choice? Who helped you to decide on a pathway? Parents, teachers? How did they advise you?
- Would your parents support you if you chose another pathway?
- Tell me about your academic attainment, how much did you used to achieve in different school subjects?
- How competent do you feel as science/ literary pathway student?
- what can you tell me about your experience of being a literary/science pathway student?
- What career/ university course you would like to pursue in the future?
- How do you think studying science/ literary pathway is important to you and how would it help you achieve further goals in your life?

Appendix 6: Pedagogical counsellors' interview guide

Streaming process, and students choice

- Could you tell me about the streaming in the Algeria? What do you think of it?
- On what basis do you stream students either to the science pathway or the literary pathway
- How do you advice students to choose? If one of your students wants to change the pathway and asks for your advice, how do you help them?
- How often do you satisfy students' desires?
- How are those who retok their BEM test streamed? What pathway are they most streamed to?
- What do you think are the reasons that make students choose one pathway over the other?
- What role do parents play in students' pathway choice?
 - is parents' approval necessary for streaming students?
 - What do you do in case a parent wants a pathway and the student wants another pathway?
- What if a student wants to change their pathway? Are they allowed to do that?
 - Why do you think students, in science pathway, can change their pathway in 1st year to literary pathway, but it is not the other way around? what do you think about it?

Educational pathways' values

- How do you think school pathways are important? in what ways do you think science pathway and literary pathway are valued?
 - How do pathways benefit the individual and the country?
- What university courses and future careers science and literary pathway lead to in the future?
- Do you think that both students in both disciplines have the same educational access and later Job opportunities?

- What do students learn in the science/literary pathway curriculum?
 - What subjects are taught in each pathway?
 - What do you think about the content of the subject courses?
 - Are there any subjects which are deliberately taught to in one pathway and not taught in the other pathway? What do you think of that?

Appendix 7. Evidence of thematic analysis for research question one

The blue arrows in the picture denote the values of educational pathways presented in chapter 4; the content in the rest of the nodes were not found relevant in the analysis of this research question.

My Participants28 June 2022.nvp - NVivo 12 Plus

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Paste Cut Copy Merge Clipboard Properties Open Memo Link Create As Code Create As Cases Query Visualize Code Auto Code Range Code Uncode Class

Nodes

| Name | Files | References |
|---------------------------------------|-------|------------|
| VALUES | 0 | 0 |
| Individual benefit vs social benefits | 12 | 92 |
| Individual | 5 | 15 |
| Individual Intrinsic | 4 | 14 |
| social instrumental value | 12 | 60 |
| individual vs social | 4 | 9 |
| Jobs and University courses | 11 | 46 |
| Variety of Jobs understanding | 11 | 22 |
| prestige an social status | 10 | 41 |
| Job and attainmnet | 4 | 8 |
| income | 1 | 1 |
| Open vs Closed | 12 | 85 |
| Innovative vs outdated | 3 | 5 |
| Easy vs difficult | 12 | 96 |
| Memorising vs Understanding | 12 | 49 |
| Depth and breadth | 12 | 63 |
| Relative values | 12 | 122 |

Quick Access

- Files
- Memos
- Nodes

Data

- Files
 - Codes
 - My thoughts
 - Students
 - Students' codes des
- File Classifications
- Externals

Codes

- Nodes
- Sentiment
- Relationships
- Relationship Types

Cases

Notes

Appendix 8. Example of data categorised in the thematic analysis for research question two

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Quick Access

- Files
- Memos
- Nodes

Data

- Files
 - Codes
 - My thoughts
 - Students
 - Students' codes des
- File Classifications
- Externals

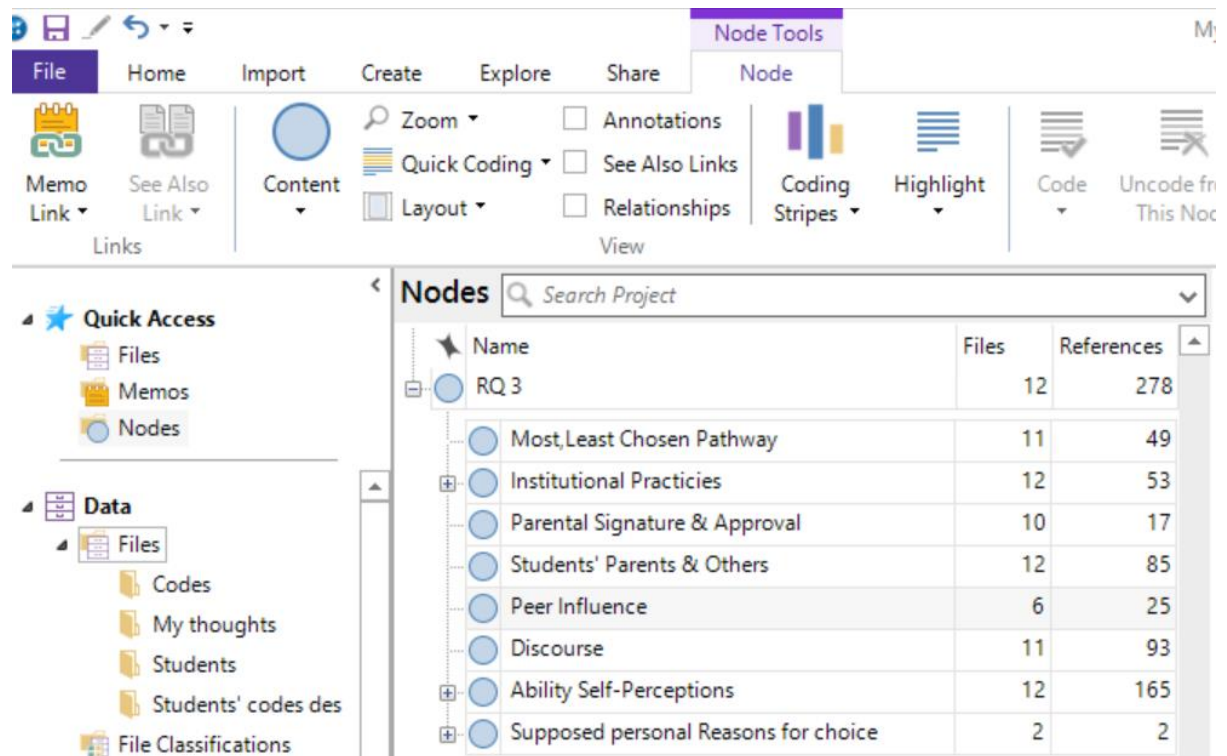
Codes

- Nodes

Nodes

| Name | Files | References |
|-------------------------------------|-------|------------|
| Streaming Process | | 12 73 |
| as a source of influence | | 11 58 |
| attainment-ability-clever vs stupid | | 10 24 |
| Jma3at Seconde | | 12 17 |
| 2 Policies | | 11 61 |
| INFLUENTIAL FACTORS OF VALUES | | 12 167 |
| Teachers | | 10 26 |
| extended family & peers & society | | 12 81 |
| Media | | 11 24 |
| Parents | | 10 23 |
| Allocation | | 11 17 |

Appendix 9. Example of Data Categorised in the Thematic Analysis for research question three



Nodes Search Project

| Name | Files | References |
|--------------------------------------|-------|------------|
| RQ 3 | 12 | 278 |
| Most,Least Chosen Pathway | 11 | 49 |
| Institutional Practices | 12 | 53 |
| Parental Signature & Approval | 10 | 17 |
| Students' Parents & Others | 12 | 85 |
| Peer Influence | 6 | 25 |
| Discourse | 11 | 93 |
| Ability Self-Perceptions | 12 | 165 |
| Supposed personal Reasons for choice | 2 | 2 |

Peer Influence | Discourse X

Files\Students\ذكري - 5 10 references coded [21.24% Coverage]

Reference 1 - 0.92% Coverage

انا كذلك: وش كنت تسمعي علي علوم واداب
 12:50ف
 به كنت نسمع بلي العلميين خير من الادبيين مالا حبيت ندير علوم بالشوي
 بالشوي لاحظت روي بلي ضعيفة في المواد العلمية قلت ترجع ادب خير و
 الحاجة الوحيدة لي مخيلتي الامل هي انجلي لوجيت ضعيفة في الاداب لكننت
 نبطل.....اداب وزيد ضعيفة ف لي لونغ وزيد العام الجاي ندير اداب و فلسفة

Reference 2 - 1.31% Coverage

انا:هكي عمذك مواهب في الكتابة
 27:30
 ذ: ضرك هدأت نفسياعندي مدة طويلة و انا مرتاحة مجايش التوترتاع
 علاه مدرتش علوم
 انا: وشي هم اللحظات هذو؟
 28:00ف
 ذ:خاصة كي نتواصل مع العلميين ...ويحكي علي وش راهم يقرأو...انا كي
 يقوقولي وش قريبيمعاذ بن جبل هذا ماكام
 انا: تجربة
 أيام هذو...قتلها كاش ما تقرأوا اعطياتي كتابها و قتالي انت وش راكي تقراي
 ا ماكالاه تشوفي الخرطي اعطيتها كتاب نتاع معاذ بن جبل قتالي هاك هاك
 هذو معندي ما ندير بيهم هذو قريناهم بكري

Reference 3 - 1.47% Coverage