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Language Policies in STEM Subjects: Triggering Inclusion, Exclusion, or Abjection?

Katja N. Andersen and Anette Bagger
University of Luxembourg and Örebro University, Sweden

Abstract

The combination of language policies, the global testing industry, and the role of STEM subjects in school systems have been shown to undermine the inclusion of all pupils, especially with regard to language backgrounds. This lack of inclusion shows signs of developing into a point of systematic exclusion for those students. In this article we will consider the language policies in two national contexts, the Swedish and the Luxembourgish ones, and specifically examine issues of in(ex)clusion in relation to multilingualism in STEM teaching. This study analyzes policy documents on (1) inclusion, (2) language use, and (3) STEM teaching at school in the two national contexts, using a methodology that builds on Popkewitz's (2013; 2014) approach to politics of schooling. Our results show, first, that different policies on language and multilingualism become visible in policy documents for primary school teaching in Sweden and Luxembourg. Secondly, this article discusses what impacts these policies may have on matters of inclusion, exclusion, or abjection in STEM teaching contexts at primary schools.

Keywords: language policy, multilingual learners, STEM subjects, discourse

Introduction

Language policies in educational systems have played an increasing role in the schooling of children and young people (Kirsch et al., 2020), which goes hand in hand with an increased movement of people between countries in recent decades and signs of segregate structures in societies. In educational research (Lundberg, 2018; Kirsch et al., 2020), multilingualism has been described as both a challenge for and goal of European education. The increased interest and urgency to form language policies can be identified as a key pillar for quality education, in which inclusion of marginalized groups is core to building sustainable societies.

STEM subjects have been known for carrying a risk of segregation and re-producing disadvantages. It has been shown that there is an impact of language on students' science learning and that the relationship between teacher-student language practices and their impact on science learning is of particular importance for multilingual learners (Andersen, 2018; 2022; Brown & Spang, 2008). This might, in part, be understood through how school and language policies in combination put certain demands on the multilingual

classrooms. Barwell (2018) concluded that more research on how tensions emerge and what they consist of is needed. Our paper explores this by analyzing policy documents at the intersection of inclusion of multilingual students, STEM subjects, and language policies.

We understand language policies as connected with how the multilingual student is "fabricated" and what prerequisites, opportunities, and conditions are attributed to multilingual learners. Hence, we pay attention to the politics of schooling (Popkewitz, 2013; 2014) in the context of multilingualism. We contribute to contemporary research about teaching and learning for multilingual students in the STEM subjects by exploring language policies in STEM in the Swedish and Luxembourgish school system. We accomplish this by analyzing how policy documents fabricate the multilingual student as a certain kind of student in the view of inclusion, exclusion, or abjection in the two respective countries.

In recent years, STEM subjects have played an important role in the field of education with regard to signs and outcomes of segregate tendencies. National (*Epreuves standardisées*, EpStan) and international (PISA, TIMMS) student assessments show a clear correlation between language background and school performance in STEM subjects. PISA results in Luxembourg have shown that students who speak French, Portuguese, or a Balkan language at home perform substantially worse in the PISA test than those who speak Luxembourgish or German at home (Ugen & Fischbach, 2017). These differences were found to be most dominant in science subjects. To provide some context to this analysis: in 2018, 55 % of 15-year-old pupils in Luxembourg had an immigrant background, up from 40 % in 2009 (SCRIPT, 2020) and that this is the largest increase observed amongst PISA-participating countries.

In regards of how the multilingual student is fabricated, specifically in STEM subjects, it can be noted that disability discourses often are dominant in descriptions of the students' knowledge. The students' languages are then talked about in terms of obstacles rather than strengths being pointed out (Kirsch et al., 2020) and the multilingual student is identified as disadvantaged and is made invisible with regard to STEM competencies (cf. Brown & Spang, 2007; Creagh, 2016; Moscovich, 2007). It therefore is of great importance to understand and explore further how the educational policy regarding language and fabrications in policy of the multilingual student appears in national documents.

Theoretical Underpinnings: Defining Inclusion, Exclusion, and Abjection

Educational systems of today have at a high degree taken on a neoliberal approach to educational quality with comparison, competition, and choice as high held values and goals implying educational policies and practices. In this framework, there are tensions and contradictions towards democratic values and the goals of educational inclusion (Smith, 2018). In fact, inclusion is related to political understandings and attitudes towards the welfare state and at the same time to market-oriented ideals (Magnússon, 2019). This indicates that teachers and school's policy enactment will have to handle and relate to two colliding systems of thought simultaneously (Ball et al., 2012). Inclusion, as expressed in policy and practice, thereby becomes both an indicator and a regulator of ideas, beliefs, and value systems (Ballard, 2013). To systematically analyze and unravel these value systems and beliefs is core in order to really promote inclusion, in our case of multilingual students in STEM subjects:

> *The processes of inclusion and exclusion reflect ideas about how the world is to be seen and understood, about who is to be attended to and who ignored, and about how institutions are to be organized. Change towards more inclusive and socially just arrangements requires serious interrogation of the ideas informing policy and practice and critical analysis of the cultural beliefs and values from which ideas derive their influence and power* (Ballard, 2013, p. 762).

In our attempt to explore these ideas of inclusion and exclusion, we derive from Popkewitz's (2013; 2014) theories on the politics of schooling and fabrication of kinds of people through processes of in(ex)clusion and abjection. "Fabrication" we define in accordance with Popkewitz as the attributing of prerequisites, criteria, and opportunities ascribed to certain kinds of people. These in turn express the hope, thinking of, and possible actions and approaches connected to these fabricated kinds of people. Our definition of inclusion, exclusion, and abjection builds on Popkewitz's (2013; 2014) approach on the politics of schooling that views inclusion and exclusion as "double gestures in policy and education sciences" (Popkewitz, 2009, p. 531). We derive from an understanding of policy texts as simultaneously making sense of, manufacturing of, and imagining reality and as representations of truth, knowledge, and power (Foucault, 1994; Popkewitz, 2014). The documents are understood as (re-)producing norms that function to include social groups while others are absent by omission (Hacking, 1999; Popkewitz, 2013; Valero, 2017). This paper will unravel such in(ex)clusion and abjection understandings, aiming to examine laws and regulations on language use in STEM subjects in Sweden and Luxembourg for indications regarding the discourse on in(ex)clusion.

In our analysis, policy texts are understood as inscription devices that attribute terms, possibilities, and characteristics to different kinds of people (Hacking, 1999). How multilingual students are represented in policy documents is explored here through current processes of in(ex)clusion that govern what is desirable and possible (or not) for the fabricated kind of student (Valero, 2017). This implies considerations of abjection.

> *Abjection is the way in which exclusion is generated as the effect of defining the norms for inclusion, and the hope for those who are at the margins of the norm* (Valero, 2017, p. 117).

In summary, the theoretical foundations indicate that the policy documents that govern education in the STEM subjects for the multilingual student are shaped by societal, political, and historical discourses on inclusion. In this context, expressions, terms, or definitions relating to, for example, background, language, and inclusion are understood as demarcations, exclusions, and inclusions of the multilingual student with a language separate from the language of instruction.

Research Question, Sampling, and Methods

Based on the above considerations, the following research question is formulated: What kinds of language policies appear in STEM subjects and what processes of inclusion, exclusion, and abjection does this enhance? This research question was analyzed based on policy texts on language use in STEM subjects in Swedish and Luxembourgish primary school. We explored the way in which language policies appear in STEM subjects and vice versa, and what processes of inclusion, exclusion, and abjection this represents or might enhance. Hence, the sample consists of policy documents that either address

(1) the inclusion of children at school, (2) the language use in teaching contexts at school; or (3) learning and teaching in STEM subjects. By selecting policy documents from these three perspectives – inclusion, language, STEM –, we assure a multiperspective view on the political of schooling.

The analysis builds on Popkewtiz's (2013; 2014) approach on the politics of schooling and was two-fold. We started with a qualitative content analysis of a selected body of segments of texts (see Tab. 1) resulting in themes. During this phase, segments were selected and coded regarding expressions of inclusion, language, and students addressed. Segments were given descriptive headings that were then compared and compiled into themes (Creswell, 2007; Feucht & Bendixen, 2010). This was followed by a discursive and interpretative reading of the themes with regard to in(ex)clusion processes and abjections, resulting in the demarcation of how the multilingual student was fabricated through the attribution of characteristics, terms, and opportunities (Popkewitz, 2012; Valero, 2017). Hence, segments that included the depiction of terms, possibilities, and characteristics of the multilingual student in the STEM subjects were selected in a first step[1] before the selected segments were interpreted with regard to inclusion, exclusion, and abjection of the multilingual student. In this second step, the terms, possibilities, and characteristics of the multilingual student were explored in regards of what inclusions, exclusions, and abjections this represented.

Table 1

Selected Policy Documents From Sweden (Swe) and Luxembourg (Lux) for Analysis

Document's Name	Editor(s)	Year	Country	Selected Sections
Act on National Minorities and Minority Languages (SFS 2009: 724)	Ministry of Culture	2009	Swe	Entire document
Action plan for implementing the UN Convention on the Rights of Persons with Disabilities	Le Gouvernement du Grand-Duché de Luxembourg	2012	Lux	Entire document
Education Policy Outlook – Luxembourg	OECD	2016	Lux	Sections on "Equality and quality", "Preparing students for the future"
Frühe mehrsprachige Bildung [Early multilingual Education]	Ministère de l'Éducation nationale, de l'Enfance et de la Jeunesse	2017	Lux	Sections on "Frühe mehrsprachige Bildung in der Luxemburger Kindertagesbetreuung"
Language policy – Athénée de Luxembourg	Grand-Duché de Luxembourg		Lux	Entire document
Plan d' études – école fondamentale	Ministère de l'Éducation nationale et de la Formation professionnelle	2011	Lux	Sections on *Éveil aux sciences* (natural sciences), mathematics, languages (Luxembourgish, German, French, alphabetisation)

See next page for continuation of table

Continuation of Table 1

The Act on the Rights of the Child (SFS, 2018: 1197)	Ministry of Health and Social Affairs	2018	Swe	Entire document
The curricula for compulsory school, preschool class and school-age educare 2022 (Lgr22)	Swedish National Agency for Education	2022	Swe	Sections on mathematics, science, minority language, and first language other than Swedish
The curricula for Sámi school, preschool class and school-age educare 2022 (Lasam22)	Swedish National Agency for Education	2022	Swe	Sections on mathematics, science, minority language, and first language other than Swedish
The Discrimination Act (SFS, 2008: 567)	Ministry of Employment	2008	Swe	Entire document
The Education Act (SFS, 2010: 800)	Ministry of Education	2010	Swe	Sections on support for learning, student guidance on mother tongue, education of newly arrived students, and Sámi school
The Language Act (SFS, 2009: 600)	Ministry of Culture	2009	Swe	Entire document
The Luxembourg Education System	Ministère de l'Éducation nationale, de l'Enfance et de la Jeunesse	2020	Lux	Sections on "A global approach to the child", "Reducing social inequalities", "Multilingualism – an opportunity and a challenge", "Different schools suited to different pupils"
Une Stratégie pour Promouvoir la Langue Luxembourgeoise	Le Gouvernement du Grand-Duché de Luxembourg	2017	Lux	Entire document

The Politics of Schooling in Luxembourg and Sweden

The rationale for selecting the countries of Sweden and Luxembourg builds on four aspects. Firstly, since Sweden and Luxembourg are two countries with a high degree of multilingualism in society as well as in the school system (25 % in Sweden; more than 90 % in Luxembourg), these two countries offer good opportunities to examine policies on inclusion in STEM subjects with regard to multilingual students. For example, with the introduction of the Multilingual Education Program in 2017 (*Éducation Plurilingue*), Luxembourg set framework guidelines for education that are explicitly geared towards multilingualism (LUCET & SCRIPT, 2021). Secondly, both Sweden and Luxembourg are chosen as the research context, since in both countries inclusion in mainstream schools implies an explicit focus on (multi)lingualism. Thirdly, Sweden and Luxembourg are characterized by an increasing number of students with a migration background from different countries of origin (OECD, 2019), which means that a high potential for published policy texts can be assumed in both countries. Fourth, both countries have accepted Ukrainian refugees into regular schools, and it is of interest for our research to what extent policy texts have already been published on the inclusion of these students and what role the aspects of language and STEM play in this.

Swedish Approaches to Inclusion

On an organizational level, three discourses can be identified in the public debate: (1) Inclusion as placement, (2) inclusion as an economical strategy, and (3) inclusion as a pedagogical strategy or a matter of competence. On a societal level, the two discourses were: Inclusion as (a hindrance on) the road towards citizenship and rights, and inclusion as an ideology (Bagger & Lillvist, 2021). Equity in the educational system has dropped in the two latest PISA evaluations, and among the Nordic countries, Sweden has the biggest segregation between schools (National Agency for Education, 2019). The reason behind these segregate tendencies has been reinforced by a neoliberal policy which emphasizes comparison, competition, outcome, and choice. This contributes to the homogenizing of groups of students, and following from that, to segregation, injustice, and inequity (Blossing, Imsen, & Moos, 2014; Blossing & Söderström, 2014; Yang Hansen & Gustafsson, 2016). Policy work to counteract this situation and to improve results and equity has been implemented in different ways. Included is a forthcoming decision in the governing of the school for students with intellectual disabilities.

In Sweden, inclusion in general has been a central goal and concept in education, something that derives from the Salamanca Declaration (UNESCO, 1994). Other international documents have also had an impact on Swedish education policy regarding inclusion as, for example, the United Nations' convention's Rights of Persons with Disabilities, Human Rights, and the Rights of the Child (Governmental Offices, 2011). The latter was established as a Swedish law from January 2020 (SFS, 2018: 1197). Examples of national core documents for inclusion are the *Skolans inre arbete* (The inner work of school; SIA) inquiry from the 1970s (Swedish government, 1975), which was an evaluation of the inner work of schools. This impacted the curriculum issued in the 1980s (Skolöverstyrelsen, 1980), and following this, the inclusive approach towards all students' learning was introduced. The proposition from "patient to citizen" (Swedish government, 2000) also reinforced the vision to include all individuals as agents and meaningful participants in society and in their learning. The right to access education and to be treated equally and fairly is also protected by the Discrimination Act (SOU, 2008: 567). Hence, some of the core and current governing documents on inclusion are the School Act (SFS, 2010: 800), the Discrimination Act, and the curricula.

Multilingual students with other first language than the official language, which is Swedish, might refer to students with foreign backgrounds and as having a mother tongue, alternative stronger school language, or as students that belong to any of the national minorities. If the latter is the case, the student will have a special right to their first-language since official languages include Sámi, Meänkieli, Finnish, Yiddish, and Romani Chib. Therefore, issues of language and educational policies on inclusion might for these students be inscribed in the schools governing documents such as the school act, the curricula for compulsory school and Sámi compulsory school, policy on children's rights, documents regarding language, or documents regarding national minorities and minority languages.

Luxembourgish Approaches to Inclusion

A cross-curricular concern is the intensification of inclusive efforts in the education sector in Luxembourg. Following Luxembourg's ratification of the Convention on the Rights of Persons with Disabilities (UN-BRK) in 2011, many measures and provisions

have been gradually introduced and implemented in the education sector. In 2017, the introduction of the competence centers in specialized psychopedagogy was a key step in the promotion of inclusion in the Luxembourgish education system. The centers of competence carry out a diagnosis of each student reported to them, provide assistance in class, and offer temporary or permanent attendance in a class in the center (MENJE, 2019).

Looking back over the past ten years, it can be said that the measures described in the Luxembourg government's action plan for implementing the UN Convention on the Rights of Persons with Disabilities (Le Gouvernement du Grand-Duché de Luxembourg, 2012) have been largely implemented. The inclusive approach which allows children with specific needs to follow regular classes of the primary education is enshrined in a law from 1994. In May 2017, a new law reorganized the care of children with special needs (Le Gouvernement du Grand-Duché de Luxembourg, 2017).

This law specifies that each cycle can be extended by 1 year in case of learning difficulties. If it turns out that a pupil is unable to reach the competency base in 2 years, an adapted program spread over 3 years is established by the teaching team. In this case, it is not a repetition as such, but students receive an education adapted to their needs. However, this leads to an increasing number of students that show a slower progress (MENJE, 2019). As a strategy to reduce these numbers, the multilingual education program was introduced in Luxembourg in 2017.

Hence, the core policy papers with reference to inclusion and/or multilingualism in the education sector are the policy documents Frühe mehrsprachige Bildung (early multilingual education) and The Luxembourg Education System, both from the Ministry of National Education, Childhood and Youth (MENJE) and the policy paper Une Stratégie pour Promotouir la Langue Luxembourgeoise (A strategy to promote the Luxembourgish language) by Le Gouvernement du Grand-Duché de Luxembourg.

Findings Based on Thematic Content Analysis

None of the policy documents analyzed in this research mentioned multilingual students and STEM subjects at the same time. Segments of texts specifically on inclusion and students' language or linguistic aspects of mathematics and science were initially selected. These segments were given descriptive headings that were then compared and compiled into the following six themes.

Theme 1: Rights to or through language

In this theme, human rights could be understood as underlying values in the other policy documents, as for example in Article 2 in the Act on the Rights of the Child: "States Parties shall respect and ensure the rights set forth in the present Convention to each child within their jurisdiction without discrimination of any kind, irrespective of the child's or his or her parent's or legal guardian's race, color, sex, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status" (own translation). This is not mirrored in the Swedish Discrimination Act (SFS, 2008, p. 567), which does not state language as a criterion of discrimination but rather "gender, transgender identity or expression, ethnic affiliation, religion or other belief, disability, sexual orientation or age". We find it interesting to not find language listed among the criteria for non-discrimination actions and policies. Language can be

understood as connected to the right to express opinions in matters that concern children in the convention in Article 12, depending on what this legally means. A generous interpretation would be that in order to express meanings and opinions freely, a child must have access to a language. The same could be the case for Article 28 and the right to education, as education cannot take place without a solid language. Article 29 also points towards the right to be respected for the child's own language among others. Finally, in Article 30, children belonging to minority groups are guaranteed the right to use their own language. In Sweden, Sámi children are one of the minority groups. However, in the Act on the Rights of the Child, multilingual or other labels are not put on the child.

If a child belongs to any of the national minorities, the right to not be discriminated might not be granted due to language but is rather connected to ethnicity in the Swedish Discrimination Act (SFS, 2008, p. 567). On the other hand, the right to language is core in the Swedish Act on National Minorities and Minority Languages and Language Act. It is also emphasized in the Swedish School Act, but in this document, the child is labeled as having a mother tongue. Students with mother tongues other than Swedish are to be granted "opportunities to develop both the Swedish language and their mother tongue" in pre-school. When instead reading what is granted the compulsory school student in the School Act, this right is granted only under certain circumstances: the language must be spoken at home and the student needs to already have basic skills in that language. In addition, there must be a certain number of students who need training in the same language in order for this right to mother tongue development to be fulfilled.

Theme 2: Language as prerequisites for learning

When instead turning towards the curricula of the Swedish school, the parts on pre-school and primary-school class label children as having a "mother tongue" which is important to stimulate and derive from in learning. When it comes to older children, school year 1 and above, mother tongue is only mentioned in relation to course description of the subject mother tongue. Otherwise, these students are labeled as bilingual when mentioned in the content of courses on minority language, Swedish as a second language, English, Modern languages, and sign language. Bilingualism is not mentioned in the STEM-subjects course descriptions or in the one on Swedish as a subject. Language is generally talked about as part of students' prerequisites for learning; the school's task is to foster each child's learning and development of knowledge assuming these prerequisites and needs, in which language is included. The curriculum for Sámi schools explicitly describes that the students should be given the skills to speak, read, and write in Sámi, and to become functionally bi-lingual. Furthermore, language is described as being linked to identity development and learning and is said to provide access to conversation and written communication. This is also intended to give student confidence in their language skills. Indirectly, language can therefore be understood as the basis for developing the skills that the curricula depict, although the term "mother tongue" is the label used. In both science and mathematics, communication, applying, reflecting on and understanding concepts, models and problems is generally highlighted. Furthermore, teachers have the explicit assignment "to organize and carry out the work in such a way that students are supported in their linguistic and communicative development" (own translation), which also concerns mathematics and science. Here, school libraries are supposed to be a part of the language development support.

Theme 3: Rights to develop and learn towards the standards

In the Swedish School Act, the inclusion of learning connected to language is stipulated through a focus on the development in the mother tongue, Swedish as a second language, minority language, sign language, or Swedish. Inclusive learning is here rather understood as something that is monitored as part of national assessments in mathematics in the first years of school, as well as in science in the sixth and ninth grade. Obstacles in learning can also be identified by parents or teachers and if they are, action needs to be taken by the school to ensure progress towards the goals. The right to develop and achieve standards is explicitly emphasized for newly arrived students in the Swedish School Act and means of ensuring this can be preparatory classes, a prioritized curriculum in which the Swedish language is given more time, or an adapted curriculum in which efforts are made on subjects required for access to secondary school.

Theme 4: Home language(s) as an indicator for educational inequality

Based on the statement that students who speak neither Luxembourgish nor German at home face greater educational inequality in the Luxembourg school system, the *Education Policy Outlook* (OECD, 2016) formulates the requirement that Luxembourg should counteract segregation with regard to "immigrant or socio-economic status or language spoken at home" (p. 7). On the one hand, it can be stated that segregation is expressly seen in connection with the family language and at the same time countermeasures are called for. However, no concrete measures are mentioned in the *Educational Policy Outlook* published in 2016. On the other hand, the policy paper on the *Luxembourg Education System*, published by the Ministry of Education in 2020, states that to stimulate linguistic potential, all children should be encouraged to express themselves in their home language, which is – according to the *Luxembourg Education System* paper – essential for the "development of their identity and the acquisition of language" (MENJE, 2020, p. 15). In connection with these considerations, the policy paper refers to the plurilingual education program launched in 2017, according to which services for children between the ages of 1 and 4 are provided in educational and care structures with the aim of learning Luxembourgish and French in a playful and age-appropriate manner. However, these structures remain limited to pre-school for children up to the age of 4, while students of primary and secondary school age – especially those who are new to Luxembourg as a result of immigration – are excluded from the plurilingual education program. Furthermore, no connection between home language and science learning was made in any of the analyzed policy documents.

Theme 5: Multilingualism as both – an opportunity and a challenge

In the strategy paper *The Luxembourg Education System* (2020), the government describes maintaining multilingualism in schools as a "priority" while calling for assurance that this would not become a "setback for some children" (p. 16). This passage points to a dilemma in which the Ministry of Education finds itself, since while it warns that multilingualism can lead to setbacks and thus to a form of exclusion of individual pupils, multilingualism should be striven for as a goal. While multilingualism is described here as an entitlement and – at least in relation to social inclusion – as central, this

section of the document also warns of the danger of relegation and segregation, the latter in relation to learning in subject-related contexts. However, no link is made between multilingualism and science learning in any of the policy documents analyzed.

Theme 6: Multilingual education program as preventer of exclusion

In the policy document *A Strategy to Promote the Luxembourgish Language* (2017), the government pursues four main objectives and makes the following concrete commitments within the framework of the multilingual education program: (1) "to reinforce the importance of the Luxembourgish language"; (2) "advance the standardization, use, and study of the Luxembourgish language"; (3) "promote the learning of the Luxembourgish language"; and (4) "promotion of culture in the Luxembourgish language" (Le Gouvernement du Grand-Duché de Luxembourg, 2017, p. 1). The multilingual education program is part of the equal opportunities policy pursued by the government. As of October 2017, every child between the ages of 1 and 4 attending a childcare structure profits from the multilingual education program, independent of the income of the household. Also, the novel structure of mini crèches applies the multilingual education program that puts children aged 1 to 4 in contact with Luxembourgish and French. The children's family languages are also valued. With this focus, language and multilingualism are understood as a means of supporting young children in their language development in the best possible way, with the aim of preparing them for Luxembourgish society and the Luxembourgish education system. This implies the idea of inclusion for all children, regardless of their family language. However, STEM subjects are not explicitly mentioned.

Fabrication of the Multilingual Student

Following on from this qualitative content analysis, seven fabrications of the multilingual student could be construed, based on the analysis of what inclusions, exclusions, and abjections the terms, possibilities, and characteristics of the multilingual student as explored in the findings:

(1) *A student with another home language than the teaching language* – it seems that when speaking about several languages in relation to the student's language competencies, the attention is always on the fact that the teaching language is not the first or mother tongue. The focus is therefore on minority students or newly arrived students.

(2) *A student at risk for not developing a positive identity, communicative skills, and knowledge*. The rights to language underscore what can happen if this right is not fulfilled. This risk is mentioned in the curricula and School Act in different ways, but without explicitly mentioning the multilingual student.

(3) *A student who needs to be monitored* – if students do risk to or do not pass the targets in the STEM subjects, support is supposed to be given. This applies to all students; however, the multilingual student is not explicitly mentioned.

(4) *A student that needs to learn the teaching language* – in cases of students who have been moving between nations, there is a risk that the language spoken at home might not be the strongest language for the child. In this case, the child is not taught in the mother tongue.

(5) *A student that is encouraged to use their home language(s)* – the multilingual learner is explicitly mentioned in all policy documents from Luxembourg and Sweden, combined with the request to allow family languages in learning contexts. However, this explicit mention of family languages is limited to the learner of pre-school and primary-school age, with the aim of developing the child's identity and acquiring languages other than the home language.
(6) *A student that needs to learn Luxembourgish, French, and German* – to be prepared for primary school, the three school languages Luxembourgish, French, and German must be mastered by all children of primary school age, regardless of whether they speak other home languages. In the primary school context, the multilingual student is defined primarily in terms of these three languages.
(7) *An immigrant student that needs support* – when mentioning the immigrant child, the focus is on the need for language and subject-related support while multilingualism is not understood as a resource. In connection with an immigration background, language skills (others than the teaching language) are not considered a resource.

Discussion

The discussion of our results will focus on three main areas, firstly with regard to the similarities that emerge, secondly with a view to the country-specific contrasts, thirdly with regard to implications resulting from the fabrications, and fourthly with reference to questions on migration. In relation to the similarities, it can be seen from a legal perspective that both countries assume disabilities and accessibility and that their reflections on inclusion are based on this. A monolingual approach can be found in Sweden versus a multilingual approach in Luxembourg. The tendency of monolingual approaches in the STEM subjects, especially in Sweden, is something to pay attention to in the policy and implementation of education, since it is known that if the educational approach is based on a monolingual perspective, it will affect accessibility for students who cannot use the language they understand best (Stobart, 2005).This is manifested in the inclusion in the law and as a target in Luxembourg, whereas a separate system is present in the organization of the Swedish education sector. Four factors in particular can be discussed as implications for the fabrications found in our results: (1) A need to take the local and national culture and history of schooling into account, but also approach to immigrants, language, and disabilities; (2) there is a lack of intersection between issues of disability, inclusion, and language; (3) home language and multilingualism almost seems to be constructed as hindering learning in the Swedish context, grounded in disability discourses on these students' learning; (4) language policies and attitudes towards language are core in the context of our research question.

Conclusions

The Swedish school system has a general mission to include students, but at the same time this mission is not defined in the current school's governing core documents and the concept inclusion is not mentioned in the School Act or the curricula. In contrast, inclusion occupies a central place in the Luxembourg legal and policy documents, especially

with regard to the multilingualism of children. Hence, there are both systematical promises but also obstructions connected to educational language policies. This represents a risk that policies impact education so that multilingual learners are disadvantaged in the STEM subjects, as found by earlier research (Brown & Spang, 2007; Creagh, 2016; Moscovich, 2007).

A way to promote and prevent this is to continue to explore the way in which the similarities and differences in the legal and policy documents might be reflected in their practical school manifestations. An important approach is then intersectionality of disabilities, inclusion and language, and a special focus on the children who recently migrated to the country.

Note:

(1) Important to note is that this could also be segments of text describing the inclusion of students, or aspects of language or STEM teaching, but in which the multilingual student is not mentioned.

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Correspondence concerning this article should be addressed to corresponding author Anette Bagger, Örebro University, Sweden. Email: anette.bagger@oru.se