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ORIGINAL ARTICLE

Socioeconomic gaps in the allocation of curriculum modifications in inclusive mainstream classrooms

Robin Benz | **Caroline Sahli Lozano** | **Esperanza Marx**

Bern University of Teacher Education, Bern, Switzerland

Correspondence
Robin Benz, Bern University of Teacher Education, Fabrikstrasse 2, CH-3012 Bern, Switzerland.
Email: robin.benz@phbern.ch

Funding information
Bern University of Teacher Education

Abstract

Differentiation is a widely established approach to addressing heterogeneity in students' learning needs and prerequisites in inclusive mainstream classrooms. While differentiation has been extensively studied regarding its implementation and effectiveness, aspects of social selectivity in these practices remain underexplored. This study focuses on curriculum modifications, a form of differentiation that entails reduced learning objectives and altered curricular content for low-achieving students, and examines their socially selective allocation. Drawing on population-wide and administratively linked data on primary school students in Northwestern Switzerland, it is examined whether and to what extent students from low-income households are more likely to receive curriculum modifications. Results from multilevel regression models suggest a systematic overrepresentation of students from low-income households among those receiving curriculum modifications. Mediation analyses confirm that this overrepresentation of students from low-income households is only partly explained by income-related gaps in academic achievement. Since curriculum modifications, as suggested by prior research, may carry adverse implications for targeted students' learning progress and future educational pathways, social selectivity in the allocation of this measure may contribute to an exacerbation of educational inequalities.

KEYWORDS
curriculum modifications, differentiated instruction, differentiation, inclusive education, mediation analysis, register data, special educational needs, Switzerland

Key Points

- Curriculum modifications are a form of differentiation that entails reduced learning objectives and altered curricular content for low-achieving students. The present study investigates whether and to what extent the allocation of curriculum modifications is socially selective by students' household income.
- Drawing on comprehensive data from Northwestern Switzerland and employing multilevel modelling in combination with mediation analyses, the study finds that low-income students are more likely to receive curriculum modifications. This overrepresentation can only partly be explained by income-related gaps in academic achievement.
- Social selectivity in the allocation of curriculum modifications may contribute to a reproduction of educational inequalities. Educators are urged to critically reflect on their practices regarding the allocation of curriculum modifications in order to avoid undermining the inclusive intent of this form of differentiation.

INTRODUCTION

Inclusive education has become a key principle for ensuring equitable access to meaningful, high-quality learning opportunities for all learners, regardless of their abilities or social background. Following international efforts, including the UNESCO Salamanca Statement from 1994 (UNESCO, 1994) and the UN Convention on the Rights of Persons with Disabilities from 2006 (United Nations, 2006), the integration of learners with special educational needs and disabilities (SEND) into mainstream education has been embedded in the educational policies of many countries around the globe (Ainscow, 2020; Francisco et al., 2020). This shift from separation to inclusion is reflected in internationally declining proportions of learners placed in separate special education settings – such as special schools or special classes (EASIE, 2024).

In the course of the efforts to integrate all learners into mainstream education, heterogeneity of the student body in terms of learning needs and prerequisites has increased. When facing heterogeneity in inclusive mainstream classrooms, teachers are challenged to organise their instruction in such a way that the learning needs of all students are adequately met. Differentiation – defined as the use of various teaching strategies to tailor instruction to students' varying learning profiles – is an established and well-researched approach to meeting these demands. Differentiation, also referred to as differentiated instruction, aims to provide tailored instruction to facilitate academic success for all, ensuring that all learners can access the mainstream curriculum in a shared learning environment but in different ways and perhaps to a different extent (Lawrence-Brown, 2020; Lindner & Schwab, 2025; Pozas & Schneider, 2019; Tomlinson, 2014).

A growing body of research suggests that the effectiveness of differentiation hinges considerably on the way in which differentiation practices are enacted in everyday classrooms (e.g. Bondie et al., 2019; Deunk et al., 2018; Langelaan et al., 2024; Smale-Jacobse et al., 2019). While prior research has emphasised teacher characteristics, such as teachers' self-efficacy beliefs (e.g. Dixon et al., 2014; Scarparolo & Subban, 2021) or attitudes (e.g. Kupers et al., 2024; Pozas et al., 2026), as factors that shape the effectiveness of differentiation, less scientific attention has been paid to how specific differentiation practices are allocated across different groups of students.

The question of social selectivity in the implementation of differentiation in inclusive mainstream classrooms is pertinent in several regards: Differentiation entails providing students with qualitatively different learning opportunities, including varying levels of cognitive demands, instructional support, or autonomy (Eikeland & Ohna, 2022; Lindner & Schwab, 2025; Pozas & Schneider, 2019). If access to these learning opportunities is structured not solely by students' educational needs but also by their social background, some students may be systematically denied access to more effective learning opportunities, while others may not receive the adequate support they require (Dumont & Ready, 2023; Gilmour et al., 2019; Jönsson, 2018; Waitoller et al., 2010). Moreover, differentiation necessarily involves categorising students and assigning them to different tasks and means of support. How students are categorised for differentiated instruction is contingent upon teachers' judgements about students' educational needs, which can be biased by socially patterned expectations regarding their abilities, motivation, and behaviours (e.g. Ahram et al., 2021; Ready & Wright, 2011; Urhahne & Wijnia, 2021). Shedding light on social selectivity in the implementation of differentiation can therefore inform teacher training and improve tools for diagnosing students' educational needs. Furthermore, research on special needs education shows that such categorisations can contribute to stigmatisation, shape educational expectations and induce self-fulfilling prophecies, especially when these categorisations are based on perceived deficits and applied for prolonged periods (Franz et al., 2023; Menze et al., 2023; Shifrer, 2013). Social selectivity in the use of differentiation practices may therefore have implications for educational inequality, insofar as certain groups of learners are disproportionately exposed to either the beneficial or adverse effects of these practices.

Against this backdrop, the present study examines the extent of social selectivity in the allocation of curriculum modifications in inclusive mainstream classrooms. Unlike other forms of differentiation, curriculum modifications do not merely adapt instruction but also lower the level of expected learning outcomes. With their longer-term implementation and mention in students' school reports, curriculum modifications represent a more institutionalised form of differentiation within inclusive mainstream classrooms. Building on theoretical expectations derived from special education research and drawing on population-wide data from students in Northwestern Switzerland, this study investigates whether students from different socioeconomic backgrounds receive curriculum modifications at disproportionate rates, beyond differences in academic achievement. In doing so, this study contributes to a deeper understanding of the extent to which processes of differentiation are, too, permeated by social inequalities, especially at a time when effective practices for responding to the heterogeneity of learners are urgently needed, given the ongoing debates surrounding inclusive education (e.g. Banks, 2025; Gordon-Gould & Hornby, 2023) and the well-being of teachers (e.g. Agyapong et al., 2022; Brunsting et al., 2026).

BACKGROUND

Differentiation in inclusive mainstream classrooms

The integration of learners with SEND into mainstream classrooms is accompanied by greater heterogeneity in learning needs and learning prerequisites, raising the demand for pedagogical approaches to addressing this heterogeneity. The conventional 'one-size-fits-all' principle is no longer sufficient to meet the diverse demands of inclusive mainstream classrooms, prompting a gradual shift towards pedagogical approaches of differentiation (Bondie et al., 2019; Graham et al., 2021). Differentiation aims to adapt teaching to students' learning needs and to deliver instruction and learning content in such a way that they are accessible and comprehensible to all students (Lindner & Schwab, 2025; Parsons et al., 2018; Pozas & Schneider, 2019; Tomlinson, 2014). However, owing to competing and variably broad conceptualisations, the scope of what differentiation entails is subject to ongoing debates in the literature (e.g. Bondie et al., 2019; Graham et al., 2021; Letzel-Alt & Pozas, 2023; Pozas & Schneider, 2019).

Despite variation in the breadth of theoretical conceptualisations, differentiation is commonly associated with a set of – often multidimensional – pedagogical practices. For example, Eikeland and Ohna (2022) categorise common practices that involve differentiating teaching, differentiating students or differentiating content. Another review by Lindner and Schwab (2025) additionally considers aspects of collaboration in multiprofessional teams, approaches to differentiated assessment of students' learning progress, and behavioural and socio-emotional practices as part of differentiation. Focusing on the functional logic of various differentiation practices, Pozas and Schneider (2019) propose a taxonomy comprising (i) tiered assignments, (ii) intentional composition of student working groups, (iii) tutoring systems within the learning groups, (iv) staggered nonverbal learning aids, (v) mastery learning, and (vi) granting autonomy to students.

The focus of the present study lies in a specific differentiation measure referred to as curriculum modifications. This measure can be conceptualised as a form of implementing tiered assignments (Pozas & Schneider, 2019), a means of differentiating content (Eikeland & Ohna, 2022), and an approach to differentiated assessment of students' learning progress (Lindner & Schwab, 2025). Curriculum modifications are awarded on a subject-specific basis and target students who are unable to meet the regular learning objectives – often but not exclusively due to having diagnosed SEND. While many forms of differentiation support students in working towards shared curricular goals, curriculum modifications involve individualised reductions of learning objectives alongside altered curricular content. Because they require formal enactment and are typically maintained over extended periods, the measure represents a more institutionalised form of differentiation. Curriculum modifications are typically regulated and periodically reviewed within an individual education plan (IEP) or equivalent legal document, such as an education, health and care (EHC) plan in the UK or a Förderplan in Germany (Auer et al., 2023; Sahli Lozano et al., 2021).

In the Swiss context, curriculum modifications are usually enacted by teachers together with school administrators when they expect that a student will be unable to meet the regular learning objectives in a subject in the long term. The enactment of the measure involves consultation with the parents or legal guardians of the students concerned, while the final decision rests with the teachers and school administrators. Curriculum modifications do not require a formal diagnosis of special educational needs, though pupils with learning disabilities fall within the target group of the measure. Curriculum modifications can also be awarded in the form of enhanced learning objectives for gifted students, but these are subject to different regulations, exceedingly rare, and, thus, not considered in the present study. Curriculum modifications are typically put into practice through the assignment of simpler and fewer tasks as well as the omission of certain curricular content. The measure can be complemented by additional support from special needs educators. Another notable feature of curriculum modifications in Switzerland is that they are mentioned in students' school reports in place of regular grades. Between cantons, the subnational units of Switzerland, differences exist in the regulation of curriculum modifications, among others, with respect to the involvement of school psychologists during enactment, the minimal duration and review of the measure, or its coupling with other integrative measures (Sahli Lozano et al., 2021). During the school year 2024/25, approximately 5.3% of all compulsory school students in Switzerland received curriculum modifications (FSO, 2026a). In the case of Northwestern Switzerland examined here, the use of curriculum modification has increased over recent years, and prevalence rates vary not only between cantons but also between schools (see Figures S1 and A2 in Appendix A1).

Targeted support measures like curriculum modifications are intended to mitigate disadvantages arising from learning gaps and enable students to acquire equivalent learning experiences – and eventually formal qualifications – in a mainstream classroom setting. In the case of curriculum modifications, this is achieved by allowing students to learn at their own pace and towards reduced curricular objectives. Through individualised adaptations of the learning content, schoolwork should become attainable for the targeted students, allowing for experiences of success and fostering motivation. Relatedly, students receiving curriculum modifications

may be relieved from unattainable learning expectations, shielding them from significant declines in their academic self-concept (Auer et al., 2023; Hascher, 2017; Sahli Lozano et al., 2020).

However, the use of differentiation to support low-achieving learners is not without its ambivalence. As articulated in the 'dilemma of difference' (Norwich, 2007), efforts to ensure equitable learning opportunities through individualised support may simultaneously reinforce educational disadvantages by marking certain students as different from their peers. Students receiving curriculum modifications are continuously exposed to reduced expectations in specific subjects, effectively creating parallel learning environments that share features with tracking (e.g. Chmielewski, 2014; Schindler, 2017). Disparities in educational needs and learning prerequisites are, thus, not only recognised but also institutionalised. Measures like curriculum modifications intended to foster inclusion may therefore reinforce categorical distinctions that give rise to processes of labelling, stigmatisation, and marginalisation (e.g. Franz et al., 2023; Menze et al., 2023; Shifrer, 2013). Empirical studies indicate, for example, that teachers tend to underestimate the cognitive abilities of students receiving curriculum modifications (Sahli Lozano et al., 2022) or, more broadly, of students having diagnostic labels (e.g. Franz et al., 2023; Kashikar et al., 2025). In a similar vein, students with curriculum modifications face greater difficulties in accessing post-compulsory education, presumably due to mechanisms of stigmatisation and signalling, and because curriculum modifications may limit the acquisition academic competencies required for accessing certain post-compulsory education pathways (Brandenberg et al., 2026; Lustenberger et al., 2025).

Socially selective allocation of measures to support learners with special educational needs and disabilities

A differentiation measure like curriculum modifications carries implications for the targeted students' learning outcomes and their educational opportunities. The criteria according to which the measure is allocated are, therefore, of significance. If allocation is marked by social selectivity – that is, if students from different social backgrounds receive the measure at different rates beyond their educational needs – this may contribute to broader educational inequalities (Artiles et al., 2010; Dumont & Ready, 2023; Skiba et al., 2008; Sullivan & Artiles, 2011).

Empirical research across different contexts indicates systematic disparities in the allocation of measures to support learners with SEND according to ascriptive characteristics. Specifically regarding curriculum modifications in Switzerland, research drawing on limited samples indicates that students from disadvantaged socioeconomic backgrounds are more likely to receive the measure net of their cognitive abilities (Lustenberger et al., 2025; Sahli Lozano et al., 2023). In other countries, where curriculum modifications are commonly contingent upon a formal special educational needs status, the extent of social selectivity is frequently investigated with regard to special needs diagnoses or referrals. Some studies in this line of research indicate that, when accounting for academic achievement, learners from disadvantaged socioeconomic backgrounds are more likely to be referred to special education and to receive formal diagnoses (e.g. Cooc & Kiru, 2018; Halvorsen et al., 2025; Keating et al., 2025; Kvande et al., 2018; McCoy et al., 2012; Shifrer et al., 2011; Sullivan & Bal, 2013). Other studies find no relationship between students' socioeconomic status and special education referrals and diagnoses (e.g. Hibel et al., 2010; Kincaid & Sullivan, 2017; Morgan et al., 2017; Shifrer, 2018). The mixed findings regarding the role of socioeconomic status in referrals to special education and diagnoses are, among other things, attributed to differences in educational contexts (Cooc & Kiru, 2018; Hibel et al., 2010) as well as variation in how socioeconomic background is operationalised (Cruz & Rodl, 2018; Kincaid & Sullivan, 2017; Shifrer, 2018; Shifrer et al., 2011).

Some research points to socioeconomic disparities in the type of support need identified. For instance, some studies reveal that students from disadvantaged socioeconomic backgrounds are more frequently diagnosed with disability categories regarded as 'low-status', such as intellectual disabilities or emotional and behavioural disorders, whereas students from privileged socioeconomic backgrounds are more often diagnosed with 'high-status' disability categories, such as attention deficit hyperactivity disorder or autism (Fish, 2019; Ong-Dean, 2009; Skrtic et al., 2021; Sullivan & Bal, 2013). In the United States context in particular, the extent of racial disproportionality in diagnoses and the provision of special education support has been the subject of an extensive and controversial debate (e.g. Ahram et al., 2021; Cooc & Kiru, 2018; Cruz & Rodl, 2018; Fish et al., 2026; Morgan et al., 2017; Morgan & Farkas, 2016; Skiba et al., 2016). Several studies find that Students of Colour are more likely to be diagnosed with special educational needs and systematically overrepresented in special education (e.g. Artiles & Trent, 1994; Skiba et al., 2016; Waitoller et al., 2010). Other studies, in contrast, suggest that the overrepresentation of Students of Colour diminishes – or even reverses – once confounders such as academic abilities and socioeconomic background are controlled for (e.g. Elder et al., 2021; Farkas et al., 2020; Hibel et al., 2010; Morgan et al., 2015, 2017). Research further stresses the mediating role of disability category and school context – particularly factors related to schools' student composition – in these relationships (e.g. Elder et al., 2021; Fish, 2019; Grindal et al., 2019; Kölm et al., 2020; Shifrer, 2018; Stiefel et al., 2025).

Learners' socioeconomic background is central to debates on the allocation of support measures in inclusive mainstream classrooms, particularly since it directly captures access to economic, cultural and social resources that are crucial for various aspects of education (e.g. Boudon, 1974; Erikson, 2019; Jackson, 2013). Given the centrality of socioeconomic background in educational stratification research and consistent empirical evidence of socioeconomic disparities in both academic achievement and the allocation of support measures (e.g. Kim et al., 2019; Liu et al., 2022; Sirin, 2005), this study focuses on socioeconomic background as the primary axis of social selectivity.

Social selectivity in the allocation of differentiation measures is commonly examined from two theoretical perspectives (Ahram et al., 2021; Waitoller et al., 2010): The first perspective stems from a sociodemographic research tradition that situates social selectivity within broader structures of social inequality. From this perspective, social selectivity in the allocation of these measures does not reflect inherent differences in academic abilities between social groups but rather systematically unequal learning opportunities (Skiba et al., 2008). Socioeconomically disadvantaged and marginalised groups have greater exposure to stressors, including financial hardship, family stress, and environmental risks, which are linked to lower academic achievement and higher support needs (Lucas & Beresford, 2010; Skiba et al., 2005). They also tend to have more limited access to resources conducive to learning, such as academic support from parents or high-quality and adequately resourced schools. In contrast, owing to their greater economic, cultural, and social resources, socioeconomically privileged parents are better positioned to pursue advocacy and to influence diagnoses and the allocation of support measures, with the aim of shielding their children from potentially detrimental forms of differentiation (Ong-Dean, 2009; Skrtic et al., 2021). The sociodemographic perspective is closely aligned with the theory of primary and secondary effects of social origin (Boudon, 1974) commonly used to explain socioeconomic differentials in educational track choice (Jackson, 2013). This connection to tracking is consistent, given that curriculum modifications effectively assign some students to curricular pathways with different expectations and learning objectives.

The second perspective focuses on the role of practitioners, such as teachers, school administrators, and school psychologists, and emphasises how they identify educational support needs and decide which forms of differentiation to implement. Such decisions are often prospective in nature, since they rest on expectations about learners' future attainment. According to this line of research, professional practices regarding the allocation of support measures, including the tools and criteria employed for this purpose, are not neutral but are structured around historically dominant norms of academic performance and behaviours, which tend to align more closely with socioeconomically privileged students (Cooc & Kiru, 2018; Sullivan & Artiles, 2011). These institutional standards of 'normal' function as implicit benchmarks that guide practitioners' perceptions of academic ability and behaviour. When students from disadvantaged socioeconomic backgrounds deviate from these benchmarks, their academic difficulties may be interpreted as evidence of individual deficits rather than as a reflection of unequal learning opportunities. This coincides with systematically lower expectations regarding the future educational attainment of socioeconomically disadvantaged learners, a pattern that has been repeatedly demonstrated in the empirical literature (e.g. Lorenz et al., 2016; Ready & Wright, 2011; Wang et al., 2018). Consequently, low academic performance among socioeconomically disadvantaged students tends to be pathologised and interpreted as requiring support, which ultimately manifests in higher referral rates and an increased likelihood of receiving measures like curriculum modifications (Artiles et al., 2010; Shifrer, 2018; Skiba et al., 2008). Importantly, this process may occur from practitioners' genuine belief that curriculum modifications are beneficial and regard them as an appropriate means of supporting the students concerned (Norwich, 2007).

The context of Switzerland

The extent of the social selectivity in the allocation of curriculum modifications is examined using Switzerland, and more specifically Northwestern Switzerland, as a case study. The Swiss education system is commonly characterised by its federalist organisation, the comparatively early tracking and its stratified and selective secondary education, and the historically grown importance of the vocational education and training sector (e.g. Buchmann et al., 2016; Felouzis & Charmillot, 2013; SCCRE, 2026; Stalder & Nägele, 2011). After kindergarten, students enter primary education, which usually lasts for 6 years. At the end of primary education, typically at age twelve, students are tracked into different lower secondary school types with varying academic requirements based on prior achievement and teacher recommendations. Although the system allows for some permeability, transitions into and within secondary education are highly consequential for later educational opportunities since they give rise to diverging learning rates across tracks and structure access to credentials necessary for post-secondary qualifications (e.g. Buchmann et al., 2016; Burger, 2021; Helbling et al., 2019; SCCRE, 2026; van de Werfhorst, 2019).

The organisation of special education in the Swiss education system has undergone substantial changes over the past two decades. Following legislation promoting a shift towards inclusive education passed in the early

2000s and the ratification of the UN Convention on the Rights of Persons with Disabilities in 2014, the share of learners attending special schools or classrooms has decreased from 5.3% in 2004 to 3.2% in 2025 (FSO, 2026b). The increasing numbers of students who are integrated into mainstream classrooms often receive targeted support according to their educational needs through various integrative measures. Apart from curriculum modifications, the most prevalent of these measures are integrative support from special needs educators, speech or psychomotor therapy, language support, and accommodations that alter how assessments are delivered (Sahli Lozano et al., 2021). The appropriate form of schooling for learners with special educational needs, along with the challenges that inclusive education entails, has been a matter of contentious policy debate for some time.

The combination of early tracking and pronounced stratification adds to the relevance of curricular differentiation within classrooms. Curriculum modifications entail that affected learners work towards reduced curricular goals in specific subjects. Prolonged exposure to such lowered expectations may affect the conditions under which subsequent educational choices unfold, particularly since curriculum modifications may hamper students' academic progress and are mentioned in students' school reports instead of regular grades (Lustenberger et al., 2025; Sahli Lozano et al., 2021, 2024). The implications of curriculum modifications are therefore especially consequential in periods preceding educational transitions. Accordingly, the present study examines the extent of social selectivity in their allocation shortly before entry into tracked secondary education.

A substantial body of research documents pronounced socioeconomic disparities across all educational levels in Switzerland. In primary education, findings consistently show that socioeconomically disadvantaged students fall behind their more privileged peers in terms of academic achievement, and that these early achievement gaps tend to widen over time (e.g. Angelone & Ramseier, 2012; Helbling et al., 2019; Kriesi et al., 2012; SCCRE, 2026). The transition into tracked secondary education is marked by socioeconomic inequalities. Beyond differences in achievement, research points to choice effects, indicating that students from disadvantaged socioeconomic backgrounds are overrepresented in less academically demanding school types in lower secondary education and tend to enrol in general upper secondary education at lower rates compared to their more privileged peers (e.g. Becker et al., 2020; Buchmann et al., 2016; Felouzis & Charmillot, 2013; Schmutz, 2024).

Research question and hypotheses

Considering the growing demand for effective and equitable differentiation practices in inclusive mainstream classrooms, a deeper understanding is needed of the extent to which such practices operate within broader processes of educational inequality. The present study examines which students receive curriculum modifications and whether their allocation is socially selective using the case of Switzerland. Given the centrality of social background characteristics for educational outcomes, the study focuses on social selectivity based on students' household income. The allocation of curriculum modifications is examined at the end of primary school, which marks a pivotal phase prior to tracked secondary education, where receiving an intrusive and potentially stigmatising measure like curriculum modifications may be particularly consequential. Since curriculum modifications are subject-specific – and since the extent of social selectivity might vary by subject – their allocation is specifically examined for the core subjects of German and mathematics.

It is expected that students from low-income households are systematically more likely to receive curriculum modifications than students from high-income households (Hypothesis 1). This expectation rests on the assumption that students from low-income households have more limited access to resources conducive to learning, placing them at higher risk of low academic achievement and of not meeting the regular learning objectives, thereby increasing the likelihood of receiving curriculum modifications (Lucas & Beresford, 2010; Skiba et al., 2008).

However, income-related disparities in academic achievement do not necessarily imply social selectivity in the allocation of curriculum modifications. Social selectivity is only present if such disparities persist beyond differences in educational needs. As curriculum modifications represent a response to the non-attainment of regular learning objectives, students' need for them can be derived from their level of academic achievement in a given subject. To determine the extent of social selectivity, it is therefore necessary to consider the decision-making processes by which a need for curriculum modifications is inferred from low academic achievement. Practitioners responsible for these decisions, such as teachers and school administrators, may be influenced by socially structured norms regarding academic performance and behaviours. Guided by these norms, they may interpret low academic achievement among students from low-income households in a biased manner and pathologise it more readily (Shifrer, 2018; Sullivan & Artiles, 2011). In addition, low-income families may have fewer adequate resources to challenge practitioners' judgement on whether or not curriculum modifications are warranted (Ong-Dean, 2009; Skrtic et al., 2021). Taken together, these factors may lead to a disproportionate allocation of curriculum modifications to students from low-income households, even after accounting for their academic achievement. Accordingly, it is expected that any income-related gaps in the allocation

of curriculum modifications are not exclusively transmitted through income-related gaps in academic achievement (Hypothesis 2).

METHODS

Data

Given that curriculum modifications target a specific – and comparatively small – group of low-achieving learners, analysing their allocation requires a comprehensive data basis to generate generalisable empirical evidence. This study draws on administratively linked test score data from four cantons of Northwestern Switzerland, namely Aargau, Basel-Landschaft, Basel-Stadt and Solothurn, a region that accounts for approximately one-sixth of Switzerland's population. The data comprise information on annually administered standardised performance assessments in different academic subjects, the so-called Checks (BRNWCH, 2025; König et al., 2025). The present study uses test score data from the Checks measured at the end of primary school, covering the period from the school years 2014/15 to 2024/25 ($N = 151'783$). Following a change in the implementation of the Checks, the timing of the standardised performance assessments at the end of primary school was moved from early sixth grade to late fifth grade in the school year 2018/19. As participation in the Checks is generally mandatory for all students enrolled in public mainstream schools, the data provides near-complete coverage of student cohorts in the four cantons of Northwestern Switzerland.

The data comprises standardised test scores measuring students' competencies across multiple subjects and information on whether a student received curriculum modifications for the respective subject. However, the data offers limited information about the test takers. Data on students' household income and other ascriptive characteristics were obtained through a record linkage to register data provided by the Federal Statistical Office (FSO, 2025a, 2025b, 2025c) and the Central Compensation Office (CCO, 2025). Appendix A2 provides additional information on the data sources used in this study and record linkage.

The analytical samples of this study are limited due to four factors: First, due to a gradual rollout of the Checks across the four cantons of Northwestern Switzerland, the data from earlier test administrations do not cover the entire population in public mainstream classrooms. Specifically, while the Checks were administered only from the school year 2015/16 in Basel-Landschaft and Solothurn, participation in the Checks was voluntary in Aargau before the school year 2016/17 and in Solothurn before the school year 2017/18. Second, the analyses only consider students with valid information on curriculum modifications. As a result, 374 and 380 students are excluded from the analyses on receipt of curriculum modifications in German and mathematics, respectively. Third, 99 students are excluded from the analyses due to missing school IDs. Fourth, since not all students can be unambiguously identified in the administrative registers, which consequently prohibits data linkage, data from 8007 students cannot be considered in the analytical samples.

In response to missing data in the covariates, multiple imputation by chained equations (Rubin, 2018) was employed. Incomplete variables were imputed under fully conditional specification, including all study variables and creating 10 multiply-imputed datasets for each analytical sample. Estimates from complete case analyses are nearly identical to the results using multiply-imputed datasets (see Tables C1 and C2 in Appendix C1).

Measures

The outcome of the present analysis is whether a student receives curriculum modifications. Since curriculum modifications are subject-specific, three binary outcome measures are created, indicating receipt of curriculum modifications in the core subjects German and mathematics as well as in both subjects simultaneously. The predictor of interest resembles students' socioeconomic background. Financial resources are a central dimension but not a complete representation of socioeconomic background (e.g. Kim et al., 2019; Kincaid & Sullivan, 2017; Marks, 2011). Unlike characteristics such as parental education or their occupational status, however, financial resources are most comprehensively recorded in the register data. Therefore, the inflation-adjusted net equivalised household income is used as a measure of socioeconomic background. For ease of interpretation, and to limit distortions due to outliers, household income is represented in deciles.

Academic achievement is not only essential to determine the need for curriculum modifications but also constitutes a central factor through which disparities in receipt of curriculum modifications by socioeconomic background operate. Academic achievement is operationalised by students' standardised test scores in the Checks, which resemble weighted likelihood estimates for different subject-specific competencies. For both subjects under consideration, all relevant competence scores – namely, German reading, writing and grammar as well as arithmetic/algebra, geometry and applied mathematics/stochastic – are averaged and decile ranks are derived from these.

In order to mitigate bias due to confounders and to improve precision of the estimates, multiple control variables are considered in the analyses. On the one hand, a set of ascriptive student characteristics that are widely known to be associated with various educational outcomes and for which previous studies have indicated that they are related to the receipt of curriculum

modifications (Lustenberger et al., 2025; Sahli Lozano et al., 2022) are considered as controls. These include students' gender (male or female), first language (German or other language), household type (single-parent household or other household type), and migration status (Swiss nationals, Swiss-born foreigners, or foreign-born foreigners). On the other hand, several school characteristics are adjusted for, given that prior research on special education support highlights the role of school composition as well as the relative status of students within schools (e.g. Elder et al., 2021; Fish, 2019; Sahli Lozano et al., 2023). To address that some schools face greater heterogeneity in students' learning needs and, thus, may be more prone to and experienced in using targeted measures to support students, the school's municipality type (urban, intermediary, or rural), mean household income decile, the proportion of students with a first language other than German, the achievement level (defined as the mean achievement decile rank) and achievement heterogeneity (measured by the standard deviation of the achievement decile rank) are considered as control variables. Aggregated school-level covariates were created by passive imputation. In addition, the multivariate models include dummies for the canton and year to account for differences in the regulation of curriculum modifications (see Table S1 in Appendix A1) and temporal trends (see Figure S1 in Appendix A1). Sample descriptions are provided in Appendix B1 (Tables B1–B3).

Analytical approach

Social selectivity in the allocation of curriculum modifications is analysed in two stages. In the first stage, it is examined which factors relate to the receipt of curriculum modifications. Given the markedly different allocation practices and frequencies between schools, which is also evident in the considerable clustering (ICC (German)=0.230, ICC (mathematics)=0.230, ICC (German and mathematics)=0.306), random intercept logistic regression models (e.g. Hox et al., 2017) on receipt of curriculum modifications with students nested in schools and adjusting for household income, academic achievement and several control variables are estimated. Regression analyses are conducted for curriculum modifications in German, mathematics and both subjects separately on each of the 10 multiply-imputed datasets, and the estimates are combined following Rubin's rules (Rubin, 2018). For ease of interpretation, the estimates are presented in terms of average marginal effects (e.g. Mize et al., 2019).

In the second stage, the extent of social selectivity is assessed by estimating a total effect of household income on receipt of curriculum modifications and by decomposing this total effect into a direct component and an indirect component that is mediated by academic achievement. Following the approach to causal mediation analysis proposed by Imai and co-authors (Imai et al., 2010), first a mediator model on academic achievement is estimated. This mediator model is estimated using random intercept linear regression models with students nested in schools, again differentiated by subject and adjusting for students' household income and control variables. Second, mediation analysis is conducted using this mediation model and the random-intercept logistic regression model as described above as the outcome model. Mediation analysis allows partitioning the total effect of household income into an indirect component, the average causal mediation effect or ACME, and a direct component, the average direct effect or ADE. Estimation of the total effect as well as its direct and indirect components is based on simulations of counterfactual predictions (Tingley et al., 2014). Mediation analyses are conducted on each of the multiply-imputed datasets, and the estimates are averaged.

To assess the robustness of the results and their sensitivity to methodological choices, several supplementary analyses were performed: Appendix B2 (Tables B4–B6) presents additional specifications of the regression models on receipt of curriculum modifications with fewer control variables. To assess sensitivity over methodological choices, complementary analyses were conducted using non-imputed data (Tables C1 and C2 in Appendix C1) and (generalised) linear regression models instead of random intercept regression models (Tables C3 and C4 in Appendix C2). Effect heterogeneity by students' sex, first language and canton is examined by subgroup analyses in Appendix C3 (Tables C5 and C6). Since household income may represent students' socioeconomic background only partially, the mediation analyses are replicated using parental education instead of household outcome as the treatment variable, specifically whether at least one parent attained tertiary education. As information on parental education originates from an official survey rather than comprehensive register data, only subsets of the analytical samples can be considered in these analyses (Tables C7–C9 in Appendix C4).

RESULTS

Allocation of curriculum modifications

Descriptive evidence indicates that curriculum modifications are fairly common at the end of primary education, with an average share of students with curriculum modifications in at least one subject of 7.9%. There are, however, differences in prevalence rates across cantons. Over the entire observation period, the highest average proportion of learners with curriculum modifications is found in the canton of Basel-Landschaft (9.1%) and the lowest in the canton of Basel-Stadt (5.8%). The share of learners with curriculum modifications rises over the observation period. While in 2014, it amounted to 5.8%, the

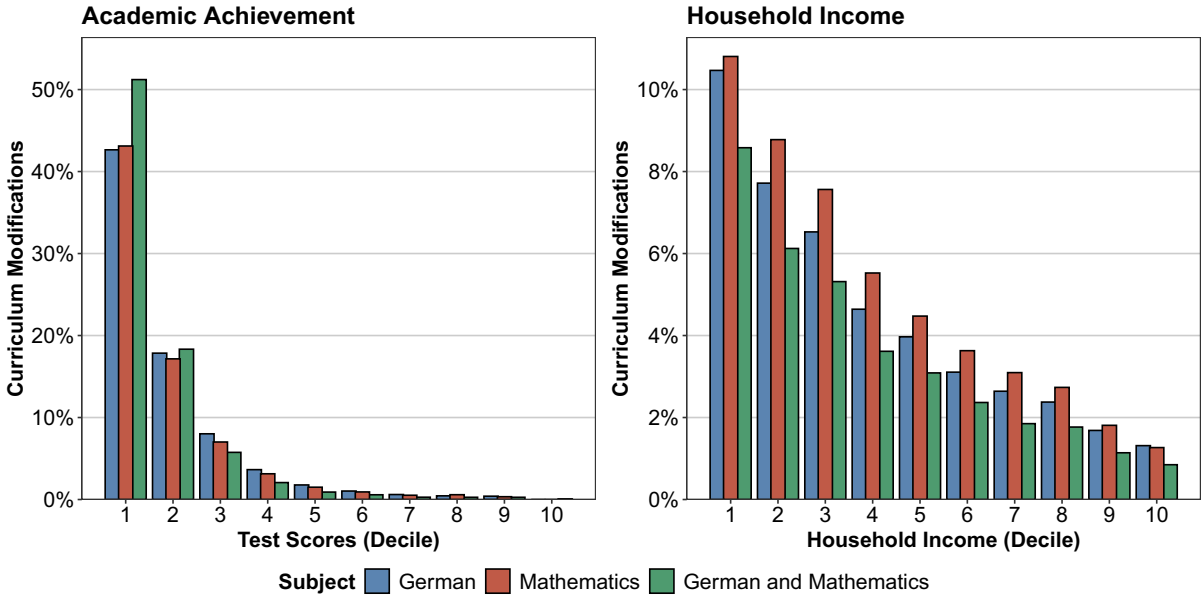

FIGURE 1 Prevalence of curriculum modifications by academic achievement and household income. Percentages of students receiving curriculum modifications for test score deciles and household income deciles by subject. Data: Checks 2014–2024 (BRNWCH, 2025), FSO (2025a, 2025b, 2025c) and CCO (2025), own calculations.

share of learners with curriculum modifications reached 8.8% in 2024. Curriculum modifications are allocated most often in German (6.0% on average), followed by mathematics (5.8% on average). Simultaneous receipt of curriculum modifications in mathematics and German occurs less frequently (4.3% on average).

As illustrated by the two panels of Figure 1, receipt of curriculum modifications is related not only to academic achievement but also to students' household income. Since the measure targets students who are unable to meet the regular learning objectives, it is evident that curriculum modifications are overwhelmingly found among students at the lower end of the achievement spectrum in the respective subjects. Nonetheless, there are occasional learners with curriculum modifications whose test scores lie above the third decile rank. The bivariate relationship between students' household income and receipt of curriculum modifications is less pronounced. Those from the lowest household income deciles show above-average prevalence rates of curriculum modifications, while below-average prevalence rates are found among students from the highest household income deciles.

Multivariate regression results on receipt of curriculum modifications in terms of average marginal effects with 95% confidence intervals in brackets are presented in Table 1. Complete regression tables with additional model specifications are provided in Appendix B2 (Tables B4–B6). When academic achievement and several control variables are held constant, the regression models reveal statistically significant negative associations between household income and receipt of curriculum modifications. With each additional household income decile, the estimated probability of receiving curriculum modifications is reduced by 0.3 percentage points (CI=[−0.4 Pp., −0.3 Pp.], $p<0.001$) in German, 0.4 percentage points (CI=[−0.4 Pp., −0.3 Pp.], $p<0.001$) in mathematics and 0.2 percentage points (CI=[−0.3 Pp., −0.2 Pp.], $p<0.001$) in both subjects simultaneously. These estimates are markedly smaller than those for academic achievement but nonetheless substantial in comparison to the remaining control variables. In addition, the regression results indicate that learners with a foreign first language, those without Swiss citizenship and those living in single-parent households are systematically more likely to receive curriculum modifications in German and mathematics. In some instances, characteristics of the school's location and composition contribute to the likelihood of receiving curriculum modifications.

Mediation analyses

The random intercept regression models suggest a significant negative association between students' household income and their propensity to receive curriculum modifications. At the same time, learners' household income correlates considerably with their academic achievement in German ($r=0.341$, CI=[0.338, 0.346], $p<0.001$), mathematics ($r=0.319$, CI=[0.314, 0.324], $p<0.001$) and both subjects combined ($r=0.359$, CI=[0.354, 0.364], $p<0.001$), which is also evidenced by substantial point estimates in the mediator models presented in Appendix B3 (Table B7). To partition the total effect of household income into its direct component and its indirect component that is mediated by household income-specific

TABLE 1 Results from random intercept logistic regression models on receipt of curriculum modifications by subject.

	German	Mathematics	German and mathematics
Academic Achievement	−0.033***	−0.036***	−0.032***
	[−0.035, −0.031]	[−0.038, −0.034]	[−0.034, −0.030]
Household Income	−0.003***	−0.004***	−0.002***
	[−0.004, −0.003]	[−0.004, −0.003]	[−0.003, −0.002]
Male (Ref. Female)	−0.006***	0.001	−0.001
	[−0.008, −0.004]	[−0.001, 0.004]	[−0.003, 0.001]
Other First Language (Ref. German First Language)	0.011***	0.004**	0.004**
	[0.008, 0.014]	[0.001, 0.007]	[0.001, 0.006]
Swiss-Born Foreigner (Ref. Swiss National)	0.006***	0.008***	0.005***
	[0.003, 0.009]	[0.005, 0.011]	[0.003, 0.008]
Foreign-Born Foreigner (Ref. Swiss National)	0.048***	0.021***	0.020***
	[0.043, 0.053]	[0.017, 0.026]	[0.016, 0.024]
Single Parent Household (Ref. Other Household Type)	0.007***	0.007***	0.004**
	[0.004, 0.011]	[0.003, 0.011]	[0.001, 0.008]
Rural Municipality (Ref. Intermediary Municipality)	−0.003	−0.008*	−0.004
	[−0.010, 0.005]	[−0.015, −0.002]	[−0.010, 0.002]
Urban Municipality (Ref. Intermediary Municipality)	−0.000	−0.002	0.000
	[−0.005, 0.005]	[−0.007, 0.002]	[−0.004, 0.004]
Achievement Level in School	−0.014***	−0.002	−0.006
	[−0.021, −0.008]	[−0.009, 0.004]	[−0.012, 0.000]
Achievement Heterogeneity in School	−0.004	−0.019*	−0.016*
	[−0.020, 0.012]	[−0.035, −0.003]	[−0.031, −0.001]
Mean Household Income in School	0.004	−0.004	0.000
	[−0.002, 0.010]	[−0.010, 0.003]	[−0.006, 0.006]
Proportion of Other First Language in School	−0.001***	−0.000***	−0.000***
	[−0.001, −0.000]	[−0.001, −0.000]	[−0.001, −0.000]
Canton of Basel-Landschaft (Ref. Canton of Aargau)	0.015**	0.018**	0.020***
	[0.003, 0.026]	[0.007, 0.030]	[0.009, 0.030]
Canton of Basel-Stadt (Ref. Canton of Aargau)	−0.006	−0.013*	−0.005
	[−0.018, 0.006]	[−0.024, −0.002]	[−0.015, 0.005]
Canton of Solothurn (Ref. Canton of Aargau)	0.009	0.013*	0.014**
	[−0.002, 0.020]	[0.001, 0.024]	[0.003, 0.024]
Year dummies	X	X	X
Observations	143,259	143,253	138,309
Schools	714	714	714
AIC	43875.437	42852.208	30121.992
BIC	44161.735	43138.504	30407.270
RMSE	0.204	0.201	0.167
R^2	0.531	0.559	0.595
M	10	10	10

Note: Pooled results from random intercept logistic regression models on receipt of curriculum by subject terms of average marginal effects with 95% confidence intervals in brackets. Significance: *$p<0.05$, **$p<0.01$, ***$p<0.001$. Data: Checks 2013–2024 (BRNWCH, 2025), FSO (2025a, 2025b, 2025c) and CCO (2025), own calculations.

differentials in academic achievement, mediation analysis is employed. Figure 2 presents the results from mediation analyses by depicting how the estimated total effects of household income on receipt of curriculum modifications are composed of their direct and indirect components. Results in tabular form are provided in Appendix B4 (Tables B8–B10).

The results of the mediation analyses confirm the negative association between students' household income and the receipt of curriculum modifications. Compared

to the estimates from the random intercept models in Table 1, which represent an effect of household income conditional on the mediator of academic achievement,

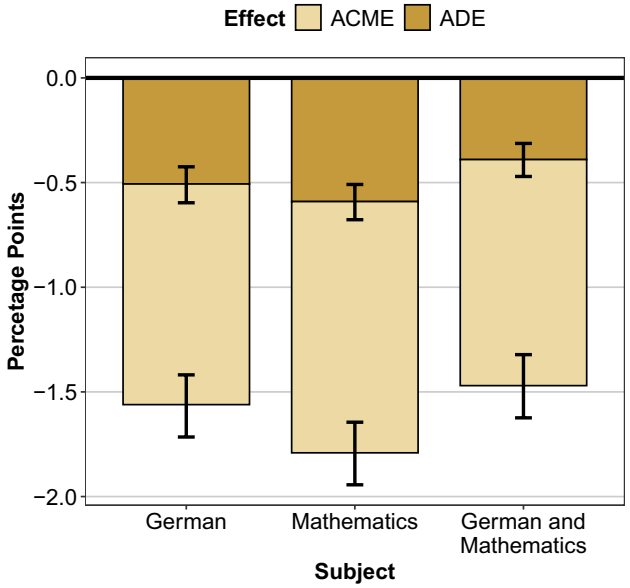

FIGURE 2 Results of causal mediation analyses by subject. Results from causal mediation analysis on receipt of curriculum modifications by subject. Each bar depicts how the total effect of household income on receipt of curriculum modifications is composed of its average causal mediation effect (ACME) and average direct effect (ADE). The error bars indicate the 95% confidence intervals of the ACME and ADE. Data: Checks 2014–2024 (BRNWCH, 2025), FSO (2025a, 2025b, 2025c) and CCO (2025), own calculations.

the total effects from the causal mediation analyses are substantially larger. Specifically, the model estimates that with every additional household income decile, the probability of receiving curriculum modifications decreases by 1.6 percentage points (CI=[−1.7 Pp., −1.4 Pp.], $p<0.001$) in the case of German, by 1.8 percentage points (CI=[−1.9 Pp., −1.7 Pp.], $p<0.001$) in the case of mathematics, and 1.5 percentage points (CI=[−1.6 Pp., −1.3 Pp.], $p<0.001$) in the case of both subjects simultaneously. The total effects of household income are primarily attributable to mediation through academic achievement. The proportion of the indirect effect through mediation, the ACME, amounts to 67.6% (CI=[64.4%, 70.9%]) for curriculum modifications in German, 67.1% (CI=[64.3%, 69.8%]) for curriculum modifications in mathematics and 73.5% (CI=[70.2%, 77.2%]) for curriculum modifications in both subjects simultaneously. Despite primarily being mediated by academic achievement, the results point to a non-negligible proportion of the total effects that are related to receipt of curriculum modifications through other mechanisms. The corresponding direct effects of household income are statistically distinguishable from zero for all outcome measures (German: ADE=−0.5 Pp., CI=[−0.6 Pp., −0.4 Pp.], $p<0.001$; mathematics: ADE=−0.6 Pp., CI=[−0.7 Pp., −0.5 Pp.], $p<0.001$; German and mathematics: ADE=−0.4 Pp., CI=[−0.5 Pp., −0.3 Pp.], $p<0.001$). Taken together, the empirical results are in line with the hypotheses that students from low-income households are more likely to receive curriculum modifications and that this overrepresentation is not exclusively transmitted through income-related gaps in academic achievement. These findings are

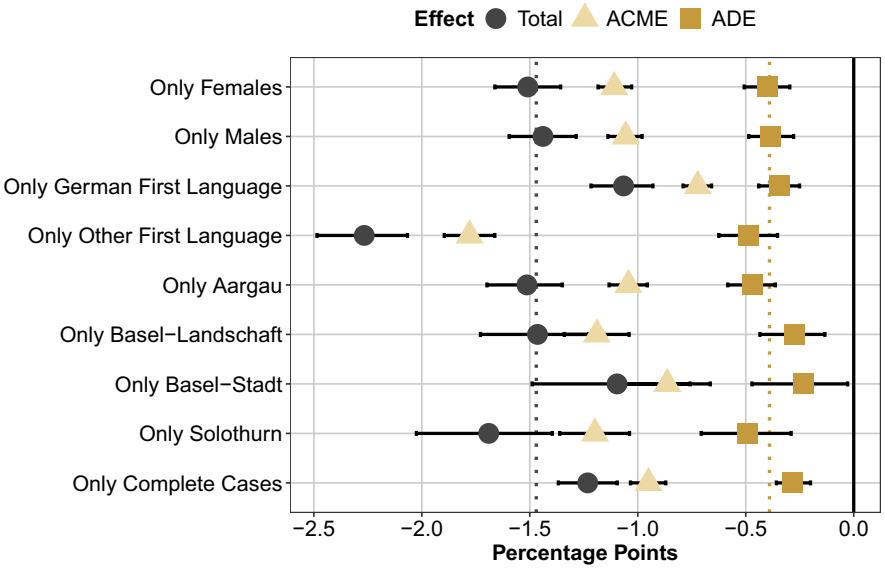

FIGURE 3 Results from causal mediation analyses on receipt of curriculum modifications in German and mathematics by subgroup. Point estimates from causal mediation analysis on receipt of curriculum modifications in German and mathematics by subgroup with 95% confidence intervals. The dotted vertical lines indicate the point estimates of the total effect and the average direct effect from the full sample analysis. Data: Checks 2014–2024 (BRNWCH, 2025), FSO (2025a, 2025b, 2025c) and CCO (2025), own calculations.

consistent across the subjects examined, with social selectivity being slightly less pronounced for simultaneous receipt of curriculum modifications in both German and mathematics.

Robustness and sensitivity analyses

Several supplementary analyses were performed to assess the robustness and sensitivity of the results. Subgroup analyses (Tables C5 and C6 in Appendix C3), depicted in Figure 3 for simultaneous receipt of curriculum modifications in German and mathematics, indicate little effect heterogeneity across sex and cantons. Weaker total effects are found for students with German as their first language and stronger total effects for their counterparts with a first language other than German. The direct effects of household income on receipt of curriculum modifications of these groups, however, are similar to the results using the entire analytical sample.

Furthermore, complete case analyses produce results that are substantially similar to the analyses with multiply-imputed data (Tables C1 and C2 in Appendix C1). Furthermore, despite considerable clustering across schools, analyses using (generalised) linear regression models instead of random intercept regression models show almost identical effect estimates (Tables C3 and C4 in Appendix C2). Additional analyses were conducted using parental education as an alternative measure of students' socioeconomic background instead of household income. Although not directly comparable in effect size, the results suggest statistically significant negative direct effects of parental education on receipt of curriculum modifications but a greater proportion of the total effect that is mediated through academic achievement (Tables C7–C9 in Appendix C4). Taken together, the supplementary analyses support the main findings of this study.

DISCUSSION

While differentiation is widely recognised as a key approach to addressing heterogeneity in students' learning needs and prerequisites (e.g. Lawrence-Brown, 2020; Lindner & Schwab, 2025; Pozas & Schneider, 2019; Tomlinson, 2014), comparatively little attention has been paid to how differentiation practices are allocated across student groups and to what extent this is marked by social selectivity. By integrating the literature on differentiation and disproportionality in special education (e.g. Ahram et al., 2021; Cooc & Kiru, 2018; Cruz & Rodl, 2018), the present study addresses this gap in research by examining the allocation of curriculum modifications – a more institutionalised form of differentiation that foresees reductions of curricular learning objectives for low-achieving students – and its selectivity by students' socioeconomic background. Any presence of social selectivity beyond students' actual learning needs would not only undermine the efficiency of differentiation but may also have broader implications for educational inequality (Artiles et al., 2010; Dumont & Ready, 2023; Sullivan & Artiles, 2011).

Drawing on comprehensive, administratively linked data from learners at the end of primary school in Northwestern Switzerland and employing multilevel regression analysis in combination with mediation analysis, the study indicates that students from low-income households are more likely to receive curriculum modifications than students from high-income households, and that this disproportionality is only partly mediated by income-related disparities in academic achievement. Accordingly, a portion of the association between household income and the receipt of curriculum modifications persists beyond observable indicators of students' academic learning needs, pointing to social selectivity in allocation processes.

Two complementary perspectives may help explain these findings: On the one hand, socioeconomic disparities in access to resources shape students' academic performance and families' capacity to influence allocation practices. Learners from low-income households, whose access to resources conducive to learning is more limited, are exposed to above-average risks of not fulfilling the curricular expectations to the same extent as their peers from higher-income households (Lucas & Beresford, 2010; Skiba et al., 2005). The latter, whose families are better informed and positioned to contest schools' decisions deemed inappropriate, may be more able to avoid curriculum modifications in favour of other, less intrusive and stigmatising forms of differentiation, irrespective of their learning needs (Ong-Dean, 2009; Skrtic et al., 2021). On the other hand, the allocation of curriculum modifications depends on decision-making by practitioners, whose judgements may be shaped by socially structured notions of which levels of academic achievement and behaviours are considered the norm. As a result, similar levels of academic achievement may be perceived and interpreted in a biased manner depending on students' socioeconomic background (e.g. Shifrer, 2018; Skiba et al., 2008; Sullivan & Artiles, 2011). Accordingly, low academic performance among low-income students may be attributed more readily to individual deficits and pathologised, which warrants the use of curriculum modifications and ultimately contributes to social selectivity in the allocation.

The results challenge the assumption that inclusive schooling necessarily entails lower levels of inequality along ascriptive characteristics. However, the results leave one with a conundrum on their implications for educational inequality. On the one hand, evidence of social selectivity in the allocation of curriculum modifications is a cause of concern, as it bears the potential to reinforce or exacerbate existing educational inequalities

related to socioeconomic background. As a more institutionalised and long-term form of differentiation, curriculum modifications involve sustained exposure to reduced curricular expectations. Receiving curriculum modifications may, therefore, not only impede students' learning progress but also give rise to processes of self-stigmatisation (Menze et al., 2023; Sahli Lozano et al., 2024; Shifrer, 2013). Such adverse externalities are likely to be particularly consequential prior to educational transitions, since curriculum modifications may function as a form of pre-sorting based on perceived academic potential, thereby shaping subsequent educational pathways (Brandenberg et al., 2026; Lustenberger et al., 2025). On the other hand, curriculum modification may, at the same time, have positive effects for learners. For instance, students receiving curriculum modifications may be relieved of unattainable learning expectations, shielding them from significant declines in their academic self-concept (Auer et al., 2023; Hascher, 2017; Sahli Lozano et al., 2020). Moreover, measures such as curriculum modifications are what render inclusive schooling possible for the lowest-achieving students in the first place. Given the body of evidence on disproportionality in special education (e.g. Ahram et al., 2021; Cruz & Rodl, 2018), it is more than questionable whether the extent of income-related inequalities would be smaller were these students to be placed in separate special education settings. In light of the fact that the presumed underlying mechanisms cannot be empirically captured but remain inferential, and that the research design precludes a counterfactual consideration of an education system in which curriculum modifications are absent, further research is needed to contextualise the implications of the social selectivity examined here.

The results emphasise the importance of considering the social dimension in the use of differentiation in both research and educational practice. Raising teachers' and school administrators' awareness of possible biases in how they allocate curriculum modifications may provide an impetus for strengthening their capacities in assessing the learning needs of their students. In addition, the development of clearer guidelines and more objective criteria for assigning curriculum modifications could support more consistent and equitable allocation practices. Similarly, systematic monitoring of which students receive curriculum modifications may further help identify social selectivity in allocation. To counteract a potential exacerbation of educational inequalities through social selectivity in the allocation of curriculum modifications, practitioners are encouraged to mitigate the potentially adverse aspects of this measure. For instance, the need for curriculum modifications could be reassessed at more regular intervals. It is equally important that teachers contribute to preventing potential stigmatisation associated with curriculum modifications by approaching deviations from academic norms less strongly from a deficit perspective and promoting targeted students' academic self-efficacy.

Although the empirical results stand up to the various sensitivity and robustness tests carried out, some limitations sound a word of caution. First, it should be noted that household income captures only a specific dimension of students' socioeconomic background, which may not fully reflect the resources shaping students' educational experiences. Therefore, the presumed underlying mechanisms behind the socially selective allocation of curriculum modifications can only partly be linked to the proxy of household income (Kim et al., 2019; Kincaid & Sullivan, 2017; Marks, 2011). Second, the approach of mediation analysis to detect social selectivity rests on the assumption that the available test scores adequately capture students' academic achievement and learning needs. Deviations from this assumption may bias the identified degree of social selectivity (Grindal et al., 2019; Skiba et al., 2016). Third, the presence of reverse causality in the mediation cannot be ruled out. While low academic achievement constitutes a prerequisite for curriculum modifications, it is plausible that, at the same time, academic achievement may decline as a result of receiving curriculum modifications – be it through adapted learning content or the reduced curricular expectations (Sahli Lozano et al., 2024). The data structure precludes temporal separation of the receipt of curriculum modifications from the standardised performance assessments. Fourth, despite the quantity of data available, there are limitations regarding the breadth of information. Factors pertinent to the underlying mechanisms, such as practitioners' perceptions, or potential confounders, such as students' specific support needs due to disabilities, remain unobserved and cannot be accounted for.

CONCLUSION

The present study investigates curriculum modifications as a specific form of differentiation and demonstrates marked social selectivity in their use. The measure, which promises relief for low-achieving students yet is associated with potentially adverse implications, is allocated at systematically higher rates to students from low-income households when accounting for academic achievement. The study thereby challenges the assumption that inclusive schooling utilising practices of differentiation is necessarily less permeated by social inequalities. While it is broadly recognised that placement in separate special education settings is characterised by gaps along ascriptive characteristics, practices of allocating differentiation measures in inclusive mainstream classrooms warrant equally critical scrutiny. Building on these findings, future research is encouraged to investigate whether similar patterns

of social selectivity emerge in other forms of differentiation, whether there is social selectivity across other ascriptive characteristics such as gender or migration background, and to what extent social selectivity varies between schools or regions. Investigating practitioners' considerations and rationales during allocation of such measures as well as the ways parents intervene during these processes may contribute to a more comprehensive understanding of how social selectivity emerges. Moreover, analyses linking students' exposure to differentiation practices with longer-term educational outcomes would help clarify the extent to which socially selective allocation contributes to the reproduction of educational inequalities. A deeper understanding of processes of inequality in inclusive mainstream classrooms facilitates the refinement of the tools for managing student heterogeneity, ultimately promoting the educational success of all students.

AUTHOR CONTRIBUTIONS

Robin Benz: Conceptualization; investigation; funding acquisition; writing – original draft; methodology; validation; visualization; writing – review and editing; software; formal analysis; data curation; project administration. **Caroline Sahli Lozano:** Supervision; resources; project administration; conceptualization; writing – review and editing; funding acquisition; validation. **Esperanza Marx:** Conceptualization; writing – review and editing; validation.

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CONFLICT OF INTEREST STATEMENT

The authors declare no competing interests.

DATA AVAILABILITY STATEMENT

The Scientific Use Files of the Checks are provided by the Bildungsraum Nordwestschweiz and are available at SWISSUbase (https://doi.org/10.48573/mdbd-x247). Linked register data were provided by the Federal Statistical Office (FSO) and the Central Compensation Office (CCO) under contract number 250301. A replication package including Supporting information—S1 and code files is available at https://osf.io/8qtfx/.

ETHICS STATEMENT

Ethical approval for this research project was obtained from the Bern University of Teacher Education Ethics Committee.

ORCID

Robin Benz https://orcid.org/0000-0002-3930-0217
Caroline Sahli Lozano https://orcid.org/0000-0002-3957-8745
Esperanza Marx https://orcid.org/0009-0001-6135-4051

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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