Measuring Physical Activity at School in Switzerland: A Model based on Consensus and Controversy

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ABSTRACT

Evaluating the promotion of physical activity (PA) in Swiss schools is a challenge due to cantonal disparities. A first round of the Delphi method was conducted with 17 experts from the field of education, mainly researchers, to collect their views on the grading process, based on the School benchmark of the Global Matrix, an internationally recognized framework for physical activity assessment. The results of this initial consultation revealed an overall consensus of approximately 82%, thereby providing strong legitimacy to the initial evaluation. However, nearly half of the sub-indicators remain subject to controversy. A second Delphi round is therefore planned in order to achieve a *"slight consensus"* (at least 70% agreement) across all sub-indicators. Ultimately, this study aims to propose an engaging evaluation model for experts. This deliberative process is intended to help them better understand the challenges of physical activity promotion in Swiss schools, identify research gaps, and reflect on coordinated solutions at the national level.

Regular engagement in physical activity (PA) significantly reduces the risk of numerous chronic diseases, including cardiovascular diseases, type 2 diabetes, certain cancers, obesity, and osteoporosis. Physically active individuals have approximately half the risk of developing heart disease compared with sedentary individuals (Dhuli et al., 2022). Despite these well-established benefits, 43% of the Swiss population is overweight or obese (Federal Statistical Office, 2023). This situation is largely explained by the decline in physical activity during childhood and adolescence, a decrease whose effects persist throughout the life course (Varma et al., 2017). In Switzerland, school represents a central setting in which children and adolescents spend, on average, eleven years of their lives from the age of four onward. Moreover, it has been shown that school, alongside family and peers, plays a crucial role in the development of young people's behaviors (Bronfenbrenner, 1979).

However, based on our review of the literature (Lamprecht et al., 2021 ; Hänggi et al., 2022 ; Enquête auprès des cantons, CDIP, 2025), previous studies assessing physical activity in school settings present significant limitations. Most have either adopted an overly broad focus on physical activity or, conversely, concentrated on highly specific and isolated situations within physical education classes. As a result, although the role of school appears to be decisive in shaping individuals' levels of physical activity, evaluations of physical activity promotion initiatives within Swiss schools remain scarce or are limited to opinion based assessments, with little concrete verification in the field. Cantonal diversity further constitutes a major constraint for this type of research. Finally, no study comparable to the Global Matrix (Table 1), which offers a holistic assessment of the school's role, has yet been conducted in Switzerland, although the country is currently participating in the fifth edition of this initiative.

TABLE 1 : Global Matrix indicators

Indicators
Overall Physical Activity
Organized Sport and Physical Activity
Active Play
Active Transportation
Sedentary Behaviour
Physical Fitness
Family and Peers
School
Community and environment
Government
Sleep

This situation raises a central question: how can the role of the Swiss school system in promoting physical activity be assessed in a reliable and context sensitive manner within a country characterized by decentralized educational governance? To address this challenge, this study adopts a deliberative approach based on a Delphi process involving experts from the Swiss education system. This approach makes it possible to account for contextual complexity while leading to the attribution of a meaningful grade, and is intended to serve as a replicable model for future assessments in similarly fragmented educational systems.

2. THE GLOBAL MATRIX FRAMEWORK AND PROJECT OVERVIEW

This study is embedded within the Global Matrix 5.0 initiative, an international effort led by the Active Healthy Kids Global Alliance (AHKGA), which aims to assess and compare physical activity levels among children and adolescents, including children and adolescents with disabilities (CAWD), worldwide (Aubert et al., 2022). Drawing on Urie Bronfenbrenner's ecological systems model (1979), this framework proposes an evaluation based on 11 indicators (Table 1), ranging from individual behaviors to broader environmental determinants, in order to provide a holistic assessment of physical activity. In its current edition, 69 countries are involved in this international initiative. Within this context, the present study positions us as researchers and evaluators for Switzerland, marking the country's first participation in the Global Matrix initiative.

3. METHODS

3.1 THE SCHOOL BENCHMARK

Among the 11 indicators, this study focuses on the assessment of physical activity among Swiss children aged 5-17 years, using the School indicator. As part of the microsystems, alongside family and peers (Bronfenbrenner, 1979), this indicator is particularly relevant for analyzing physical activity levels, given that students spend a substantial portion of their daily lives in school settings. More specifically, the School indicator requires an examination of the role of the education system through a broad range of complementary sub-indicators (Table 2).

TABLE 2 : Benchmark for the school indicator

Benchmark
% of schools with active school policies
% of schools in which the majority (≥80%) of students are taught by a specialist Physical Education (PE) teacher
% of schools in which the majority (≥80%) of students receive the prescribed amount of Physical Education (PE) time
% of schools that offer opportunities to practice physical activity (outside PE) to the majority (>80%) of their students
% of parents reporting that their children and adolescents have access to physical activity opportunities at school, in addition to Physical Education (PE) classes
% of schools where students have regular access to facilities and equipment that promote physical activity
Physical Education curriculum: 100%: Yes, a national PE curriculum exists and it is comprehensive 75%: Yes, a national PE curriculum exists, but it lacks completeness 50%: Yes, a national PE curriculum exists, but its implementation is weak 25%: No national PE curriculum exists, but local or regional curricula are available and implemented to some extent 0%: No national or regional PE curriculum exists
% of schools with sports facilities compliant with accessibility standards (CAWD)

3.2 STEP 1: DEVELOPMENT OF THE INITIAL REPORT BASED ON THE SCHOOL BENCHMARK

In order to conduct the Delphi process (Step 2), an initial report on physical activity (PA) was first developed by a member of the Swiss Global Matrix team for the School indicator. The aim was to assess students' PA levels by assigning grades ranging from A to F to each School sub-indicator (Table 2), thereby producing a detailed grade for the overall School indicator. This process required, first and foremost, the identification of reliable data sources. To assign these grades, we primarily searched for quantitative data, more specifically percentage-based indicators, reflecting PA levels among Swiss students in school settings.

TABLE 3 : Percentage to grade conversion

%	Grade
94%-100%	**A+**
87%-93%	**A**
80%-86%	**A-**
74%-79%	**B+**
67%-73%	**B**
60%-66%	**B-**
54%-59%	**C+**
47%-53%	**C**
40%-46%	**C-**
34%-39%	**D+**
27%-33%	**D**
20%-26%	**D-**
<20%	**F**
No data	**INC**

However, given the lack of available data for certain sub-indicators, we also relied on grey literature, including cantonal and federal reports, as well as qualitative studies, to inform our assessments. As the Global Matrix does not impose a single standardized data-collection procedure, these percentages were identified through a combination of recent studies using open searches, structured searches, AI-assisted searches, and snowballing techniques. The collected data were then converted into grades according to the Global Matrix grading rubric (Table 3; Aubert et al., 2022). This initial report was subsequently shared with experts from the Swiss education system as part of the Delphi process (Step 2).

3.3 STEP 2 : SELECTION AND ENGAGEMENT OF EXPERTS WITHIN THE DELPHI PROCESS

Through a multi-round deliberative Delphi process (Hsu and Sandford, 2007), the aim is to achieve expert consensus on a given topic in a non-biased manner. In this study, the process seeks to establish a consensus among experts from the Swiss education system regarding the level of physical activity in school settings. First, the initial report is sent individually to the experts selected for the study, who were primarily identified through scientific articles, institutional reports, and the professional journal *l'EP en mouvement*. Each expert is asked to respond individually to a questionnaire assessing their level of satisfaction (using a 6-point Likert scale) and to provide written comments on the way the grades in the report were assigned.

Second, the Delphi process is organized into successive rounds (Round 1, Round 2, Round 3, etc.), with the process being stopped once a satisfactory level of consensus is reached. We defined the following consensus thresholds: slight consensus (70%), robust consensus (80%), very robust consensus (90%), and unanimous consensus (100%), reflecting the degree of expert agreement regarding the way a grade was assigned (Chia-Chien Hsu, 2019). As long as a 70% consensus is not achieved for each School sub-indicator, the initial report is revised between rounds by taking into account experts' satisfaction levels and comments, and is then resubmitted in the subsequent round to assess the updated level of consensus.

4. RESULTS - STEP 1 AND 2

Three data sources were identified to address the benchmark criteria and to develop the initial report:
(1) Sport Suisse 2020 – Children and Adolescents Report. This population-based survey examines sport and physical activity behaviors and includes a specific report focusing on youth aged 10 to 19 years. The study uses a mixed-methods approach combining telephone and online interviews. Data were collected in January 2019 from a sample of 3,407 respondents using a detailed questionnaire that distinguishes between different physical activity contexts, including school commuting, physical activity at school, and physical activity outside school settings.
(2) Cantonal survey (EDK/CDIP) (Questions 123A, 123, 122). This survey is based on a standardized questionnaire administered to cantonal education authorities. Each canton provides an official response, which enhances the reliability and comparability of the data across regions. The methodology is primarily declarative and relies on administrative information held by the respective public education departments.
(3) SOPHYA (Swiss Children's Objectively Measured Physical Activity, 2022). This representative study objectively measures physical activity using accelerometers among children aged 6–16 years and includes a longitudinal follow-up of a cohort into adulthood since 2014. For the purposes of the present study, we used only the component based on students' self-reported participation in optional school sport, drawn from a subsample of 1,234 students aged 6–20 years collected in 2019.
Table 4 (below) presents a summary of the grading results.

TABLE 4 : Initial report grades and sources

Sub-indicator	%	Grade	Source
% of schools with active school policies	93%	A	Survey of the cantons Q123A
% of schools in which the majority (≥80%) of students are taught by a specialist Physical Education (PE) teacher	-	INC	-
% of schools in which the majority (≥80%) of students receive the prescribed amount of Physical Education (PE) time	93%	A	Survey of the cantons Q122 Q123
% of schools that offer opportunities to practice physical activity (outside PE) to the majority (>80%) of their students	57%	C+	Sport Suisse 2020 Enquête Sophya
% of parents reporting that their children and adolescents have access to physical activity opportunities at school, in addition to Physical Education (PE) classes	-	INC	-
% of schools where students have regular access to facilities and equipment that promote physical activity	67%	B	Sport Suisse 2020
Physical Education curriculum	25%	D-	PER Lehrplan 21 Piano di studio
% of schools with sports facilities compliant with accessibility standards (CAWD)	-	INC	-

The average of the results (Table 4) assigns the School indicator an overall grade of B, according to the Global Matrix grading framework (Table 3).
Each grade in the initial report is accompanied by a paragraph explaining how the grade was assigned based on the available data sources. Items labeled *"INC"* refer to incomplete evidence, indicating that no relevant data were identified despite extensive searches to support grading for certain benchmark criteria. These items were therefore excluded from the overall calculation and represent potential research gaps.

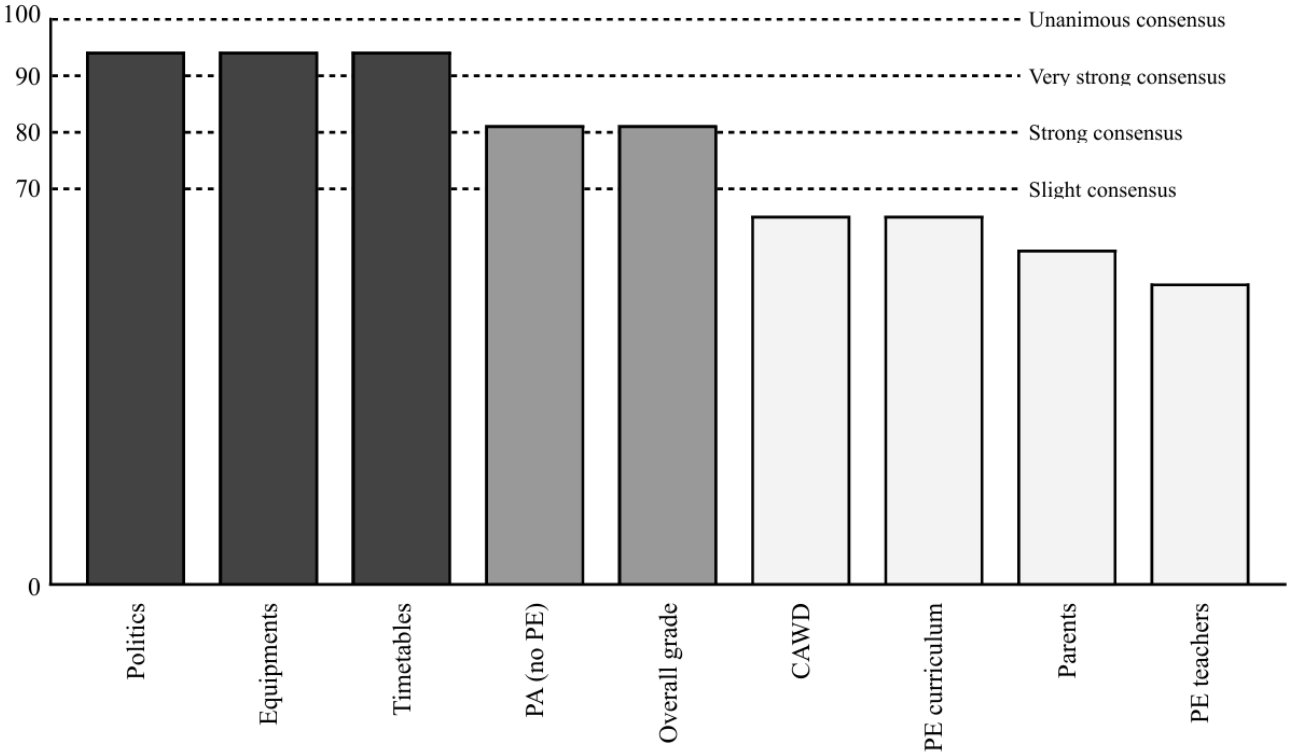
During the first Delphi round, out of the 51 experts identified and invited, 17 participated in the evaluation, generating a total of 153 ratings and 111 comments. Each expert therefore represented approximately 6% of influence on the final grading.

Regarding the question *"Assess the overall quality of the School indicator,"* 82% of experts reported being satisfied with the overall grading quality of the indicator. This result exceeds the 70% threshold and even reaches above 80%, allowing this aspect to be considered as having achieved a robust consensus.

With respect to the grading of the School sub-indicators, four of them reached consensus (Figure 1):

- Active school policies: 94%
- Allocated PE instructional time: 94%
- Opportunities for physical activity outside PE: 82%
- Access to facilities and equipment: 94%

Figure 1 : Experts satisfaction (%) with the way the initial report grades were assigned



In contrast, four approaches to grading the sub-indicators remain contested (Figure 1):

- Specialist PE teachers: 47%
- Parental reports: 59%
- PE curriculum: 65%
- Optional courses and supervised activities (CAWD): 65%

Thus, 4 out of the 8 sub-indicators (50%) reached consensus at the end of the first Delphi round.

5. DISCUSSION: A MODEL BASED ON CONSENSUS AND CONTROVERSY

5.1 THE EARLY SIGNS OF A CONSENSUS…

Our results show that 82% of experts are satisfied with the overall grade assigned to the School indicator, which constitutes a first robust consensus on the initial report. More specifically, a broad level of agreement was observed for four sub-indicators: the assessment of active school policies, compliance with Physical Education (PE) instructional time, access to equipment, and opportunities for physical activity outside PE classes. These sub-indicators share the common feature of relying on data sources that take cantonal or regional diversity into account.

We therefore hypothesize that experts are particularly demanding of an explicit consideration of this diversity, which may explain the consensus observed. Several comments illustrate this point, notably when experts emphasize that *"almost every canton has its own education system"* or that *"the lack of information collected at the cantonal level greatly biases the results."* However, this strong focus on the cantonal level raises questions about the nature of the consensus itself: does it reflect a shared willingness to better integrate the institutional complexity of Switzerland in order to produce relevant responses at the federal level, or does it reveal deeper intercantonal divides, where logics of comparison and competition between cantons may sometimes prevail over a collective national ambition? This tension represents a central issue for the evaluation and promotion of physical activity in Swiss schools.

5.2 … BUT NUMEROUS CONTROVERSIES

Despite these initial signs of consensus, four grading approaches for the sub-indicators remain contested, particularly the one related to the PE curriculum. The assigned grade of D–, although already low, was still considered too lenient by some experts (*"I think that D- is too generous given the reality of the curricula"*), while others criticized the curriculum objectives as being *"predominantly technicist."* Conversely, several participants argued that the benchmark itself is not suited to the Swiss context (*"Switzerland is very specific in this respect and the question may simply not be adapted to this specificity"*), going so far as to question the relevance of a national curriculum altogether (*"I do not see the necessity of having a national curriculum"*). These positions illustrate the difficulty, for some experts, in distinguishing the evaluation of how the grade was assigned from their personal views on the framework or the content being assessed, sometimes leading them to criticize the internationally referenced framework used in this study.

The three other sub-indicators that did not reach consensus relate to the level of specialization of PE teachers, the inclusion of CAWD (Children and Adolescents With Disabilities), and parental reports. In the absence of specific national data, these items were graded as *"INC"* (incomplete), which appears to have led experts to rely primarily on their local or cantonal experiences, as reflected in comments such as *"in the case of Geneva where I work…"* or *"in Valais, students in cycles 1 and 2 are taught by generalist teachers".* This reliance on situated experiences, which do not necessarily reflect the national reality, partly explains the observed divergences and the frustration expressed by some experts (*"I understand the INC, but it poorly reflects what is probably a fairly good situation"*). These

findings highlight significant gaps in the available data and underline the need to address these research gaps in future studies.

5.3 METHODOLOGICAL LIMITATIONS

Several methodological limitations should be acknowledged. First, the representativeness of the expert panel is limited, as it was exclusively composed of authors from the journal *L'EP en mouvement*. This recruitment strategy restricts linguistic and geographic diversity at the national level and may have facilitated informal exchanges among experts sharing professional networks or workplaces, thereby introducing a potential conformity bias contrary to the principles of the Delphi process.
Second, the relatively high number of experts consulted (n = 17) may have resulted in heterogeneity in expertise profiles, with some participants being more specialized in Physical Education than in the broader functioning of the school system, which could have influenced the levels of consensus observed. Finally, the use of a Likert scale introduces an inherent degree of subjectivity into the evaluation. Experts may at times have been inclined to assess the grade itself, depending on whether it was perceived as too lenient or too strict, rather than the methodology underlying the grading process, which represents a potential bias to consider when interpreting the results.

6. PERSPECTIVES AND ROADMAP : REIMAGINING PE FOR A CHANGING WORLD

In conclusion, the deliberative Delphi process adopted in this study represents both a methodological strength and a future-oriented model for evaluation in fragmented and decentralized educational contexts. By fostering structured dialogue, this approach enables the development of consensus and a shared vision despite institutional and regional fragmentation. It also supports the collaborative identification of research gaps, particularly areas where evidence remains insufficient or inconclusive (INC), thereby offering clear directions for future research. By actively engaging experts as co-constructors of the assessment, this model promotes empowerment and accountability, positioning them not merely as evaluators but as key actors in driving system-level change.
With regard to the present study, the next steps involve continuing additional Delphi rounds with the aim of achieving stronger consensus among experts. As consensus deepens, research gaps can be more precisely identified and consolidated. These gaps should then be disseminated to the wider research

TABLE 5 : Roadmap

Step	Objective	Key action
Consolidate	Achieve consensus on the remaining indicators.	Conduct a second Delphi round focusing on points of controversy.
Address	Tackle the identified data gaps (INC).	Formulate priority research recommendations for academic institutions and federal agencies.
Disseminate	Translate the findings into practical tools for policymakers.	Develop a visual synthesis and a policy brief summarizing the final results.
Sustain	Integrate this process into national evaluation cycles.	Propose a governance model to repeat the assessment at regular intervals (every 4–5 years).

community, encouraging other scholars to address them, potentially by drawing on the Global Matrix benchmarking framework as a reference for future investigations (Table 5).

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