From Attendance Data to Student Support: International Practices for Recording, Reporting, and Using Data on School Attendance and Absence

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Abstract: The recording, reporting, and use of data on school attendance and absence (DSAA) play a crucial role in understanding attendance and addressing absence in educational systems worldwide. However, a comprehensive grasp of the diverse approaches adopted across and within different countries has remained elusive. To address this knowledge gap, the International Network for School Attendance (INSA) facilitated this special issue providing an in-depth investigation into DSAA practices in 13 countries. This opening paper serves two purposes. First, it lays the conceptual groundwork for readers before they delve into the recording, reporting, and use of DSAA in different countries. Second, it presents key insights that emerge from the diverse array of contributions and a discussion of challenges and opportunities for the field. These include the substantial inconsistencies within and across countries; the pressing need for standardised best practices for recording, reporting, and using data; and the importance of embracing technological advancements to enhance the use of data. We envisage that the collective effort of the 40 authors involved in this special issue will enrich knowledge, enhance collaboration, and create real-world impact by enabling interested parties to develop, use, and evaluate data-driven strategies related to attendance and absence. By working together to address challenges and seize opportunities related to DSAA, we help young people access the education they rightfully deserve.

Keywords: school attendance, school absence, attendance data, school records, International Network for School Attendance (INSA)

Attending school offers numerous advantages for young individuals, such as enjoying time with friends, exploring stimulating topics, and receiving teacher support (Heyne & Brouwer-Borghuis, 2022). Moreover, schools provide an environment where social and emotional competencies can flourish, including relationship skills and decision-making abilities (Collie, 2020). Additionally, depending on the curriculum, school attendance can shape one's identity, passions, morals, and ethics (Eccles & Roeser, 2011). Positive health outcomes are believed to be associated with the roles young people assume at school (Bonell et al., 2019) and the social, emotional, and academic development they undergo there (Okano et al., 2019; Panayiotou et al., 2021). Exposure to instructional time contributes to intellectual development, academic achievement, and overall educational outcomes (Allensworth & Balfanz, 2019; Ginsburg et al., 2014; Keppens & Spruyt, 2020).

6   The significance of regular attendance during the early years of schooling cannot be overlooked, as it correlates with higher academic achievement both in the early stages of education (Gershenson et al., 2017; Gottfried, 2009, 2014; Rhoad-Drogalis & Justice, 2018) and in secondary school (Ansari & Pianta, 2019). Moreover, young people with better attendance rates exhibit a greater likelihood of graduating from school (Schoeneberger, 2012; Smerillo et al., 2018), which in turn enhances their preparedness for social and economic participation in society (Zaff et al., 2017). Notably, Kearney et al. (2022) highlight that readiness for adulthood represents the primary long-term outcome associated with school attendance.

The International Network for School Attendance (INSA) endeavours to ensure that all young individuals have access to these far-reaching benefits provided by school attendance (www.insa.network). The current special issue of *Orbis Scholae* aligns with three key objectives of INSA: (1) facilitating access to the latest developments in the field, for all interested parties, (2) sharing research data and best practices, and (3) documenting the historical, current, and future discourse in the field of school attendance. Guided by these objectives, INSA, under the leadership of guest editors Gil Keppens and David Heyne, collaborated with Orbis Scholae's Executive Editor Dominik Dvořák, to curate this special issue.

Although extensive literature exists on school attendance and absence, there remains a lack of knowledge on effective approaches for working with data on school attendance and absence (DSAA) at national, subnational, and school levels to support young individuals. (We use the term *subnational* to refer to levels such as districts, municipalities, counties, boroughs, provinces, states, and territories.) To bridge this knowledge gap, a call for papers was issued, inviting international contributors to address key questions about DSAA. The questions encompass the conceptualisation and categorisation of school attendance and absence (e.g., are absences categorised as excused and unexcused), the procedures for recording attendance and absence, the methods of reporting these data (e.g., what kind of mandatory reporting is there), and how schools and central authorities use this information.

The call yielded 10 illuminating papers that shed light on DSAA practices in 13 countries: Australia, Chile, Denmark, England, Finland, Germany, Japan, the Netherlands, Norway, Scotland, Spain, Sweden, and the United States of America. Some papers focus on an entire country, some delve into subnational levels within a country, and a few offer comparisons across countries. We are incredibly grateful for the valuable contributions of the 40 authors, who encompass educators, practitioners, policy-makers, project leaders, department heads, researchers, and academics. Their expertise and insights have been instrumental in shaping this ground-breaking special issue. The collaborative exchange of practices, experiences, and ideas plays a pivotal role in inspiring and supporting interested parties worldwide, propelling the field forward in its endeavours with DSAA. Ultimately, it is through the authors' contributions that collective knowledge advancement is achieved, paving the way for innovative approaches to DSAA and positively impacting young individuals.

This introductory paper serves two purposes. First, it sets the stage for the special issue by outlining the evolving significance of DSAA (Section 1) and providing explanations and examples of the processes related to recording attendance and absence, reporting data on attendance and absence, and using its potential to benefit young individuals (Section 2). Second, it highlights insights related to DSAA processes based on the diverse experiences detailed in the papers that cover different countries (Section 3), concluding with a brief discussion of challenges and opportunities related to DSAA (Section 4).

1 The Evolving Significance of Data on School Attendance and Absence

The field of DSAA has undergone significant transformations in purpose and importance over the years. Traditionally, DSAA primarily served administrative functions, such as enrolment tracking and funding allocation (Frydenlund, 2022; Gleeson, 1992). Additionally, it was used for enforcing compulsory education laws and disciplining absent students or their parents (Gleeson, 1992; McIntyre-Batty, 2008; Zhang, 2004). However, with the recognition of attendance as a critical factor influencing student engagement, educational outcomes, and school completion (Ansari & Gottfried, 2021; Ansari et al., 2020; Ansari & Pianta, 2019; Gershenson et al., 2017; Schoeneberger, 2012), interested parties have come to realise the broader value of DSAA for monitoring and enhancing students' academic and psycho-social development.

The shift away from a punitive approach towards proactive and supportive approaches was spurred by the emergence of early warning systems in the 1990s and early 2000s. These included the Early Warning, Timely Response model (Dwyer et al., 1998) and the Check and Connect model (Anderson et al., 2004) in the US, and the Primary-Secondary Colour Coded scheme (Reid, 2003) in the UK. These systems use data to track attendance and identify students in need of targeted support, aiming to address underlying reasons for absence, such as academic difficulties, disengagement, social-emotional issues, or family hardships (Anderson et al., 2004; Reid, 2003). Prompt attention to attendance issues aims to re-engage students, improving their connection to school and preventing further disengagement or dropout.

The value of DSAA has been further amplified by the emergence of response-to-intervention models, such as the multidimensional multi-tiered system of supports model to promote school attendance and reduce school absenteeism (Kearney & Graczyk, 2014, 2020). These models, which are gaining increased attention in school settings (Karel et al., 2022), encourage close monitoring of DSAA to determine the effectiveness of school-wide approaches to promote attendance and prevent absence (Tier 1 in the model), to identify and support individual students and groups of students with acute/emerging/mild/moderate attendance problems or other risk for chronic/severe attendance problems (Tier 2 in the model), and to identify and support those displaying chronic/severe attendance problems (Tier 3 in the model).

8   In this way, appropriate levels and types of support are implemented in a timely manner, helping professionals in their efforts to ensure all young people have access to the benefits of education.

To further enhance understanding of the significance of DSAA, we draw from the data-information-knowledge-wisdom (DIKW) hierarchy, a model in information science (Rowley, 2007). Accordingly, we argue that data related to school attendance and absence have value when they translate into positive outcomes for young people, their families, schools, and the broader community. In line with the DIKW model, attendance and absence data hold significance when they are transformed into information and, subsequently, knowledge. This knowledge is instrumental in making wise decisions which help ensure every young person reaps the benefits of education.

2 The Recording, Reporting, and Use of Data on School Attendance and Absence

The processes of recording, reporting, and using DSAA might seem straightforward, leading to the misconception that schools within and across countries employ the same practices. However, close examination reveals substantial variations in the scope, approach, timing, and objectives of these activities. There is also variation in the terminology used to characterise these activities. Section 2 aims to dispel confusion by providing a clear guide to the specific activities associated with the terms "recording," "reporting," and "using" DSAA. To further clarify this process, Figure 1 presents an overview of working with DSAA.
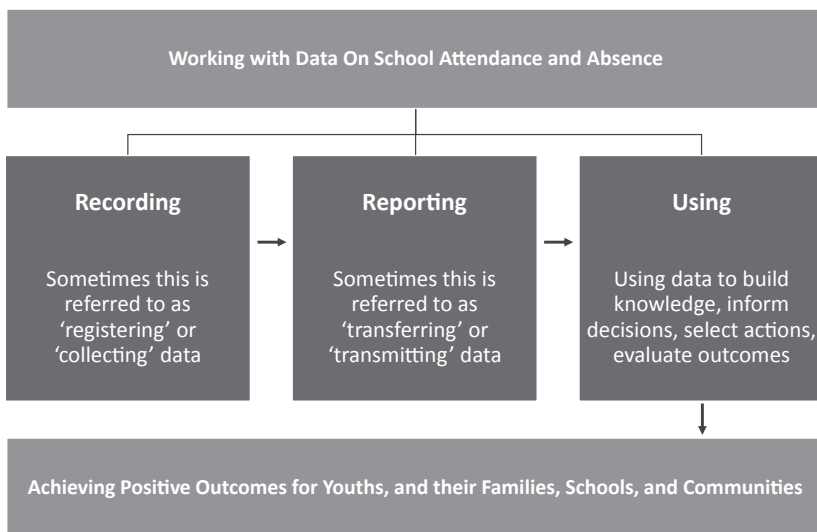

Figure 1 Working with Data on School Attendance and Absence to Achieve Positive Outcomes

The following sections provide a conceptualisation of "recording" DSAA, along with examples of the data recorded and the processes employed in educational settings for capturing this data.

2.1.1 What Is Meant By "Recording"?

We use the term "recording" DSAA to refer to the act of documenting student presence or absence within educational institutions. (It is important to note that INSA is actively working to expand the understanding of attendance and absence beyond the traditional school setting, as outlined in Kearney et al. [submitted]). Terms like "roll marking," "collecting," "registering," "tracking," and "monitoring" are sometimes used interchangeably with "recording". "Tracking" and "monitoring" are less suitable terms for "recording" because they may encompass the reporting and use of data as well.

2.1.2 What Is Recorded?

In most countries featured in this special issue, both attendance and absence are recorded. However, in some countries, only absences are recorded. There is often an effort to distinguish between excused and unexcused absences, which are also known as explained and unexplained absences, or authorised and unauthorised absences. Variations exist in recording attendance, including the use of special codes for instances where a student is not physically present at school but is engaged in an approved educational activity, such as work experience. Factors like late arrival might be taken into consideration, and sometimes precise arrival and departure times are recorded. It is worth noting that during the COVID-19 pandemic, new categories might have been introduced for recording attendance in online learning or hybrid situations, such as "participation in remote learning experiences."

2.1.3 How Is It Recorded?

The process of recording attendance and absence can be carried out in different ways. It is sometimes done manually using class books, while oftentimes dedicated electronic registration systems are used, although there is variation in the type of electronic system used. The responsibility for recording attendance often rests with teachers, and sometimes administrative staff are involved. DSAA are typically recorded on a regular basis, with elementary schools often collecting data once or twice a day, while secondary schools tend to gather data multiple times a day, usually at the beginning of the day and for each class. In some locations, parents or guardians (hereafter referred to as parents) directly record absence or lateness in the school's digital platform.

2.2 Reporting Data on Attendance and Absence

In the following sections, we provide a conceptualisation of "reporting" DSAA, along with examples of the parties responsible for reporting the data and the intended recipients.

2.2.1 What Is Meant By "Reporting"?

Terms such as "submitting," "notifying," "transferring," and "transmitting" are sometimes used to describe the process of reporting DSAA. We use the term "reporting" to refer to the process of sharing recorded DSAA with intended recipients such as individuals and organisations who will use it. While the publication of reports can be a means of delivering data to users, we do not regard "reports" as synonymous with the broader process of reporting DSAA to facilitate the effective use of data. Furthermore, it is worth noting that the term "reporting" is sometimes used interchangeably with "recording," such as when teachers "report" absences in an electronic registration system. However, we use "reporting" to refer to the broader concept of sharing DSAA.

2.2.2 Who Reports the Data, and To Whom?

There is substantial variation in the reporting of DSAA. Reporting can occur within the school to monitor the attendance of individual students and inform the need for support. For example, individual student absence data may be transferred to the next grade level, ensuring ongoing awareness of students' absences among school staff. Further, there may be obligations to report absences to parents. Data are also reported to higher authorities, such as when an attendance officer reports a student's habitual absences to an intake officer of the juvenile court. Often, school leaders are responsible for ensuring that data are shared with local education boards, municipalities or districts, states, or national bodies for monitoring and intervention purposes. Sharing also occurs between different levels of these higher authorities. For example, municipalities or state departments of education are responsible for reporting to national bodies as required. Ultimately, the reporting landscape encompasses a range of actors, from delegated personnel within schools to subnational and national authorities.

2.3 Using Data on Attendance and Absence

The next sections clarify the concept of "using" data in the context of DSAA and provide examples of the purposes for which data are used, by whom, and the benefits derived from using these data.

2.3.1 What Is Meant By "Using" Data?

We use the term "using" DSAA to refer to the multifaceted process of employing information about attendance and absence for interconnected purposes, as described in Section 2.3.2. "Using" DSAA can also be thought of as "harnessing" or "leveraging" the potential within the data.

2.3.2 For Which Purposes Are Data Used, and By Whom?

The use of DSAA is vital to achieve the ultimate goal of improving outcomes for young people. Data can be used in numerous ways to achieve this goal, including: (1) building knowledge based on the analysis and interpretation of data; (2) informing decision-making; (3) prompting action; and (4) evaluating the outcomes of decisions made and actions taken. Teachers, school administrators, school attendance teams, educational authorities, policymakers, researchers, and scholars can all gain valuable insights into attendance patterns to inform decision-making and guide actions. Some examples are provided below, and further instances can be found in the papers within this collection.

At the school level, a teacher who informs a parent about their child's absence is "using" the data to encourage the parents to try to improve their child's attendance. A school's attendance team can use the school's DSAA to identify trends and inform decision-making regarding interventions for individuals and student groups at risk of chronic absence. At the district and state levels, DSAA acts as an indicator of school effectiveness, providing insights into the capacity of schools to maintain satisfactory student attendance.

At other subnational levels and at the national level, DSAA serve the purpose of identifying attendance trends which can inform education policies and the practices of authorities such as education departments. At national and international levels, education authorities and researchers can use DSAA to comprehend the extent, patterns, and impact of school attendance and absence within and across countries. This understanding enables the development of relevant legislation, support systems, and resource allocation.

2.3.3 What Are the Benefits of Using Data?

The use of DSAA has become essential in promoting regular attendance and managing absence (Chu, 2021; Kearney & Childs, 2022; Keppens & Bach Johnsen, 2021). Interested parties, including school personnel and education departments, can use it to efficiently identify and respond to the needs of individual youths, schools, and communities (Heyne et al., 2023). Related, DSAA plays a crucial role in shaping policies at various levels, from schools to communities and nationally (Kearney & Graczyk, 2022), and informing best practices for education and school attendance (Kearney et al., 2022).

Research and scholarship also benefit substantially from the use of DSAA. Heyne et al. (2023) highlighted the prevalent use of data for exploring factors influencing attendance and absence, gauging the impact of attendance and absence on

12 outcomes like academic achievement, and evaluating interventions designed to promote attendance and reduce absence. Their paper provides an overview of recent exemplary studies using DSAA, including Purtell and Ansari's (2022) examination of associations between preschool absences and child, family, and centre factors, and Niemi et al.'s (2022) comparison of absenteeism in adolescents with and without ADHD. Bowen et al. (2022) employed machine learning techniques to uncover factors underlying absence in a specific school, Arbour et al. (2023) used publicly available databases to evaluate the effectiveness of an intervention, and LeBoeuf et al. (2023) investigated racial disparities in absenteeism across Montessori and non-Montessori schools. Studies such as these deepen our understanding of factors influencing attendance and offer insights for developing and implementing interventions.

In summary, working with DSAA empowers interested parties to respond efficiently and effectively based on informed decisions about conditions conducive to young people's attendance and their relationship with education. This, in turn, benefits families through fostering young people's routines and responsibility (Heyne et al., 2020) while avoiding challenges like parent frustration (Dannow et al., 2018) and work disruptions (Johnsen, 2020). Schools benefit because teachers can maintain a consistent pace of instruction for students (Gottfried, 2019) and communities gain because school completion enhances young people's readiness for societal participation (Zaff et al., 2017) and reduces early reliance on financial support from the government (Collingwood et al., 2023; Myhr et al., 2018).

3 Insights About Data on School Attendance and Absence

In this section, we synthesise insights drawn from the other 10 papers included in this collection. Our approach involves a focused exploration, rather than a systematic review of the papers, concentrating on key points emerging in response to the four topics authors were invited to address: (1) definitional issues, addressing how attendance and absence are conceptualised, including problematic absence, (2) recording procedures, (3) reporting procedures, and (4) the use of data on attendance and absence. The insights drawn from the 10 papers have been instrumental in shaping the additional insights presented within this section. For readers seeking comparative studies across specific countries, we refer to the works by Giménez-Miralles et al. (2022; exploring Scotland and Spain), Sandhaug et al. (2022; covering Sweden, Finland, Denmark, and Norway), and Kreitz-Sandberg et al. (2022; covering Sweden, Germany, England, and Japan).

3.1 Insights About Definitions and Criteria for Considering Absence as Problematic

The papers in the collection shed light on the lack of common definitions within and across countries, for attendance, absence, and the criteria for considering absence as problematic. We present examples illustrating the lack of clarity.

In Australia, as White (2022) notes, there is a lack of a distinct definition of attendance in both the National Standards for Student Attendance and the majority of subnational policies. White suggests that the definition of attendance can be inferred from the various attendance and absence codes used, as well as the guidance provided for addressing absences. He notes that students are considered to be in attendance if they "(a) attend the school site while the school is open for instruction, (b) participate in a school approved activity or (c) participate in an offsite flexible learning pathway / program approved by the principal" (p. 5).

In Spain, there is no centralised and standardised approach to defining absence, as highlighted by Giménez-Miralles et al. (2022). Instead, each autonomous community has its own protocols and regulations. In the Netherlands, as Karel et al. (2022) note, the Compulsory Education Act permits schools to categorise "worrisome authorised absences" as "other absenteeism." However, defining and identifying authorised absences that are worrisome pose challenges for school personnel and attendance officers. According to Karel et al., this lack of clarity may lead to under-recording and under-reporting of these absences, potentially delaying intervention. In Japan, the Ministry conducts an annual survey on absenteeism but as Maeda (2022) notes, the criteria used by schools to classify absences may differ, resulting in varied interpretations and classifications of absence, hindering a clear understanding of the scope of absenteeism.

In the United States, as described by Graczyk et al. (2022), the National Forum on Education Statistics (NFES) provided operational definitions for excused and unexcused absences in 2009. These definitions serve as a foundation for understanding absence and its categories. The NFES also developed a taxonomy of 16 mutually exclusive attendance and absence codes, organised under "Present/Attending" and "Absent/Not Attending." Connecticut and Indiana, the states highlighted in Graczyk et al.'s (2022) paper, use these codes to classify student absences. While both states employ many NFES codes, they differ in how they define certain absence types. For example, Connecticut distinguishes between unexcused absences and those due to disciplinary actions by the school, while Indiana lacks such differentiation.

The papers in this special issue also showcase the lack of consensus regarding the definition of problematic absence. Kreitz-Sandberg et al. (2022) highlight variations across four countries: Japan, England, Germany, and Sweden. In Japan, problematic absence, referred to as "futôkô," is defined as 30 days of absence per year, equivalent to 15% of the total possible school days. In England, persistent absence is defined as missing 10% or more of half-day sessions in a term or year, roughly equivalent to 19 school days in a school year. Germany demonstrates significant variation

14 in the definition of persistent absence across its federal states. For instance, in Thuringia, the critical level is set at 10 days per year, indicating a lower threshold compared to Japan and England. Conversely, in Berlin, the threshold is set at 20 days per term, which is four times higher than that of Thuringia. In Sweden, there is no official definition for what constitutes problematic absence, and the term "längre och upprepad frånvaro" is used, referring to longer and repeated absence, but it lacks a clear definition.

The comparative paper by Sandhaug et al. (2022) across Sweden, Finland, Denmark, and Norway uncovers the lack of clear benchmarks for signalling the need to address absenteeism. While schools are required to investigate and respond to unexplained, repeated, or prolonged absences, the education acts in these countries lack specific guidelines for taking action. Consequently, each municipality or school independently decides when absence warrants intervention, resulting in diverse models and strategies.

The inconsistency within and across countries poses challenges for comparing DSAA among schools, subnational bodies, and countries. Moreover, the lack of standardised definitions can complicate the efficient resolution of attendance issues. At the same time, certain papers in the collection offer more specific conceptualisations regarding when to respond. For instance, in Chile, four categories are employed: outstanding attendance (97% or more), normal attendance (between 90% and 97%), repeated absenteeism (attendance between 85% and 90%), and serious absenteeism (less than 85% attendance) (Soto Uribe et al., 2022). Moreover, late arrivals are defined by students arriving 15 minutes after the start of the school day module, with specific rules for arrivals beyond 30 minutes late. Likewise, in the United States, the Department of Education, as well as the states of Connecticut and Indiana, define chronic absenteeism as a student being absent from school for 10% or more of the time (Graczyk et al., 2022). This definition covers all absence types – unexcused, excused, or due to a school's disciplinary actions. Graczyk et al. (2022) emphasise the importance of this inclusive definition, highlighting that all absences can hinder a student's ability to fully benefit from the educational, social, and language enrichment opportunities available in school.

3.2 Insights About Recording Data

The recording of DSAA varies across schools, leading to inconsistencies. For example, White (2022) highlights the diversity in Australia, where some schools record the proportion of the school day missed while others consider any absence exceeding two hours as a part-day missed. In Finland, Palmu et al. (2022) note that despite legal obligations, discrepancies in teachers' recording exist due to differing definitions of absence, such as considering a 15-minute late arrival as an absence in some schools but not others. Diversity in recording practices makes it hard to compare DSAA metrics reliably, complicating the identification of meaningful trends.

Conversely, some papers in this issue provide examples of relatively clear guidelines for recording DSAA. In the United States, for example, Graczyk et al. (2022) discuss how the U.S. Department of Education and state education departments like those in Connecticut and Indiana provide frameworks for recording attendance and absence. By way of illustration, Connecticut, through the Public School Information System (PSIS), provides specific guidelines for recording various types of attendance, including online learning activities and time spent on assignments outside of school hours. Griffiths et al. (2022) observe that England maintains consistent attendance and absence recording using codes specified by the Department for Education. These codes cover various scenarios, like attending an approved educational activity outside of school, each assigned a unique code, or being unable to attend due to exceptional circumstances such as weather conditions and transport issues. There are no legal requirements to use these codes, but Griffiths et al. note that the codes are commonly used nationwide.

A challenge for the field involves the trade-off between the complexity of the system for recording DSAA (i.e., the use of numerous codes for variations in attendance and absence), the information this provides, and the workload for those responsible for recording students' attendance and absence (see, for example, Karel et al., 2022).

3.3 Insights About Reporting Data

The papers in this issue reveal considerable variation across localities regarding the reporting of DSAA. These variations encompass numerous crucial aspects of reporting, including: (1) the obligation to report and the reporting process, (2) the types of data that must, may, and may not be reported, (3) the frequency of reporting, (4) the requirements for reporting categories such as persistent or chronic absence, (5) the thresholds for reporting individual cases, and (6) the impact of the COVID-19 pandemic on reporting practices. In this section, we provide examples that illustrate these aspects of reporting and then examine their implications for our collective work in the field of school attendance.

First, in many but not all locations, there are explicit expectations and frameworks governing schools' reporting of DSAA to authorities. For example, in Australia, efforts have been made to align reporting throughout its states and territories through the implementation of National Standards for Student Attendance Data Reporting (White, 2022), a framework that established agreed definitions and reporting schedules. Schools report DSAA to educational authorities at the regional/district level to identify broader attendance patterns, and data are also reported to education departments at the state/territory level. In Chile, schools report data through the General Student Information System digital platform, used by the Ministry of Education to integrate student data (Soto Uribe et al., 2022). In Denmark, schools are mandated to report data to the municipality and there is systematic reporting to a national databank (Sandhaug et al., 2022). The Netherlands also imposes reporting

16 obligations on schools, monitored by the Inspectorate of Education (Karel et al., 2022). Other countries, such as Finland, have more flexible approaches without obligations or clear structures for schools to report data to the municipal level (Palmu et al., 2022). Reporting in Spain is fragmented due to the country's decentralisation; each autonomous community has its own reporting practices and protocols (Giménez-Miralles et al., 2022).

Second, there is variation in the reported data, influenced by differences in which data must be reported, may be reported, and may not be reported. Some countries oblige the reporting of specific rates of *absence*, like England (Griffiths et al., 2022), while others report specific rates of *attendance*, such as Australia (White, 2022). Meanwhile, some countries mandate reporting of both absence and attendance, like the United States (Graczyk et al., 2022). Moreover, the reporting of authorised and/or unauthorised absence varies across locations. For instance, Kreitz-Sandberg et al. (2022) note that in most of the countries and subnational levels they described, authorised absence does not need to be reported to authorities. In the Netherlands, according to Karel et al. (2022), schools are not allowed to report authorised absence, such as absence due to illness. However, they do have the option to report worrisome authorised absence, when the duration or frequency of absence is concerning, but this is not mandatory.

There is also variation in reporting disaggregated data compared to aggregated data. Disaggregating data involves breaking down information into specific elements, like individual students, grade levels, gender, or race/ethnicity, while aggregated data provide information in a combined form, often at higher levels like school or district-wide averages. In Chile, data are reported at the individual and grade levels, as well as at the school level (Soto Uribe et al., 2022). In Australia, reported data are split across six cohort groups for each year level: male students, female students, gender X students, Indigenous male students, Indigenous female students, and Indigenous X gender students (White, 2022). In the United States, data on chronic absence are disaggregated for student groups based on variables such as race and disability status (Graczyk et al., 2022). Similarly, schools in England report persistent absence disaggregated according to specific groups, such as year group, gender, ethnicity, and special educational needs (Griffiths et al., 2022).

In some countries, there are unique aspects related to (un)reported data that seem to be specific to those countries. For instance, in Australia, state and territory legislation requires reporting of data from Kindergarten to Year 12, while national reporting only covers students in Years 1 to 10, resulting in the lack of a national report for youths in the first year of compulsory education (White, 2022). In the Netherlands, municipalities are required to report efforts taken to address absenteeism during the year (Karel et al., 2022).

Third, the frequency of reporting varies considerably across countries and subnational levels. For instance, Chilean schools submit monthly reports (Soto Uribe et al., 2022), while in England, the Department for Education extracts data from all schools for the Spring, Summer, and Autumn terms (Griffiths et al., 2022). In

Australia, data are reported twice a year, covering Semester 1 (Term 1 and 2) and Term 3 (White, 2022). Similarly, Germany's Berlin region reports absence data twice a year (Kreitz-Sandberg et al., 2022). In some locations, like Connecticut and Indiana in the United States of America, the Netherlands, and Japan, mandated data such as chronic absence or unauthorised absence are reported annually (Graczyk et al., 2022; Karel et al., 2022; Maeda, 2022).

Fourth, there are varying requirements for reporting categories of DSAA. For example, in England, schools report the rate of "persistent absence," defined as the proportion of students missing 10% or more of school sessions due to authorised or unauthorised absence (Griffiths et al., 2022). Similarly, in the United States of America, data on "chronic absence" are reported, based on absences of 10% or more, whether excused or unexcused (Graczyk et al., 2022). However, the state of Connecticut also mandates the reporting of "truancy" based on a student's unexcused absence four times in a month or ten times in a year (Graczyk et al., 2022). The state of Indiana requires reporting of "persistent attendance," based on students attending at least 96% of the time, and schools also report "improved attendance" when there is an increase of three or more percentage points compared to the student's attendance in the previous year. In Australia, reporting includes the proportion of students whose attendance is 90% or higher (White, 2022).

Fifth, there are different thresholds that trigger reporting obligations. For instance, in the Netherlands, schools must report unauthorised absences of 16 hours or more in four consecutive weeks (Karel et al., 2022). In Denmark, school principals must inform social authorities when a student accumulates 15% or more unexcused absences within three months (Sandhaug et al., 2022). England requires schools to notify the Local Authority when students accumulate 10 or more days of unauthorised absence (Griffiths et al., 2022). In the Valencian autonomous community in Spain, prolonged absences are reported (length not specified), triggering an education inspection (Giménez-Miralles et al., 2022). In Japan, principals must notify local education boards when students are away from school for seven days without authorisation, although noncompliance by principals and boards is noteworthy (Maeda, 2022).

Sixth, during the COVID-19 pandemic, reporting saw significant changes, with some countries suspending national reporting due to diverse schooling arrangements (e.g., White, 2022). In contrast, other locations adapted their reporting methods, such as in Indiana (USA), where new codes were established for recording and reporting (Graczyk et al., 2022). Similarly, after the initial lockdown, schools in the Netherlands had to report unauthorised absence during online classes (Karel et al., 2022).

In conclusion, the variations in reporting as described in this section pose significant challenges in the field of school attendance. One key issue is the difficulty in comparing data across subnational levels and across countries, hindering the accumulation of vital information about areas of greatest need and impeding knowledge advancement on best practices. Additionally, the lack of standardised reporting

18 of data may create incentives for data manipulation in some cases. Moreover, in some locations, the absence of mandated reporting of authorised absence makes it difficult to obtain accurate estimates of illness-related and overall absence rates, despite the prevalence and potential negative impact of illness-related absences (Pijl et al., 2021).

3.4 Insights About Using Data

The recording and reporting of DSAA hold value when the data are effectively used. Within the special issue, readers will discover a diverse range of practices highlighting the use of DSAA. The current section presents insights from some noteworthy examples and concludes with a discussion of key challenges related to DSAA use.

White's (2022) paper on the Australian context highlights the pivotal role of data in policy development, evaluation, and addressing attendance issues. Policymakers rely on reported attendance rates and patterns to identify at-risk students, inform policies, allocate resources, and assess the effectiveness of interventions, all with the overarching aim of improving attendance and preventing negative educational outcomes. Schools also use DSAA to assess the impact of interventions over time, making necessary adjustments as needed. Additionally, the Australian Curriculum, Assessment and Reporting Authority, responsible for reporting DSAA, launched the My School website. This initiative promotes transparency by providing public access to and comparison of attendance rates across schools.

Giménez-Miralles et al. (2022) demonstrate how DSAA collected by the Scottish Government is used to examine attendance rates across distinct levels – national, local authority, and school. This analysis identifies patterns and trends, particularly regarding student characteristics such as school stage, ethnicity, and socioeconomic deprivation. Moreover, the data aid in distinguishing between non-COVID-19 and COVID-19-related reasons for absence, providing valuable insights into the pandemic's impact on school attendance.

Graczyk et al. (2022) highlight the diverse role of DSAA in schools and districts of the USA. It is used to monitor student attendance, identify patterns, and implement interventions to improve attendance. Individual student attendance is tracked, and targeted support is offered to those with high absence, following a multi-tiered system of supports framework. State education departments play a crucial role in analysing data on a broader scale to detect trends and disparities, offering guidance and resources aimed to enhance attendance practices and address chronic absence effectively.

Karel et al. (2022) outline the newly promoted use of DSAA in the Netherlands for goal setting and outcome monitoring. Schools are prompted to set attendance goals and evaluate their effectiveness through a data-driven approach at various levels, including the individual, classroom, and school levels. This comprehensive evaluation enhances the understanding of attendance patterns, enabling schools to identify

groups that may need additional support. Consequently, targeted interventions can be implemented to address school absenteeism effectively.

Soto Uribe et al. (2022) illuminate the various applications of DSAA in Chile. Data play a crucial role in shaping decisions on grade promotion, evaluating school performance, and influencing funding allocation. By leveraging this information, Chilean educators and policymakers make informed choices to create a more supportive and effective educational system, ultimately driving positive educational outcomes.

The contributions in this collection also shed light on challenges and potential solutions related to the effective use of DSAA for research, policy, and practice. A key challenge, acknowledged by the authors of numerous papers, stems from inconsistencies in defining, recording, and reporting DSAA, alongside disparities in the use of data, all of which limit comparisons at subnational, national, and international levels. Several themes emerge across the reports of these authors. First, consistent recording and reporting of data are crucial for research (Sandhaug et al., 2022) and for strengthening investigations capable of dispelling damaging assumptions about absence among equity groups (White, 2022). Second, shared definitions and consistent recording facilitate policy writing, timely policy changes, and the targeting of support for reforms (Griffiths et al., 2022; Palmu et al., 2022; Sandhaug et al., 2022). Third, consistent recording and usage enable prompt identification and effective intervention (Graczyk et al., 2022; Karel et al., 2022), benchmarking, and timely changes in practice (Griffiths et al., 2022), as well as global problem-solving (Kreitz-Sandberg et al., 2022). These themes collectively emphasise the need for standardised DSAA practices to maximise its potential in addressing challenges related to school attendance and absence on both local and global scales.

Lastly, DSAA are also used for school and district accountability, as emphasised by Graczyk et al. (2022) in the United States. However, it remains unclear whether using DSAA for accountability purposes aligns fully with its role in supporting young people's engagement with education. For instance, using DSAA for school accountability may lead to intentional distortions of records, potentially compromising their validity for research or intervention (Muller, 2018).

4 Discussion

The role of DSAA has evolved beyond administrative functions to become a tool to proactively support students. This evolution aligns with the DIKW hierarchy, emphasising that the value of DSAA extends beyond information and knowledge generation to guiding well-informed decisions, ultimately ensuring educational benefits for all young people.

4.1 Challenges and Opportunities

This paper introduces the collection of papers in this special issue, constituting the most extensive overview to date on practices related to recording, reporting, and using DSAA. In tandem with the papers in the issue, this introductory paper sheds light on challenges and opportunities linked to the recording, reporting, and use of DSAA, highlighting inconsistencies across locations. It underscores the urgent necessity to establish and implement standardised best practices for DSAA to facilitate decision-making at subnational, national, and global levels, and thus to help ensure a meaningful educational journey for all young people. Achieving these best practices necessitates collaboration among educators, researchers, policymakers, administrators, and individuals with lived experiences, within and across countries. Sharing knowledge, experiences, and expertise, and learning from each other's accomplishments and limitations, is crucial for advancing policies and practices.

In the context of recording DSAA, the ultimate usefulness of data heavily depends on the quality and comprehensiveness of the recorded data (Kearney & Childs, 2022). It is vital to align data collection systems with the requirements of decision-makers. This paper underlines the significance of adopting a more systematic approach, both within and across countries, to ensure uniformity in measuring attendance and absence. Addressing subjectivity issues in distinguishing authorised (excused) and unauthorised (unexcused) absences, as well as recording reasons for both absence and attendance, is critical for developing accurate data that can inform effective interventions.

Regarding the reporting of DSAA, uniform practices are imperative for a better understanding and response to school attendance issues. We emphasise the need for greater uniformity in data disaggregation by key variables such as year level, gender, race/ethnicity, social class, and special educational needs to facilitate evidence-based decision-making about areas of need, targeted interventions, and the cultivation of equitable and inclusive educational settings.

The use of DSAA becomes a valuable resource for schools and authorities, empowering them to analyse attendance patterns, make informed decisions, and develop strategies to improve attendance and address the underlying causes of absence. At the student level, using DSAA at regular intervals, such as weekly, is a proactive approach for timely identification and tailored support for students facing challenges that affect their attendance and engagement. Additionally, data-driven decisions facilitate planning and evidence-based policy-making at broader institutional or systemic levels. Policies based on data-driven insights are more likely to foster inclusive learning environments and improve attendance rates. Furthermore, data about social and demographic factors that impact attendance, such as transportation issues, health concerns, and community circumstances (Gentle-Genitty et al., 2020; Kearney & Childs, 2022), can promote collaboration between schools, families, communities, and relevant agencies working to address attendance barriers and foster positive and inclusive learning environments.

To move forward effectively, we must overcome challenges related to recording, reporting, and using DSAA. These challenges include inconsistent data recording, delayed data collection and reporting, privacy concerns, resource limitations, and the analytical complexities faced by some schools and educational institutions when interpreting recorded DSAA. Enhancing the utility of attendance data requires the implementation of standardised data collection practices, improved data sharing systems, investments in data analytical capacities, and strategic resource allocation to address attendance and absence-related needs.

Additionally, navigating the political nature and privacy concerns surrounding DSAA is essential to foster greater acceptance and usage of this information, valuable for enhancing young people's lives. Striking a balance between privacy considerations and the need for disaggregated data to support targeted interventions is important for promoting equitable educational opportunities.

Moreover, embracing technological advancements offers exciting prospects for efficiently collecting DSAA (Ishak & Bibi, n.d.), and thus for the analysis and use of DSAA. By implementing technological solutions for attendance tracking, early warning systems, and data analysis, we can enhance decision-making and support evidence-based practices within the field of school attendance (Kearney & Childs, 2023). While these innovative approaches open new avenues for understanding attendance patterns and implementing effective strategies to improve student outcomes, challenges such as data security need to be addressed (Ishak & Bibi, n.d.).

Understanding DSAA in the broader context of datafication, where social and natural worlds are rendered in machine-readable digital format, is crucial (Williamson et al., 2020). The digitalisation and datafication of education, coupled with the rise of big data and artificial intelligence, promise a revolutionary shift in the social sciences. This not only introduces new research methodologies but also offers novel research questions and applications in practice. However, concerns arise about potential negative consequences. For instance, when attendance and absence metrics become a basis for evaluating schools, there is a risk that schools intentionally exclude students with high absences. The transparent publication of school-level data could contribute to a stigmatisation of schools working with at-risk student groups (Muller, 2018). Additionally, the trend of platformisation implies a dependence on corporate providers for hardware infrastructure and software solutions in DSAA recording, reporting and use in public education (Rivas, 2021; Williamson et al., 2023).

4.2 Limitations and Future Research

Diverse limitations of the current paper are noteworthy. Firstly, the lack of representation from low-income countries, which face unique challenges in data management, including DSAA (Musa & Jacob, 2021), is notable. Additionally, our focus primarily revolves around students enrolled in schools, overlooking the 250 million globally who are out-of-school (i.e., not enrolled; UNESCO, 2023 a, b). Furthermore, expanding our scope to encompass middle- and high-income countries from regions

beyond those addressed in this special issue could yield more comprehensive insights into the recording, reporting, and use of DSAA. Secondly, the focus is primarily on attendance and absence data. INSA is actively working to broaden the focus beyond attendance and absence in traditional school settings, by developing a measure that includes constructs like engagement with learning and achievement, *regardless* of the learning environment (Kearney et al., submitted). Thirdly, the discussion of terminology mainly revolves around English-language terms, potentially overlooking the specific connotations in different national systems. Fourthly, variations in education systems across countries will affect the generalisability of the presented solutions. Finally, we acknowledge that this paper predominantly focuses on the practices of recording, reporting, and using DSAA, with less emphasis on research in these areas.

In the future, it is crucial to delve more deeply into the perspectives of all interested parties, including principals, teachers, student groups, parents, counsellors, and health professionals. Their perspectives, behaviours, and concerns regarding the recording, reporting, and use of DSAA should be explored (cf. Selwyn et al., 2021). A second area of future research lies in examining the specifics of different education levels (e.g., from pre-primary / early childhood to post-compulsory, tertiary, and adult education) and types of schools (e.g., academic versus vocational programs), because these are potential sources of variability in practices related to DSAA. Third, future research could benefit from explicit comparison of contextual factors to understand reasons for variations across countries in the recording, reporting, and use of DSAA. Such variations are likely due to differences in educational traditions, philosophies, government structures, and degrees of (de)centralisation of decision-making in a country's education system.

4.3 Conclusion

DSAA plays a pivotal role in promoting student success and ensuring equitable education. This paper provides broad insights into DSAA practices, challenges, and opportunities across the countries featured in this issue. The amalgamation of diverse experiences and perspectives within this collection enriches our understanding of DSAA practices in numerous countries. Looking forward, our focus should be on building consensus, prioritising data quality, embracing technology, and delving into broader variables beyond classroom time to amplify the transformative impact of data on student outcomes worldwide.

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