Wilder Research

School-wide Information System (SWIS) Data Outcomes: Phase 1

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Background

Data-based decision-making is important to the success and sustainability of Positive Behavior Interventions and Supports (PBIS). Multiple studies show that the use of data and data-based decision making is a critical component for successfully sustaining PBIS, along with other important factors including PBIS is a priority school-wide, a priority of the district, and support from school administrators (Coffey & Horner, 2012; Hume & McIntosh, 2013).

A key component of data-based decision making in PBIS is collecting and tracking student behavior data through Office Discipline Referrals (ODRs). ODR data is when a student gets referred to the office for student disciplinary action. These forms track the student demographic information, where the behavior took place, possible behavior motivation, and other types of information. Many schools in Minnesota, though not all, use the School-wide Information System (SWIS) system to track this data. The purpose of this case study is to determine whether or not school teams who use SWIS in Minnesota have better implementation fidelity and discipline outcomes compared with school teams who do not use SWIS or have no data system.

The following research questions guided this case study:

- How many school teams in Minnesota currently in the 2-year PBIS training course with the Minnesota Department of Education use SWIS?
- How many sustaining school teams (school teams who have previously completed PBIS training) in Minnesota continued to use SWIS after their 2-year training sequence was complete?
- How many schools used SWIS during their 2-year training sequence then stopped using it?
- How many school teams currently use SWIS and other data systems together?
- What are the reasons why schools, both in Minnesota and from other states, continue to use SWIS after PBIS training, and why do other schools stop using SWIS?
- What are the outcomes of sustaining schools in Minnesota that use SWIS during the 2-year training sequence then stopped using it after training is complete?
- What are the outcomes of schools in Minnesota that use SWIS at all versus schools that do not use SWIS or have no data system?

Methodology

In order to answer these research questions, we used the following methods as part of a two-phase case study:

For the first phase of this case study (the focus of this report), we conducted a scan of the field and a literature review to examine why schools continue to use SWIS after PBIS training, or why they stop using it. We also reviewed studies that explore how SWIS schools are faring versus their counterparts that do not use SWIS or do not have a data system regarding PBIS implementation fidelity and outcome data.

As part of phase one of this case study, we also examined the database that Wilder Research created and maintains for schools in Minnesota that have been or are currently being trained by the Minnesota Department of Education to implement PBIS to determine the questions outline on page 1.

We also examined these data by region, school type (e.g., K-12, ALC, charters, etc.), schools in training versus sustaining schools, and schools that attended MDE's cohort training sequence versus schools that did not. We will use the information from phase one to inform phase two of the case study.

In phase two of this case study, we will update database information from school teams via a short survey or conduct qualitative interviews with school administrators and coaches regarding their use of SWIS, why they chose to continue using it or why they chose another data system, and explore data from the Disciplinary Incident Reporting System (DIRS) (if available) and PBISApps to determine outcomes from school teams and answer the remaining research questions. Wilder staff will produce a summary report outlining both phases of the project. Depending on the outcomes, we could consider submitting it to a peer-reviewed journal for publication.

For this case study, we are focusing on school teams who have completed training in MDE cohorts 8 through 14. Wilder began tracking schools' use of SWIS and other databases in 2012 when Cohort 8 was in training. We have the most up-to-date information for these cohorts for training survey data and fidelity data.

Literature review

There is some evidence in the literature that suggests **schools using SWIS to collect and track ODRs have higher PBIS implementation fidelity.** A study by Conley et al. (2019) explored Tiered Fidelity Inventory (TFI) scores in a small sample of elementary schools using SWIS. These schools had higher TFI scores than the national averages of schools participating in PBIS across all three tiers of behavioral interventions and supports (Tier 1: 87% vs. 74%, Tier 1: 85% vs. 69%, and Tier 3: 77% vs. 62%).

Tobin (2006) found similar results. In their study, school staff and administrators took the self-assessment survey (SAS) to assess PBIS implementation fidelity and compared the results based on whether or not the school used SWIS. The study also compared results across the four different PBIS behavior support systems: school-wide, non-classroom, classroom, and individual student. SWIS schools had higher implementation scores than non-SWIS schools for features of 3 out of 4 support systems: School-Wide (94%), Non-Classroom (89%), and Classroom (73%).Therefore, schools that use SWIS implement 3 out of the 4 behavior systems (all except Individual Student systems) with higher fidelity than schools that do not use SWIS. Schools that had SWIS did not differ from schools that did not have SWIS in terms of Individual Student features.

There is also evidence to suggest **staff find SWIS data to be useful and beneficial**. Irvin et al. (2006) surveyed 56 school staff and administrators across four districts to explore the perceived effectiveness and usefulness of ODR data collected by SWIS. Staff rated SWIS data to be useful, efficient, and effective for school decision making and were satisfied with SWIS data and reports. They generally rated using SWIS as requiring the same or a smaller amount of effort compared to other data entry systems they have used.

Of note, there is a dearth of research literature regarding specific difficulties with SWIS or reasons schools may choose to use other data collection systems. However, there are some critiques of SWIS and ODR data identified in the literature, as described in more detail below.

In an overview of how technology relates to PBIS, Krach & McCreery (2016) discuss that for Tier 1, SWIS works well to provide a surface-level, school-wide picture of student behavior that offers options based on administrative concerns, but it falls short when examining and addressing student motivation for behavior. Some research suggests that in order to get a fuller picture of student motivation and behavior, ODR data should be used together with other data collection and tracking measures (Brandt et al., 2014; Irvin et al., 2004; Marchant et al., 2009). There is also evidence that examining ODR data does not accurately capture all students. Marchant et al. (2009) found that ODR data captures students with externalizing behaviors well, such as those with aggressive or impulsive behaviors, but misses those with internalizing behaviors, such as social withdrawal or anxiety.

The previously mentioned study by Tobin (2006), in which school staff and administrators completed the SAS and were compared by SWIS status, reflects this same idea. When looking at implementation of the four different support systems, SWIS schools had higher implementation scores compared with non-SWIS schools for School-Wide features; they scored higher on 17 out of 18 features (or 94% of the features None of the eight features of the Individual Student system reached an average “in place” implementation rating, regardless of SWIS status. **This further suggests that SWIS may be helpful in some areas, particularly School-Wide systems, but may not be as helpful when looking at Individual Student support systems.**

When looking beyond ODR data, there is evidence that the more individualized approach of Individual Student Information System for SWIS (ISIS-SWIS) at the Tier 3 level is beneficial for staff and students. Pinkelman and Horner (2016) looked at a small sample of students and the staff who were responsible for implementing their behavioral plans before and after beginning ISIS-SWIS. Staff were asked to self-monitor their treatment fidelity, collect data on student problem behavior, enter data into ISIS-SWIS, and review the data weekly. These steps led to a general increase in Tier 3 implementation fidelity scores and improved student behavior outcomes. Furthermore, staff indicated that they found ISIS-SWIS beneficial and useful in their work. More research is needed, but this study suggests that **the more individualized, hands-on approach of ISIS-SWIS could make up for where using SWIS ODR data at the Tier 1 level falls short.**

There are some hints from the literature in how to best support school staff in using SWIS. McIntosh et al. (2010) suggest that **to use data best, school personnel should be included in the data collection and provided with a framework to use that data.** Since not all teachers may be confident with collecting and interpreting data (Mitchem & Wells, 2001), it may be important to provide enhanced staff training on SWIS to familiarize staff with data collection and create buy-in, as well as continue offering professional development opportunities on a regular basis to keep school staff up to date (Chitiyo & May, 2018). For PBIS in general, one study found that schools that received more supportive training, such as district level meetings, needs assessments, and providing district and school- specific feedback, had improved program fidelity and exhibited lower numbers of ODRs (Bohanon & Wu, 2014).

Some other hints may come from literature on sustainability of PBIS as a whole. Kittelman et al. (2020) found that **for schools that abandoned PBIS, regular team meetings for data-based decision making was the most frequently abandoned feature**. The most common perceived reasons why schools abandoned PBIS were lack of staff commitment, lack of school administrative support, staff not working toward a common goal, and low implementation fidelity. Similarly, Coffey & Horner (2012) looked at barriers to schools implementing PBIS and found the three most common obstacles were funding, inability to meet consistently as a team, and not enough time to complete all the activities. While these studies do not relate directly to SWIS, it suggests that if schools are struggling to implement PBIS in general, collecting and using data for data-based decision making may be one of the first components to suffer. It requires staff time, staff buy-in, administration support, and funding to sustain a high level of PBIS implementation fidelity, and schools may struggle to provide these things to their staff. More research is needed to determine if this is the case and to determine what may prompt a school to abandon data collection or data-based decision making.

In summary, there is evidence that schools using SWIS have higher PBIS implementation fidelity than those not using SWIS. Furthermore, school staff generally report they find SWIS helpful and easy to use. There is a gap in literature that compares data collection systems, but it appears that a recorded shortcoming of SWIS is that it does not lend itself well to focusing on individual student systems for Tier 1 interventions, a common critique of ODR data overall. More research is needed to further compare SWIS to other data collection systems and determine reasons why schools may choose to abandon SWIS. To best support staff in using SWIS, it may require extra training and feedback. The more staff are invested in the value of collecting and using data, the more they are likely to engage in data collection and data-based decision making, which in turn is a key part of the success of PBIS.

Analysis: school teams that use SWIS

We analyzed descriptive statistics from the Minnesota PBIS database to answer the following research questions for Phase 1:

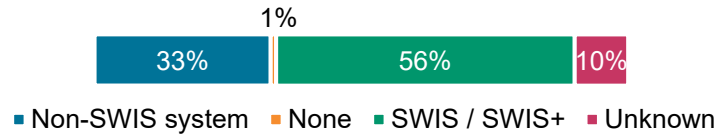
- How many school teams in Minnesota were currently using SWIS when they finished training?
- How many school teams per region and by school level used SWIS when they finished training?

The sections below provide more information and data to help answer these questions.

Overall

In order to see how many school teams are using SWIS and other types of data systems, we performed descriptive statistics using data from the Wilder Research PBIS database. In Minnesota, there are 398 school teams in Cohorts 8-14. Just over half (56%) of these school teams use SWIS alone or SWIS and at least one other data system to track ODR data (Figure 1). One-third of school teams use a system other than SWIS to track ODR data. For 10% of school teams, it is not known which type of data system they use. However, it is speculated that these schools use another system besides SWIS as Wilder is able to access ODR data from all SWIS schools at the end of each school year and the school teams that have an "unknown" data system were not included among SWIS data we analyzed.

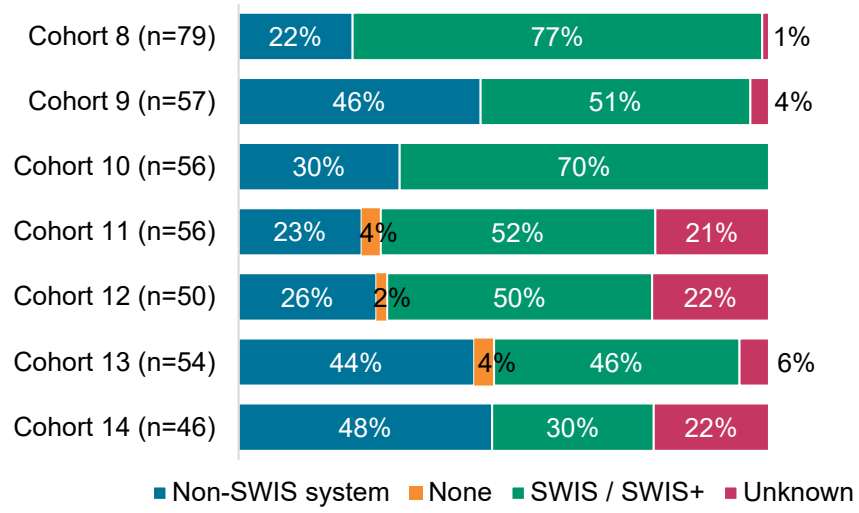
1. DATA SYSTEMS USED BY SCHOOL TEAMS IN COHORTS 8-14 (N=398)



By cohort

The type of data systems used were disaggregated by cohort. It appears that use of SWIS is slightly more common among schools from earlier cohorts and slightly less common among schools in later cohorts (Figure 2). Noting again that the schools whose data system was "Unknown" are most likely not using SWIS, we see that SWIS use at the end of training declined from a high of more than three-quarters of schools in Cohort 8 to a low of only 30% of schools in Cohort 14, though that figure hovers around 50% in most years.

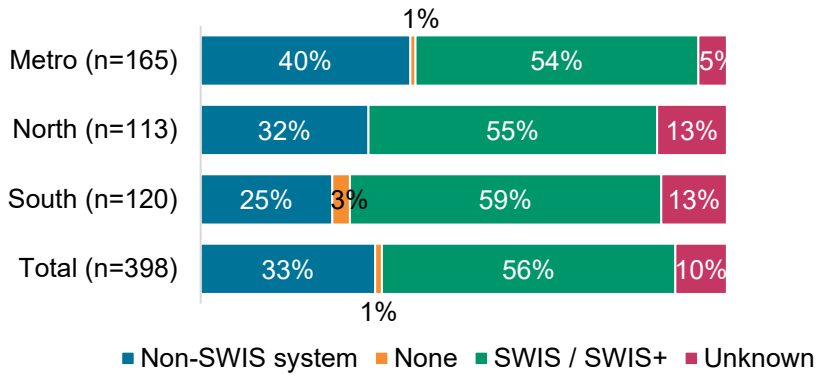
2. DATA SYSTEMS BY COHORT



Region

Across all regions, over half of school teams report they use SWIS, and the rate of using SWIS varies only slightly by region (Figure 3). Please note again that the schools whose data system was "Unknown" are most likely not using SWIS (as noted above).

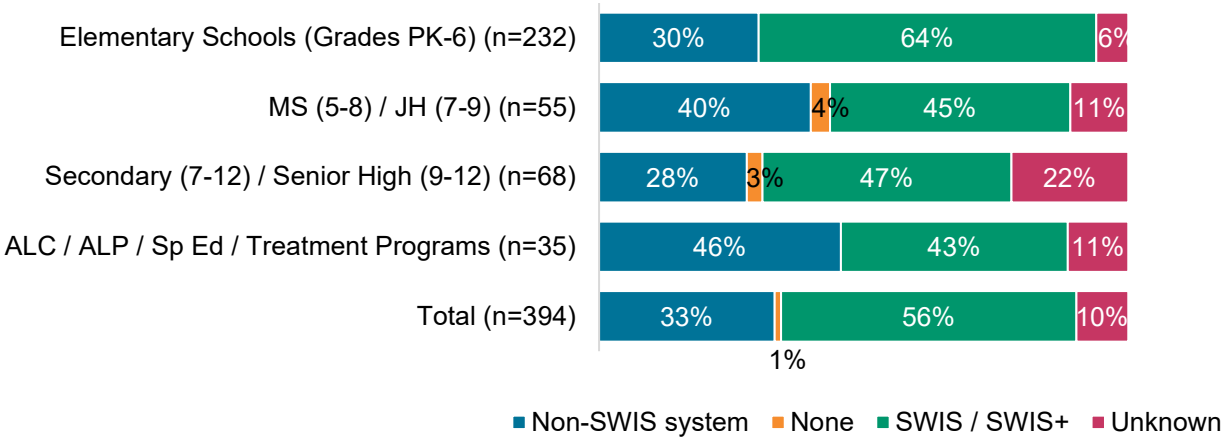
3. DATA SYSTEMS BY REGION



School type

About two-thirds of elementary schools report they use SWIS, which is a higher proportion compared to middle, secondary, and alternative setting schools (Figure 4)[1]. Alternative setting (ALC/ALP/Sp Ed/Treatment) programs reported using non-SWIS data systems most often when compared with other types of schools.

4. DATA SYSTEMS BY SCHOOL TYPE



[1] Note: K-12 schools were excluded from this list due to the small number of schools (n<5) in order to not overstate conclusions for this group.

Issues to consider

This case study provides background information and the "lay of the land" as to how many, which types, and locations of Minnesota schools that use SWIS. Elementary schools, schools located in the metro region, and schools that were a part of earlier training cohorts seem more likely to use SWIS compared to their counterparts. More research is needed, and will be completed in the next phase of this case study, to determine why these schools choose not to use SWIS (or may have used it and then went in a different direction).

Some preliminary findings from the literature that indicate that **schools that use SWIS are somewhat more likely to have positive outcomes** regarding implementation fidelity scores and ODR data, however, more research is needed in order to determine if using SWIS leads to better PBIS implementation fidelity and student outcomes as measured by ODR data.

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