

# **FAILURE IN A PANDEMIC**

How Should Increased Public School Failure Rates be Handled  
Amid COVID-19?

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**BQOM 2521** | Decision Making in a Complex Environment

## 01 | The Background

The COVID-19 outbreak was unprecedented in that not many alive today have seen a global event of this magnitude. As offices sent workers home with whatever technology they could grab from the office and businesses closed doors indefinitely, schools across the country were scrambling to figure out what to do.

On March 13, 2020, Morrow Elementary School within the Pittsburgh Public School District sent students and faculty home and closed the doors alongside every other business in the Pittsburgh area. Administration was scrambling to decide how to handle this crisis and how to proceed with the learning process to avoid any lapses. This proved to be a difficult challenge as there was no precedence for this type of outbreak.

Morrow ranks near the bottom in terms of school rankings among Pittsburgh Public Schools. Not surprisingly, Morrow also has the second highest proportion of economically disadvantaged students, sitting in one of the poorer sections of Pittsburgh. This meant that Morrow was faced with an enormous technical disadvantage compared to some of the more privileged and affluent schools in the city. Laptops were not distributed until late in the month of May with only a few weeks of school left, families were struggling to obtain an appropriate internet connection. Fortunately, every student was given a passing grade due to the struggles faced.

During the 2020-2021 schoolyear, students were challenged with their first full year of remote learning. Despite being given the entire summer to plan, it seems that preparations were not made to be able to provide a learning environment conducive to student success. Computers and internet connections were unreliable, students were struggling to find a consistent and conducive space to learn, and student personalities were beginning to prove problematic in the online space. All these factors reached a crescendo at the end of the school year where seven percent of students received failing grades; this number is three and a half times the standard proportion of failures.

## 02 | The Problem

Unfortunately, not all children learn in the same manner. On top of this, switching from an in-person to a virtual learning is a monumental shift in environment for an elementary student. Finally, as Morrow is toward the top in terms of percentage of economically disadvantaged families, the distribution and quality of the technological equipment like computers has left quite a bit to be desired. So, what should Morrow Elementary School do about the increased rate of failure during the COVID-19 pandemic?

## 03 | The Alternatives

Fortunately, there exist five options for how to handle the increased failure rate among elementary students struggling to meet their demands in the virtual learning environment.

- **Retain and Monitor:** Hold the students back one year, utilizing a monitoring system to analyze progress over the year and requiring family sign-off (status quo)
- **Allow to Pass:** Allow for concession based on the extenuating circumstances and allow the children to continue on as if they had passed
- **Home Education:** As traditional summer school has been removed from the possibilities, home-schooled summer education could be an alternative to consider for some families
- **Curve Grades:** Determine and apply an appropriate grade value adjustment to move toward the historic average
- **Summer School:** Reinstate the summer school concept to allow continued education and attempt to prevent retention

## 04 | The Criteria

As with most critical decisions, many criteria need to be considered when working through the process. The most crucial of these criteria are outlined below. Each of these criteria have varying levels of subjectivity and objectivity.

- **School Ranking** takes into consideration ranking of Morrow Elementary School among the rest of the Pittsburgh Public Schools and is

- **Student Success** considers the overall effectiveness of the teaching programs and their impact on the success of the students
- **School Climate** takes into consideration the relationship between the teachers and students as well as their respective levels of satisfaction
- **Student Enrollment** considers the number of enrolled students as this determines whether the school remains functionally operational or not

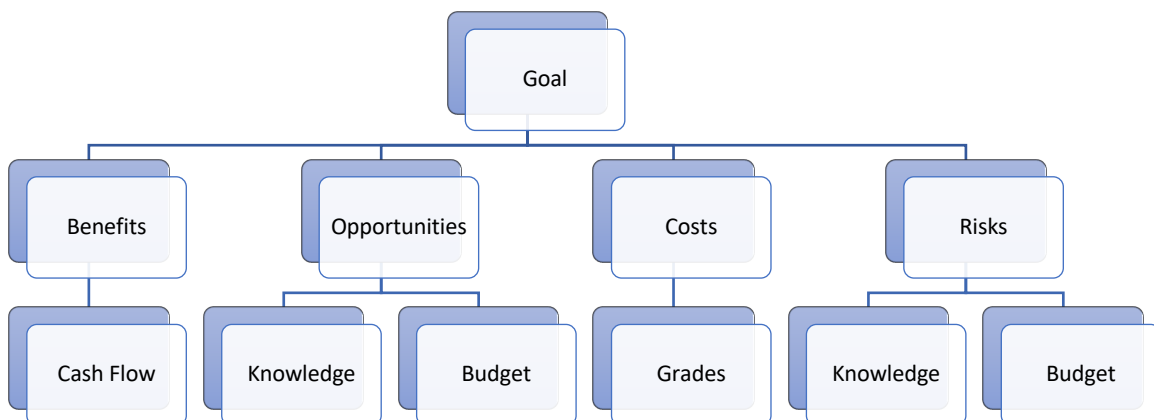
## 05 | The Sub-Criteria

Within these criteria need to exist two very important sub-criteria:

- **Educational:** How do each of the alternatives affect the short- and long-term education of the students? This considers grades in the immediate timeline and knowledge in the extended timeline.
- **Financial:** How do each of the alternatives impact the short- and long-term financial aspects of the school? This includes immediate cash flow and long-term budget.

While these are not the only factors being impacted by the choice, they are the most important to educators. These factors are the foundation of many rankings and success factors impacting the overall success of a given school.

## 06 | The Networks



## 07 | The Results

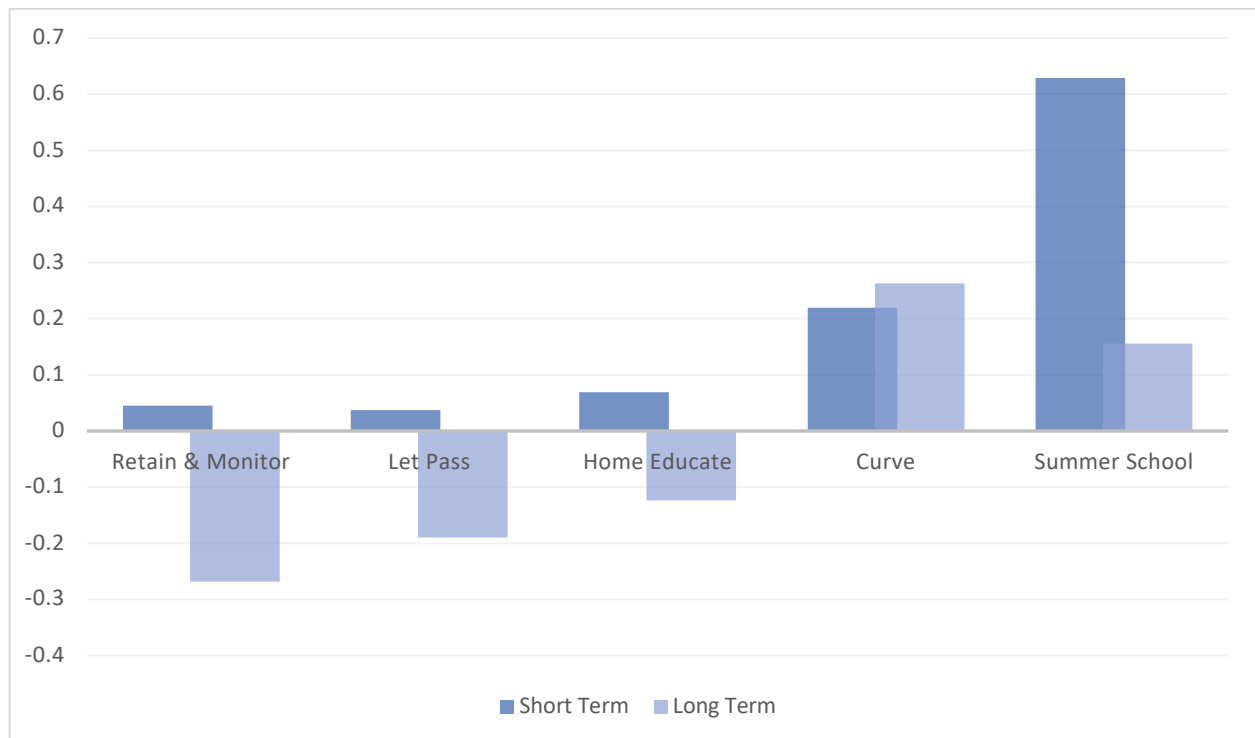
Below are the results from the pairwise comparisons of the criteria stated in Section 04. These results match the input from the principal of Morrow Elementary school and play an important role in the decision-making process.

	Normalized	Idealized		Rank
<b>School Ranking</b>	0.37	1.00	🟢	1
<b>School Climate</b>	0.17	0.46	🟡	3
<b>Student Success</b>	0.11	0.31	🔴	4
<b>Student Enrollment</b>	0.35	0.96	🟡	2

Below are the results of the Ratings Model comparing the Benefits, Opportunities, Costs, and Ranks based on the four main criteria.

Alternatives	Priorities	Totals	S1 - School Ranki... (0.3661)	S2 - School Climate (0.1688)	S3 - Student Suc... (0.1129)	S4 - Student Enro... (0.3522)
1.Benefits	0.3251	0.6596	Hi	Med	Hi	Med
2.Opportunities	0.1709	0.3467	Med	Med	Med	Med
3.Costs	0.1609	0.3266	Med	Med	Hi	Lo
4.Risks	0.3431	0.6961	Hi	Hi	Med	Med

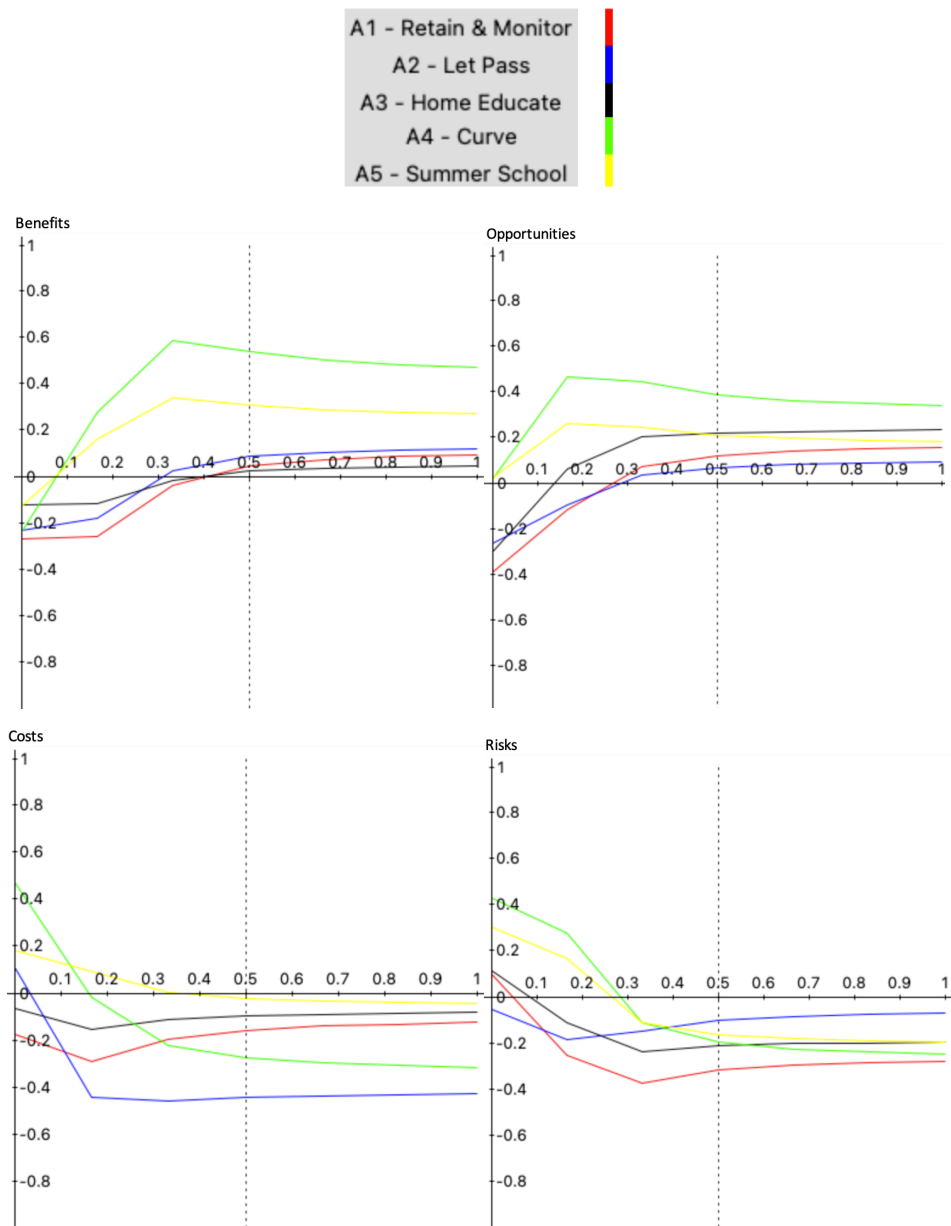
Below are the overall results of the model.



## 08 | The Analysis

In the short-term multiplicative model, the defunct idea of Summer School proved to be the best option while Grade Curving proved to be the best long-term option using the additive model. In the instance that reintroduction of the Summer School process may not be a realistic choice, Grade Curving proves to be the best long- and short-term option.

Below, the sensitivity models can be seen:



These results and sensitivity analyses speak to the complex nature of this problem. There are so many factors to truly consider that as priorities shift, there become many changes in the alternative hierarchy and rankings. Ultimately, however, the decision was made prior to this exercise. The Morrow Elementary School principal and guidance counselor chose to Curve Grades, resulting in the lowest impact to the students, families, and school district. This choice allowed the school to reach an overall retention rate of three and a half percent, which is still higher than the standard two percent, but much lower than the true number of seven percent.