Comparisons and Contrasts of IT Systems and Socioeconomic Status in School Districts

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Cover Page Footnote

This case study was part of an Old Dominion University Perry Honors College project. The project was for the curriculum guidelines of the honors contract course, Enterprise Information Architecture under the supervision of Professor Renee Weather. The statistics of the case study were based on the individual school districts' sites. The analysis and opinion-based portions were a part of the author's conclusions after conducting research.

CASE STUDY: COMPARISONS AND CONTRASTS OF IT SYSTEMS AND SOCIOECONOMIC STATUSES IN SCHOOL DISTRICTS

By Hannah A. Ross

ABSTRACT— In a technology thrived society, one would think that anyone can have access to technology – especially in schools. However, it is not always the case due to budgets and other factors. As technology becomes an essential part of the workforce, students need to know certain web applications that companies use. This study will compare four school districts within the Tidewater area of Virginia. The following school districts include Hampton City Schools, Newport News Public Schools, York County School Division, and Williamsburg-James City County Public Schools. Each school will be compared and contrasted by the technology applications that are used along with their socioeconomic status.

Keywords: Technology, innovation, schools, socioeconomic status, web applications, educational tools

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I. HONORS PROJECT IT 317 MAIN OBJECTIVE & FOCUS

Topic: Comparisons of IT systems in school districts within four out of the seven school districts within the Hampton Roads (Tidewater) area.

Sub Topic: Comparisons of socioeconomic status and technology budgets within four out of the seven school districts within the Hampton Roads area.

Objective: *Utilize techniques for assessing and managing risk across the portfolio of the enterprise. Evaluate and plan for the integration of emerging technologies.*

Idea: To compare and contrast different school districts on software and application systems used in the school district based on socioeconomic status. Schools are chosen based on the student population. Districts include Hampton City Schools, Newport News City Schools, Williamsburg - James City County Public Schools, and York County School Division.

II. APPLICATION AND SOFTWARE USED WITHIN SCHOOL DISTRICTS

Each school's software and applications are relatively the same. However, some specialties that make each school district different will be discussed on page 12.

Hampton City Schools: Google Suite, slides, and Chromebooks/ iPads (Using Google Suite piled with HCS) (HCS)

Newport News Public Schools: Office 365 Education, Office 2016, Windows 10, Google for Education, NNPS (Newport News Public Schools) Sharepoint, etc. (NNPS, 2021)

WJCC Public Schools: 1:1 device program (Canvas), Office 365, Vue, Edmentum, eMediaVA,

etc. (WJCC, 2021)

York County School District: Aspen, Microsoft 365, Clevver, Canvas, etc. (YCSD, 2021)

III. SOCIOECONOMICS & TECHNOLOGY BUDGET OF EACH SCHOOL SYSTEM

Along with each school district, there is a budget to fund the software/application for that school district. Some districts have a smaller budget as opposed to others due to other financial costs and revenue attainments.

A. Hampton City Schools (Based on 2020 - 2021 Approved Operations Pg. 91):

	FY 2020	FY 2021	$ Difference	%Change
Technology	11,088,558	12,337,627	1,249,069	11.26%

Hampton City Schools mission statement:

> *Other charges represent various charges that support programs within the school division such as utilities, telecommunication, and risk management costs. These costs are projected to decrease for FY 2021 due to the division's efforts to budget costs in better alignment with the reporting done for Virginia Annual School Report.* (Hampton City Schools, 85)

Their current enrollment is 19,776 students. As for the socioeconomic status of Hampton City Schools, there is potential for less income than other counties due to class size and the type of

housing that the city implies. However, the 2021 budget could potentially be smaller due to

inflation and students that are transferring to virtual learning or to another district.

Student population chart for Hampton City Schools (2021 - 22'). The highest population of

students is within the 9th grade.

B. Newport News City Schools (Approved 2020-2021 Budget) (NNPS, 137):

Amount in $ Millions

	Operating	Grants	Total
Tech Software/On-Line Content 1.6	0.0	1.6	
Tech Hardware: Non-Capitalized 0.1	1.9	2.0	

Overall, the budget for Newport News is $3.6 Million which is a substantial budget for 27,118

students. Their mission statement:

The Newport News Public Schools Technology Department provides innovative

technology-based solutions and services to the staff, students, families, and
community served by NNPS. We leverage state-of-the art infrastructure and
classroom technologies that are as diverse as our community of learners. The
Technology Department ensures global access to information and is integral to the
NNPS mission of graduating students who are College, Career, and Citizen
Ready.

Their mission statement is valid when it comes to the applications used (Google, Microsoft, etc.)
to help students prepare for college and/or future career(s) – especially with the budget to cover
27,118 students within a district. They also have a cybersecurity awareness program. Below, the
graph shows the student population and why it is essential that children are more exposed to
application programs in the future. This is mainly due to the fact that a higher percentage of the
population is in 9th grade, which is the beginning of high school and a time when they can begin
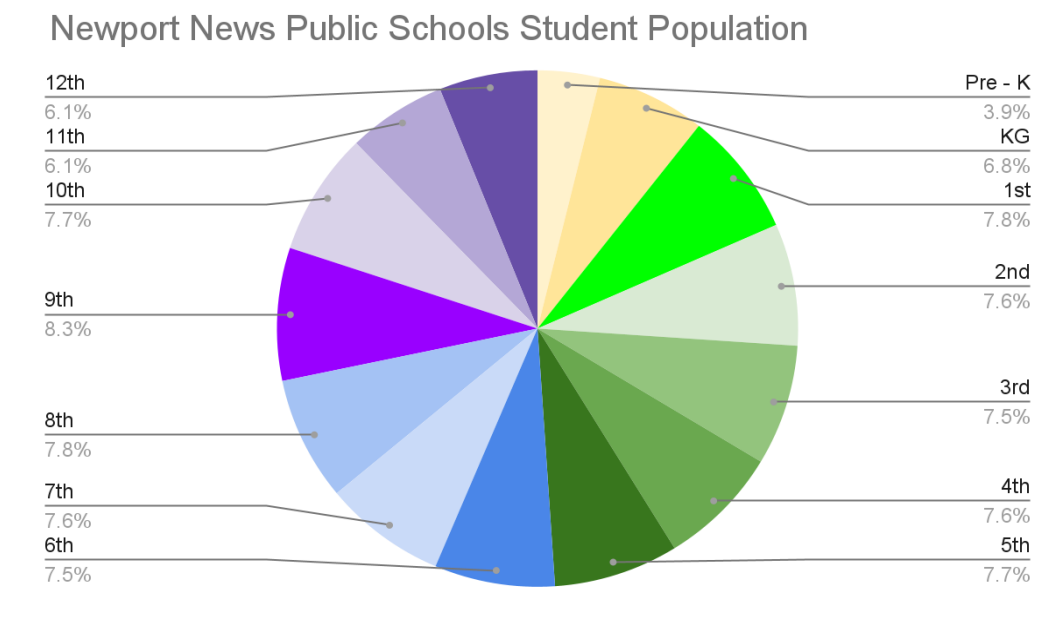growing their resumes with the applications used.

Diagram of student population size in NNPS (2021 - 22'). The highest student population is in

the 9th grade.

C. York County School Division (FY 2022 Operating Budget) (YCSD,106):

Revenues by Fund

	FY 2019 Actual	FY 2020 Actual	FY 2021 Budget	FY 2022 Expected
Technology Reserve Fund	0	3,200,000	3,200,000	6,334,882
Expenditures by Fund	-	-	-	-
Technology Reserve Fund	0	0	3,200,000	6,334,882

York County School Division's mission statement:

> The York County School Division maintains high expectations for excellence
> from its students, staff, and administrators and remains committed to preparing all
> students to achieve, succeed and excel. Local, state, and national expectations for
> higher achievement from students, the national focus on standards and
> accountability in schools, as well as the changing face of workforce competencies
> necessary in a digital economy, provide challenges and opportunities that the
> division meets daily with high-quality teachers, strong curriculum and effective
> technologies that support information-age teaching and learning.

This statement should hold ranking within modern-day standards. However, when they state the

"workforce competencies necessary in a digital economy"(YCSD, 2021) and "strong curriculum

and effective technologies that support information-age teaching and learning" (YCSD,2021), I

believe that it is not the most effective for the students given the workforce competencies that are

necessary. This school system uses Microsoft Office 365 and Canvas. However, they are not using the online educational tools that can be used outside of the classroom effectively like Cengage or collaboration tools such as Google Office/ for Education where students can work together synchronously without being in a classroom. On the other hand, they do have a strong grasp on the information-age prospects when it comes to the use of their online applications.

Furthermore, York County School Division does intend to increase the technology budget in 2022 by roughly $3 million. That would allow York County to obtain more applications that can be useful to students within their future college/career opportunities.

YCSD Student Population
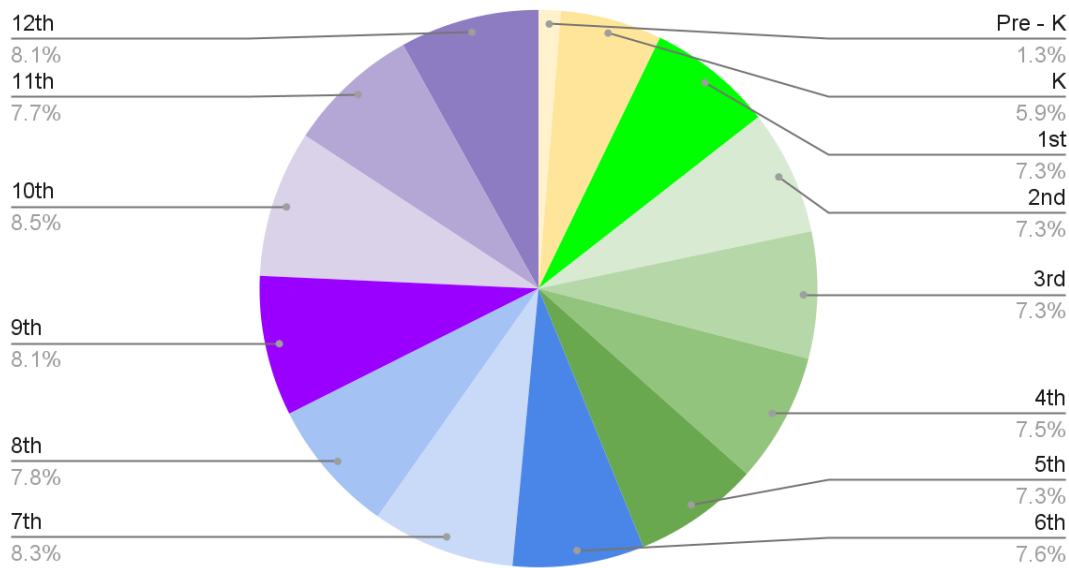
Graph of student population for YCSD (2021 - 22'). The highest student population was in 10th grade.

D. Williamsburg - James City County Public Schools (FY 2022 Proposed Operating Budget) (WJCC, 43):

	Operations	Grants	State Operated	Total

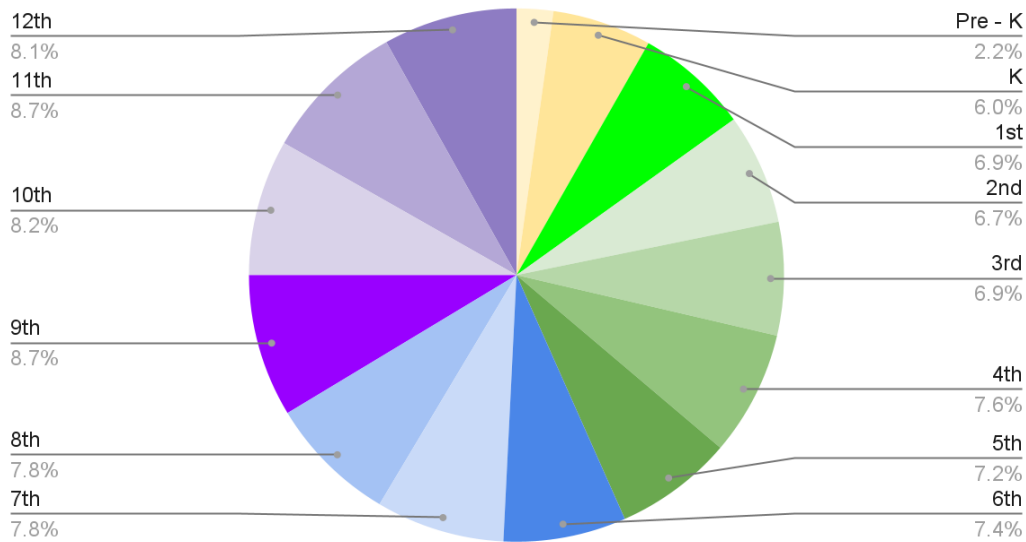|				
6040 Tech-Software/Online Content	686,500	14,635	5,558	706,693
6045 Technology Supplies	-	10,000	-	10,000
6050 Non-Capitalized Tech Hardware	-	-	-	-
6060 Non-Capitalized Tech Infrastructure	-	466,000	-	466,000
8110 Technology-Hardware Replace	19,900	-	-	19,900
8210 Technology-Hardware Additions	8,950	1,850	-	10,800

WJCC Public Schools mission statement:

> Williamsburg-James City County Public Schools is committed to excellence and
> leadership in education. We believe that 21st-century instructional models must
> include current instructional technologies and media resources and that every
> teacher and student must be knowledgeable and skilled in the use of these
> resources in daily instruction. Through ongoing, comprehensive professional
> development, we provide WJCC teachers opportunities to acquire the skills
> necessary to integrate technology and media resources into challenging and often
> interdisciplinary curriculum.

Based upon their mission statement, WJCC Public Schools anticipates having modern
classrooms that enable instruction inside or outside the classroom. On the contrary, it does not
state ways to benefit students' future careers or college experience with a technology
background. Given the applications used within the school district, most students would be
prepared for college with Canvas – the newest and most accessible online education provider for
colleges and schools. Regarding jobs and careers, WJCC's main objective is lacking because
they use smaller company applications versus larger company/enterprise applications.

More importantly, based on the student population as shown in the following graph, it would be beneficial for WJCC to have more industrial and career-minded applications to benefit the high schoolers who will graduate within the next few years. By enabling career like-minded applications such as Google office, Microsoft Office 365, and Lucid Charts (online flow chart company), students would gain technical experience that employers are looking for.

WJCC Student Population

Grade	Percentage
Pre - K	2.2%
K	6.0%
1st	6.9%
2nd	6.7%
3rd	6.9%
4th	7.6%
5th	7.2%
6th	7.4%
7th	7.8%
8th	7.8%
9th	8.7%
10th	8.2%
11th	8.7%
12th	8.1%

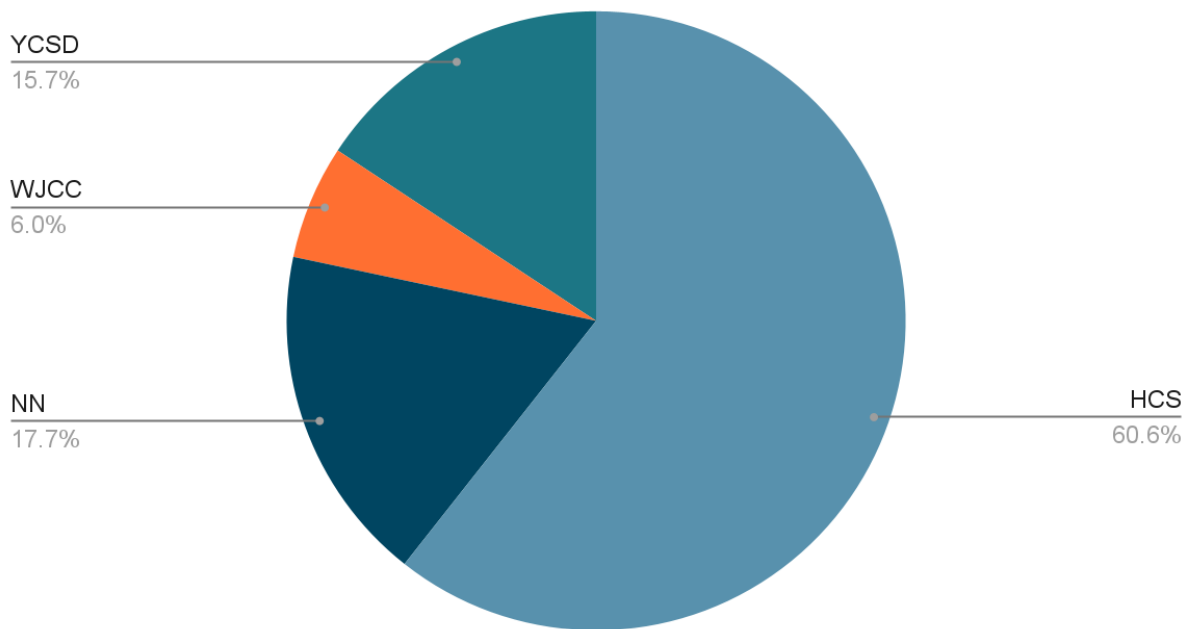*Pie chart of student population of WJCCPS (2021 - 22'). The highest student population is 11th grade.*

Comparing Technology Budgets

As for the 2021 School Year

Overall Technology Budget in School Districts

YCSD
15.7%

WJCC
6.0%

NN
17.7%

HCS
60.6%

Overall, when it comes to a technical budget, Hampton City Schools has the highest budget. Meanwhile, Williamsburg James City County Schools has the lowest budget.

IV. OVERALL COMPARISONS AND CONTRASTS

From a general standpoint, we might assume that most schools have modern technology as students are growing up to become a part of the future workforce. However, this is not always the case. Within this case study, I have interpreted four different cities within the Tidewater (Virginia) area. Each area has a different landscape and different populations: Hampton, a large city; Yorktown, a small rural town; Newport News, an industrial city; Williamsburg - James City County, a popular tourist town. Each city is explained in the socioeconomic section of the paper. From the total population to school budgets, there are restrictions as to what forms of technology school systems can use.

As someone who was in the York County School District from 2008 to 2019, I can say that improvements were definitely needed. By my senior year (2018 - 2019 school year) the students had just received new laptops but not IPads or IPods to replace the ones from 2012 along with Windows 7 – an older software application program. However, my research shows that York County did not consider having a structured budget for technology and IT until 2018. This means that more students were less exposed to modern technologies and technological education within the classroom.

For Hampton City and Newport News City Schools, it is relatively the same from the population within schools to the technology usage and socio-economic status. However, both school districts are different when it comes to the budgeting of the school's status. Hampton uses a larger budget than Newport News, and it is due to having more schools and more devices as

opposed to Newport News. Furthermore, the main objective of this case study is to see which school district allows for the best technological practices for students allowing them to develop technical skills in the future along with teachers enabling safe and educational uses for the technology. For highest quality of software in the classroom, I would rank NNPS. Hampton City Schools uses Google Suites, which is useful if an enterprise or company is using the same system. Newport News, on the other hand, uses Microsoft Office 365 and Google for Education. Microsoft 365 is used by most major companies and enterprises today. Furthermore, Williamsburg - James City County is much smaller than the other school districts but has a very diverse usage of online applications.

Ranking each school for socioeconomic status (lowest to highest):

1. Hampton City Schools

2. Newport News City Public Schools

3. York County School Division

4. Williamsburg - James City County Public Schools

Ranking each school for diverse portfolio of technology (lowest to highest):

1. Newport News City Public Schools

2. Hampton City Schools

3. Williamsburg - James City County Public Schools

4. York County School Division

Ranking each school for overall quality of experience (lowest to highest):

1. Newport News City Public Schools

2. Hampton City Schools

3. Williamsburg - James City County Public Schools

4. York County School Division

V. CONCLUSION

This case study compared four school districts within the Tidewater area of Virginia with their socioeconomic status and technology application usage. Upon these factors, it is shocking to conclude that students in more urban areas have a more beneficial technology system as opposed to rural areas. For example, NNPS is within the city of Newport News and uses both Microsoft for Education and Google for Education. Meanwhile York County School Division is within the County of York and has Microsoft Office 365 and Aspen.

Even though each school district has the necessary resources to use for educational purposes, some districts such as York County and Williamsburg - James City County do not have more resources available that can be used in a future school/ career setting. Hampton uses Google Suites; however, it does not use any other applications that can create a more diverse technology portfolio for students within the districts. As for Newport News, they have created both a diverse and beneficial technology environment for students and teachers using Google Office & Education along with Microsoft Office & Education.

Overall, the main purpose of this case study is to convey the message that students of all ages should receive a technology-oriented education that enables them to build a diverse technology portfolio. By receiving the technology resources, students will be able to benefit to a greater extent in their futures.

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