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The Salary Straitjacket:

The Pitfalls Of Paying All Teachers The Same

By James V. Shuls

I. INTRODUCTION

Imagine a school in which the highest prize for academic achievement went to the student who had been there the longest. Though it seems ridiculous to reward students in this manner, this is exactly how school districts reward teachers, by longevity. Teachers by and large are paid on a single salary schedule. These schedules not only fail to reward teachers based on their quality, but they fail to recognize that teaching different subjects and grade levels requires different skill sets and that those particular skill sets are in varying demand in the marketplace. For instance, there are reportedly 3.1 jobs in science, technology, engineering, and math (STEM) for every one unemployed person in Missouri.[1] In comparison, there is only 1 unfilled, non-STEM position for every 3.7 unemployed people.[2] This means teachers with strong backgrounds in math and science may have more, higher-paying options outside of teaching. This is a reality we must address.

The Missouri Department of Elementary and Secondary Education (DESE) recognizes the need for increasing STEM training for teachers and students. In fact, improving STEM instruction was one of the major elements of Missouri's Race to the Top application.[3] The

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state's proposal indicated Missouri would improve STEM instruction by placing an emphasis on STEM in teacher preparation programs and by restructuring teacher certification to include a STEM certification. Apparently, "Missouri is approaching STEM content as a curriculum priority."[4]

Yet, the state has not proposed restructuring pay for STEM teachers as a potential method for improving the quality of individuals entering such subjects; rather, schools continue to pay teachers based on who has been there the longest.

In addition to pushing for more STEM instruction, DESE has set a lofty objective of launching Missouri to the top in national rankings of student achievement.[5] The vision is for Missouri to move from the middle of the pack in national rankings to the top 10 in terms of student achievement by the year 2020. The ability of Missouri to reach this goal will undoubtedly depend, in part, on the quality of teachers in the classroom. Indeed, as part of the strategy for attaining the 10 by 20 goal, DESE states, "Missouri will prepare, develop, and support effective educators."[6] The department lists numerous strategies for achieving this goal, though once again it does not mention reforming or improving teacher pay as one of those strategies.

If Missouri is to reach either of these objectives — 10 by 20 or improving STEM instruction — our schools cannot continue to operate like they have in the past. As anyone who has failed to achieve his or her New Year's resolution can attest, you cannot reach aspirational goals without real change in how you operate on a daily basis. We know teacher compensation is an important factor in recruiting and retaining highly qualified teachers, yet little is being said about how teachers currently are compensated. Unfortunately, most of the attention concerning teacher pay is how much teachers are paid on average, not how they are paid. And too often, policy recommendations for improving the teacher labor force involve simply raising teacher salaries.

If Missouri wants to move into the top 10 in educational rankings and officials want to increase STEM instruction, then we must depart from the anachronistic method of paying all teachers the same, regardless of quality or their particular skill set. This essay analyzes Missouri teacher salaries to demonstrate one of the major problems with teacher pay, the single salary schedule's failure to account for an individual's market options. If Missouri schools address this problem, it will go a long way toward helping Missouri improve STEM instruction and move the state closer to the top 10 by 2020.

Figure 1: Example Single Salary Schedule

2012-2013 TEACHERS SALARY SCHEDULE *Board Approved May 30, 2012*

Teacher Certification	BS	BS+8	BS+16	MA	MA+8	MA+16	MS+30	EDSPEC
Career Center Certification	CTAC	CTAC+8	ICEC	ICEC+16	CCEC+24	CCEC+BS	CCEC+SpEd	30
STEP 1	$34,100	$34,441	$35,130	$37,238	$37,610	$38,362	$38,746	$39,133
STEP 2	$34,748	$35,095	$35,797	$38,048	$38,428	$39,196	$39,622	$40,017
STEP 3	$35,408	$35,762	$36,477	$38,876	$39,264	$40,049	$40,517	$40,921
STEP 4	$36,081	$36,441	$37,170	$39,722	$40,118	$40,920	$41,433	$41,846
STEP 5	$36,767	$37,133	$37,876	$40,586	$40,991	$41,810	$42,369	$42,792
STEP 6	$37,466	$37,839	$38,596	$41,469	$41,883	$42,719	$43,326	$43,759
STEP 7	$38,178	$38,558	$39,329	$42,371	$42,794	$43,648	$44,305	$44,748
STEP 8	$38,903	$39,291	$40,076	$43,293	$43,725	$44,597	$45,306	$45,759
STEP 9	$39,642	$40,038	$40,837	$44,235	$44,676	$45,567	$46,330	$46,793
STEP 10	$40,395	$40,799	$41,613	$45,197	$45,648	$46,558	$47,377	$47,850
STEP 11	$41,163	$41,574	$42,404	$46,180	$46,641	$47,571	$48,448	$48,931
STEP 12	$41,945	$42,364	$43,210	$47,184	$47,655	$48,606	$49,543	$50,037
STEP 13	$42,742	$43,169	$44,031	$48,210	$48,691	$49,663	$50,662	$51,168
STEP 14	$43,554	$43,989	$44,868	$49,259	$49,750	$50,743	$51,807	$52,324
STEP 15	$44,382	$44,825	$45,720	$50,330	$50,832	$51,847	$52,978	$53,506
STEP 16	$45,225	$45,677	$46,589	$51,425	$51,938	$52,975	$54,175	$54,715
STEP 17	$46,084	$46,545	$47,474	$52,543	$53,068	$54,127	$55,399	$55,951
STEP 18	$46,960	$47,429	$48,376	$53,686	$54,222	$55,304	$56,651	$57,215
STEP 19	$46,960	$48,330	$49,295	$54,854	$55,401	$56,507	$57,931	$58,508
STEP 20	$46,960	$48,330	$50,232	$56,047	$56,606	$57,736	$59,240	$59,830
STEP 21	$46,960	$48,330	$51,186	$57,266	$57,837	$58,992	$60,579	$61,182
STEP 22	$46,960	$48,330	$51,186	$58,512	$59,095	$60,275	$61,948	$62,564
STEP 23	$46,960	$48,330	$51,186	$59,785	$60,380	$61,586	$63,348	$63,978
STEP 24	$46,960	$48,330	$51,186	$61,085	$61,693	$62,925	$64,779	$65,424

II. THE SINGLE SALARY SCHEDULE

In the United States, teaching has historically been a female-dominated profession, especially at the elementary grade levels. In the early part of the 20th century, female elementary teachers were paid significantly less than secondary teachers, who were more likely to be male. Some believed the discrepancies in salary were due in part to discrimination against women. In an effort to unify the teaching profession and level out the pay disparity, during the 1920s and 1930s, several large urban school districts began implementing a single salary schedule for all teachers.[7] Today, nearly all public school teachers are paid according to a single salary schedule. According to the National Center for Education Statistics' Schools and Staffing Survey, 99.8 percent of public school teachers in Missouri were on a salary schedule in 2007-08.[8]

Rather than pay teachers based on their effectiveness or their market competitiveness, single salary

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[T]he average math and science teacher in Missouri makes less than the average teacher and less than teachers of band, art, speech, or physical education.

schedules pay all teachers the same amount if they are at the same step on the schedule. Most single salary schedules in education award teachers with raises for each year of experience and for earning additional college credits or degrees.[9] An example of a typical salary schedule from the Washington School District is provided in Figure 1.[10] With this type of schedule, a new elementary education graduate of Missouri Southern State University would earn the exact same amount as a new high school physics teacher with a degree from Harvard: $34,100.[11]

There are a number of problems with the single salary schedule. First, schedules like the one in Figure 1 reward teachers for each additional year of experience. This implies that experience is always beneficial and a 27th-year teacher is more effective than a 24th-year teacher. As it turns out, experience is not always an accurate predictor of quality. When researchers examine the impact of experience on value-added student achievement, they typically find teachers improve significantly within the first few years of teaching.[12] After five years, teachers seem to level off with little to no improvements in effectiveness coming from subsequent years of experience.

The above schedule also rewards teachers for earning master's degrees. Once again, the research is clear that master's degrees are not a clear sign of quality.[13] That is, teachers do not become significantly more effective when they earn master's degrees. This finding occurs partly because so many teachers earn master's degrees. In fact, more than half of all Missouri teachers currently hold a master's degree. And why wouldn't they? After all, other than experience, earning an advanced degree is often the only way teachers can earn a higher salary. Though the difference between a bachelor's degree and a master's degree may not seem like much, the differences add up over time. For example, under the current salary schedule, a teacher in Saint Louis who earns a master's degree by their fifth year and teaches for a total of 25 years would earn more than $200,000 extra through the course of their career than they would if they never earned their master's degree. Multiply that figure times the number of teachers in a district and it results in millions of dollars being spent in a manner that is unlikely to improve teacher quality or student improvement. Despite the facts, most schools adhere to a single salary schedule that rewards teachers solely based on experience and college degrees.

Moreover, the step and lane salary schedule, as it is often called, treats all teachers as if they are the same. It does not take into account the quality of teachers or the relative supply of teachers for various

positions. Similarly, it does not take into account the market options for individuals with different skills. STEM teachers, for instance, may have markedly different skills than a family and consumer science (FACS) teacher and may be able to command a higher salary in the marketplace.

It makes little sense to pay individuals with different skill sets, and who are in different levels of supply, the same amount. Most sectors pay individuals differently based on the individual's specific job. Even in higher education, pay varies by subject. According to a study released by the College and University Professional Association for Human Resources, a new assistant professor in history might earn half of what a new assistant professor in the legal profession might earn.[14] This occurs because lawyers have market options that pay more for their skills than do history teachers. If universities offered less to teachers in their law schools, fewer would apply for those jobs. Similarly, by not paying STEM teachers a market competitive salary, Missouri schools may be losing many talented teachers to other professions.

Missouri can and should consider alternative methods for compensating teachers based on their contribution to a school. Even teachers are beginning to see the need for abandoning single salary schedules. In a 2011 report, the National Center for Education Information reported 40 percent of the 1,076 teachers in their survey supported market-based pay for teachers.[15] This number is up from only 12 percent of respondents supporting varied pay for teachers in 1990 and 30 percent in 2005. In a similar study, Education Sector reported 58 percent of the 1,101 teachers in their study supported paying teachers in hard-to-staff subjects more than other teachers; this also was an increase from previous years.[16]

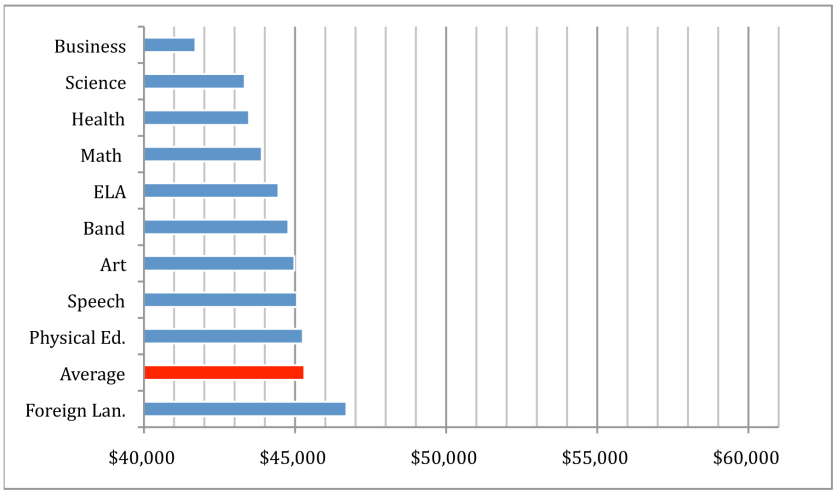
III. SIDE EFFECTS OF THE SINGLE SALARY SCHEDULE

Missourians want high-quality schools with well-qualified teachers in the classroom. The common solution proposed to attract more teachers is to simply raise the level of pay for all teachers. In times of budget surplus, this might have been a viable option, but in times of austerity, districts must be more prudent in how they develop compensation systems.

Furthermore, simply raising salaries for all teachers does not nullify the problems of a single salary schedule. Namely, the schedule is unable to reward teachers for their unique contribution. To illustrate this point, I tabulated the average salary of teachers of various subjects. It may come as a shock to some, but the average math and science teacher in Missouri makes less than the average teacher and less than teachers of band,

Missouri school districts must depart from the single salary schedule if they want to attract and retain high-quality math and science teachers and move the state to the forefront in student achievement.

Figure 2: 2011 State Average Teacher Salaries by Subject



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art, speech, or physical education.

Figure 2 displays the average salary for Missouri teachers from a host of different fields (see Appendix for job codes). To construct this analysis, data were obtained from DESE containing a unique identifier for all secondary teachers in the state of Missouri. The data indicated which courses each teacher taught during the 2011-12 school year. Using these data, teachers of similar subjects were grouped together using the subject groupings that DESE utilized.[17] For comparison, the average salary of all teachers is indicated in red. The figures used are teachers' regular term salary, which should not include any additional pay a teacher might receive for additional duties, such as coaching.[18] When an individual was listed as teaching more than one subject, their salary was included in averages of each subject.

As mentioned previously, teachers of both math and science earn less than the state average salary. The average math teacher earns $1,410 less while the average science teacher earns $1,972 less. Math and science teachers also earn less, on average, than teachers of English language arts (ELA), band, art, and speech.

Table 1: Descriptive Statistics of Average Teachers in 2011 by Subject

Subject	Average Salary	Number of Teachers	Avg. Years of Experience	Percent with a Master's degree or higher
Foreign Language	$46,700	1,537	12.1	62%
Physical Education	$45,258	5,110	13.1	58%
Speech	$45,065	1,046	12.5	58%
Art	$44,976	3,469	13.1	55%
Band	$44,781	1,527	13.1	57%
English Language Arts	$44,452	12,927	12.6	62%
Math	$43,900	9,418	12.3	59%
Music	$43,338	2,725	12.8	50%
Health	$43,479	1,075	12.9	57%
Science	$43,338	6,988	11.9	59%
Business	$41,706	3,575	12.3	62%

Moreover, the average math and science teacher earns $1,358 and $1,920 less, respectively, than the average physical education teacher. These differences occur primarily because the average math and science teacher has less experience than teachers of other subjects, which is expected if math and science teachers have more job alternatives. Table 1 displays the average salary of each of these subjects, the number of teachers in the data, average years of experience, and the percent with a master's degree or higher.

As Table 1 makes clear, the lower salaries of math and science teachers are almost solely a function of those teachers having slightly less experience. Approximately 59 percent of math and science teachers have a master's degree or higher, more than teachers in all other subjects except for foreign language and English language arts. Yet the average salary for math and science teachers is lower than it is for other subjects because of experience. The average math teacher has taught for about 12.3 years while the average science teacher has taught for only 11.9 years. These numbers are lower than almost all of the other subjects. Teachers of physical education, art, and band have the most experience, an average of 13.1years.

Though the state has declared support for STEM initiatives, most school districts have structured the pay system in a way that handicaps them from actually rewarding teachers of those subjects. As a result, teachers of math and science are paid less than the average teacher, including teachers of non-core subjects.

A. Unaccredited Districts

In 2011, Missouri had three unaccredited school districts as a result of persistent low academic performance: Saint Louis, Kansas City, and Riverview Gardens. If anywhere, it is in these school districts we should want to have the best, most capable individuals teaching core subjects such as math and science. Accordingly, we might expect teachers of these subjects to earn more than teachers of non-core subjects. These districts, however, are on single salary

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Figure 3: 2011 Unaccredited School District's Average Teacher Salaries by Subject

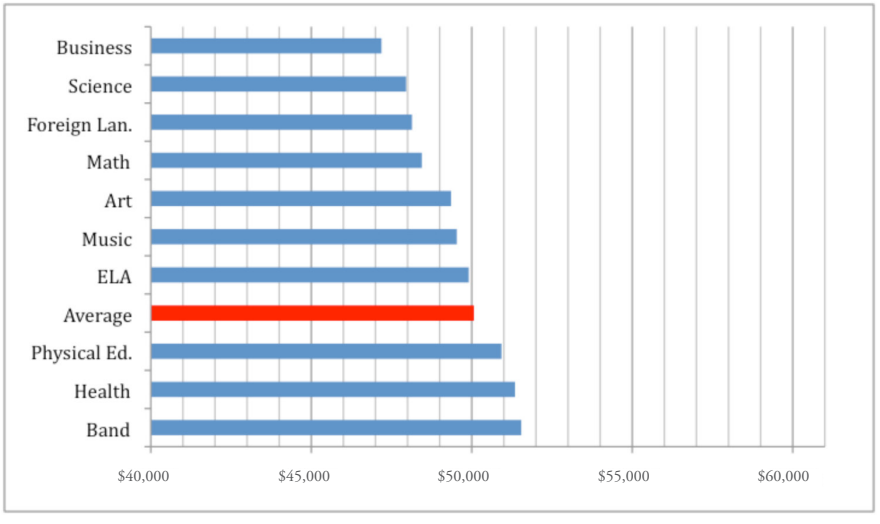
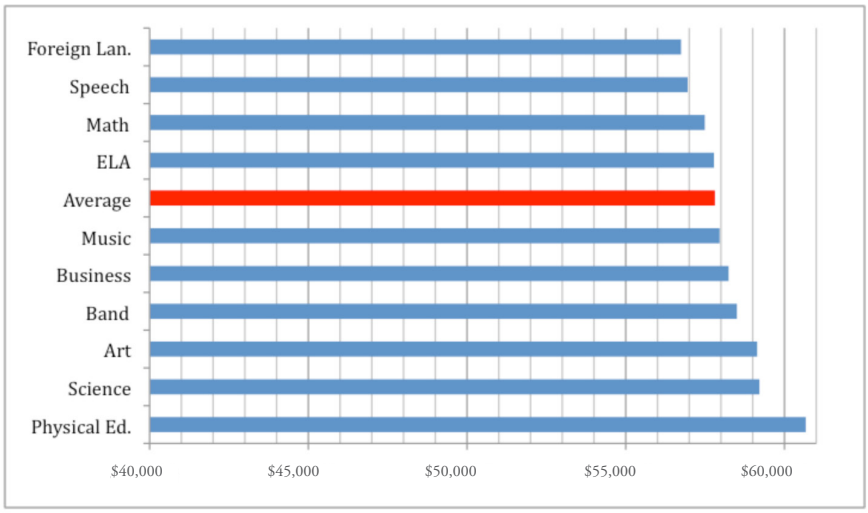


Figure 4: 2011 25 Top Paying School Districts' Average Teacher Salaries by Subject



schedules like most other districts. Once again, this results in math and science teachers earning less than the average teacher in the district.

The average teacher in the three unaccredited districts earned $50,066. The average science teacher, on the other hand, earned just $47,955; math teachers, $48,445. Once again, teachers of non-core subjects earned more on average than math and science teachers. In fact, the average physical education, health, and band teacher in these three districts earned more than the average teacher.

B. Highest-Paying Districts

The single salary schedule does not just hinder underperforming districts, it hampers all school districts. Even in the 25 highest-paying districts, the side effects of a single salary schedule are evident. Figure 4 shows the average salaries of the 25 highest-paying districts in the state. As it turns out, science teachers in these districts earned more than the group average, but math teachers earned less. Still, the average science teacher earned less than the average physical education teacher, and only slightly more than the average art teacher.

C. Summary

Math and science arguably are two of the subjects in which students must be proficient to be competitive in today's job market. Even though DESE has placed an emphasis on STEM teachers, throughout the state, teachers of math and science earn less on average than the average teacher and less than teachers of non-core subjects. These differences are a function of the single salary schedule, which provides raises for each year of service and additional college credits or degrees. The end result is math and science teachers earn less, on average, than teachers of non-core subjects. If we value math and science, we should pay individuals for their unique contribution, rather than paying teachers based on an outmoded schedule that does not capture an individual's performance or their market options.

Missouri can and should consider alternative methods for compensating teachers based on their contribution to a school.

IV. CONCLUSION AND SOLUTIONS

The Department of Elementary and Secondary Education has set a lofty goal for Missouri public schools to be in the top 10 in the nation in terms of student achievement by the year 2020 and education officials have indicated a desire to improve STEM instruction. These goals have many obstacles, but none more pressing than the lack of high-quality teachers of mathematics and the sciences. The state colleges graduate fewer math and science education majors than most other subjects and DESE consistently reports teacher shortages in these areas. Despite these facts, very few of Missouri's public school districts are encouraging individuals to enter these fields, which could be done with financial incentives. School districts could improve the state's situation if it abandons single salary schedules and pays teachers a competitive market wage commensurate with their expertise.

Nearly 100 percent of Missouri's public school districts pay teachers on a single salary schedule. This means high-need teachers in math and science are placed on the same schedule as teachers who have less marketable skills and who are in abundant supply. This type of pay schedule helps school districts retain teachers in fields that have fewer market options more readily than teachers with skills that make them competitive in the job market. Accordingly, teachers of math and science earn less, on average, throughout the state than do teachers of non-core subjects.

If Missouri wants to attract individuals with an interest in math and the sciences into the teaching profession and wants to retain those individuals, then school districts must abandon the single salary schedule. School districts should pay teachers based on the school's need and the individual's abilities or job market options. Instead, the single salary schedule treats all teachers the same and rewards them for factors that have little to do with performance.

The single salary schedule is not a state mandate. Instead, Missouri statutes set the minimum salary a new teacher earns and the minimum salary a teacher with 10 years of experience and a master's degree earns.[19] These minimum requirements could be met in a variety of ways without strictly adhering to a single salary schedule. The rigid pay scales that schools use today are the product of tradition and collective bargaining.

Schools do not have to continue paying teachers in a manner that does not help them attract or retain teachers in high-need areas. There are a number of different ways schools could alter how they compensate teachers in order to pay teachers a more market competitive wage. The

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following are three strategies schools could implement:

Separate Salary Schedules: School districts do not have to have one salary schedule. Conceivably, they could devise a salary schedule for every subject, provided they meet the state's minimum salary requirements. More realistically, they could create a separate salary schedule for teachers of high-need subjects such as STEM. If this type of strategy was widespread, more individuals might choose to enter into math and science education degree programs because they could expect higher salaries upon graduation. Similarly, it might entice more teachers to stay in these subjects rather than leaving for other fields.

Higher Step: Instead of starting new math and science teachers at the base, districts could start them at a step concurrent with a few years of experience. This strategy does not break a district from the single salary schedule, but allows districts to reward teachers for their specialized skills. Some school districts may use this strategy already, but collective bargaining often limits its use. For example, according to the collective bargaining agreement obtained from the Parkway School District, the superintendent can recommend an individual be hired with up to five years of experience if the "non-educational background of an otherwise properly certified applicant makes the applicant more qualified than an applicant with an education degree but no teaching or relevant non-education experience." A strategy such as Parkway's is unlikely to lead to a dramatic increase in career switchers and will yield no additional benefit for a math or science education major in college, because they have no prior non-education experience; however, if districts were to regularly start math and science teachers at a higher level there may be potential for improvement.

Autonomous Pay: Principals are tasked with hiring teachers and running schools. Perhaps principals and other school officials might know best what their school needs. Thus, it makes sense to give principals the power to determine pay for newly hired teachers. By giving principals the discretion over their budget, they could decide if they want to hire two inexperienced teachers for $30,000 or a veteran for $60,000. When an excellent teacher comes along, they could pay them more in order to attract them to their school. Similarly, they could attract math and science teachers to their school with the offer of a higher salary. This system would allow principals the most freedom to do their jobs; of course, that freedom should be matched with increased accountability.

To some, the solutions discussed may not be politically palatable.

Veteran teachers, teachers' unions, and others may offer many arguments for the fairness of a single salary schedule. It seems more unfair, however, to not recognize teachers for their specific skills and talents. Not all teachers are the same and not all skills are equally demanded. The solutions provided here will not solve all of the woes in Missouri, nor will they alone help the state achieve its 10 by 20 goal. They would, however, help increase the number of college students entering math and science education degree programs and they could enable school districts to retain math and science teachers. The bottom line is that Missouri school districts must depart from the single salary schedule if they want to attract and retain high-quality math and science teachers and move the state to the forefront in student achievement.

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Appendix

State course codes can be found at: http://dese.mo.gov/MOSIS/FilespecCodeSets_2013CodeSets.html#State_Course_Codes

The following jobs were grouped together for salary calculations:

Agriculture: 14,000 -16,799

Art: 24,100-24,199

Business: 34,037-34,399

English Language Arts (ELA): 54,800-54,899

Speech: 56,500-56,599

Foreign Language: 60,000-69,020

Health: 85,300-85,399

Physical Education: 86,000-86,099

Math: 115,800-115,899

Band: 125,500-125,599

Music: 126,900-126,999

Science: 133,800-136,000

Notes

[1] "Change the Equation." (2012). *Vital Signs: Missouri.* Retrieved from: www.http://vitalsigns.changetheequation.org/images/vs_newsletter/missouri.pdf.

[2] Ibid.

[3] Missouri's Race to the Top Application. (2010). Retrieved from: www.http://www2.ed.gov/programs/racetothetop/phase2-applications/missouri.pdf.

[4] Missouri Department of Elementary and Secondary Education (DESE). (2010). State releases new *"Hot Jobs" report, prospects for "STEM" careers highlighted.* Retrieved from: http://search.mo.gov/

[5] Missouri DESE. (2011). *Improving education and supporting communities.* Retrieved from: http://dese.mo.gov/top10by20/documents/10x20-e-flier.pdf.

[6] Missouri DESE. (2011). *10x20 Plan.* Retrieved from: http://dese.mo.gov/top10by20/documents/10x20-plan.pdf.

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[9] Some districts may offer increased pay for earning National Board Certification, being a department chair, or a variety of other things. These types of pay increases, however, do not address the problem discussed in this paper.

[10] Washington School District. (2012). *2011-2012 teacher salary schedule.* Retrieved from: http://www.sdow-mo.schoolloop.com/file/1323005962663/3886682936702910271.pdf.

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[14] College and University Professional Association for Human Resources. (2012). *2011-12 national faculty salary survey.* Retrieved from: http://www.cupahr.org/surveys/files/salary2012/NFSS12ExecutiveSummary.pdf.

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[16] Rosenberg, S. and Silva, E. (2012). "Trending toward reform: Teachers speak on unions and the future of the profession." *Education Sector Reports.* Online here: http://www.educationsector.org/sites/default/files/publications/REPORT-TeacherSurvey3f.pdf.

[17] Missouri DESE. (2012). T*eacher Course Codes.* Retrieved from: http://dese.mo.gov/MOSIS/FilespecCodeSets_2013CodeSets.html#State_Course_Codes.

[18] School districts may include additional pay for coaches in the regular term salary in order to capitalize on retirement benefits, which are not calculated on stipends. It is unclear the extent to which this happens. However, it does beg the question of why some districts choose to pay coaches more, but fail to pay some teachers more.

[19] Missouri Revised Statutes: http://www.moga.mo.gov/statutes/c100-199/1630000172.htm.