

AMTE's Emerging Issues Committee (EIC) Comments re:
Standard Occupational Classification Policy Committee's
Recommendations for the 2018 SOC

AACTE (2016) makes the following recommendations related to data:

“Educator preparation providers want to use data on their programs to inform and improve the preparation of effective beginning teachers. However, the availability of and access to these data vary greatly by state. Some state policies require data to be reported but do not integrate them into a useful system. Further, many providers lack the resources to meet reporting requirements for state, federal, and accreditation purposes. By addressing these shortcomings, states can help educator preparation programs use data for long-term positive change while meeting reporting requirements. Policy

- Require data systems to be more accessible by educators and better integrated across agencies and jurisdictions.
- Support state agencies with adequate staffing and training to be able to collect and provide data that are useful for educator preparation program accountability and continuous improvement.”

https://secure.aacte.org/apps/rl/res_get.php?fid=2911&ref=res

Thus, as we consider improvements to the 2018 Standard Occupational Classification (SOC) for the purposes of collecting and reporting occupation data related to the teacher workforce in the U.S., it is critical to imagine specific needs in the next 10 years. This taxonomy is required to be used by all federal statistical agencies when collecting data on jobs. In practice, non-statistical agencies as well as the private sector also use the taxonomy to have some alignment with the federal system.

The teacher workforce is one of the largest in the U.S. The country is currently facing huge shortage areas within specific content areas (e.g., special education, mathematics, and science). These shortages have led to legislation in some states to lower standards so that people without certification and/or the appropriate subject area endorsements can teach in classrooms. These shortages have also led to the elimination of some secondary school courses (e.g., physics) in districts that cannot hire teachers. In addition, there are new teacher accreditation standards that require tracking teacher candidates from enrollment to teaching positions and linking candidates to their K-12 student achievement data. To meet this need, a few organizations have taken on the challenge of building data warehouses that can generate reports related to the teacher workforce, teacher performance, and student achievement using SOC. Both of these challenges (i.e., teacher shortages in specific content areas and the need to track occupation data for accreditation/accountability purposes) suggest that the SOC should include separate classifications for different types of teachers. Doing so would alleviate many problems with the current system. For example, the current system of combining the classifications into one group hides where the true shortages exist. Data at a state level currently tracks the number of teachers who are certified for specific content areas; however, not how many are actually in teaching positions. In some cases, state departments have argued that shortages do not exist based on the certification data. Identifying how many physics teachers are employed will highlight that some schools have eliminated physics due to a lack of teachers.

Although we have systems in place now that can look at data in specific ways, the SOC should facilitate opportunities to study the composition of the teacher workforce in new ways. The current draft does not include this type of separation, which is unhelpful based on what is needed to improve education in the future. The following paragraphs provide further support for the need for more specificity in the classification of teachers in grades K-12 for statistical reporting.

Each institution of higher education (IHE) that conducts a traditional teacher preparation program (including programs that offer any ongoing professional development programs) or alternative route to state credential program, and that enrolls students receiving Federal assistance under the Title II Act, has to set annual quantifiable goals for increasing the number of prospective teachers trained in teacher shortage areas designated by the Secretary or by the state educational agency, including mathematics, science, special education, and instruction of limited English proficient students. Since this kind of reporting is required of higher education programs, it is important to higher education institutions to know how many of these teachers are staying in classrooms and under what conditions. When these teachers are lumped together in one category, it is difficult to measure how well the needs are being met in the school systems over time.

Furthermore, within category 25-0000 (Educational Instruction and Library Occupations), there is a marked distinction in the way post-secondary teachers (25-1000) and PreK, K, Grades 1-12, and Special Education Teachers (25-2000) are classified. Whereas there are 11 broad categories within the 25-1000 minor category, organized by content areas, there are only 4 broad categories within 25-200, organized by grade bands plus special education. This difference in the way PreK-12 and post-secondary teachers are characterized presents a challenge for researchers who examine the work of teachers in similar content areas across the span of PreK-20 education. Particularly in 6-12 education, when teachers are content specialists and often licensed by content areas, it is important for all content areas (mathematics included) to have the minor categories in the 25-2000 parallel categories in 25-1000 in ways that allow for cross-cutting research across educational bands.

A specific consequence of this disparity in the ways that post-secondary and secondary teachers are classified is that teaching positions with the same need for content-area expertise are treated differently. For example, the proposed classification system includes a separate classification for Math and Computer Teachers in Postsecondary Education, but no separate classification system for mathematics teachers for students in grades 9-12. The background required of Postsecondary Mathematics teachers at the community college level is often the same as that required of mathematics teachers for students in grades 9-12. Not accounting separately for secondary level mathematics teachers can contribute to lack of clarity in realizing the shortage of mathematics teachers for students in grades 9-12.

As mentioned above, there is, has been, and likely will continue to be a national shortage of secondary mathematics teachers for decades (Bernstein, 2013; U. S. Dept. of Education, 2013). The number of states with a teacher shortage area in mathematics has grown precipitously over the past decade and a half. Every year since 2006, at least 40 states have declared shortages in secondary mathematics teachers (derived from data reported in Teachers Shortage Area Nationwide Listing (U. S. Dept. of Education, 2015)). The situation is a bit more complicated, but it is unlikely to be addressed unless careful records are kept regarding the number of teachers in the occupation of secondary mathematics teaching.

Much of the analysis does not distinguish mathematics teachers from others, but the data on teacher shortages in general raise some questions that can be pursued only with knowledge related to mathematics teachers in particular. Although there is some data suggesting that the number of newly minted teachers has kept pace with the number of retirements (Ingersoll & Perda, 2010), between 40% and 50% of new teachers leave teaching within the first 5 years of entry into the field. During the last two decades, the attrition rate of teachers has increased by 1/3 (Budig, 2006; College Board, 2006; Ingersoll, 2012). Addressing the shortage requires closing the “revolving door” of teaching through which large numbers of teachers leave the teaching profession long before retirement (Darling-Hammond & Sykes, 2003; Ingersoll & Perda, 2010).

The problem of teacher shortage is not, however, uniform across subject areas and grade levels. Many subject areas and grade levels do not experience such shortages, although mathematics is joined in its shortage problems by areas such as Physics and Special Education (derived from data reported in Teachers Shortage Area Nationwide Listing (U. S. Dept. of Education, 2015). With the general trend of teachers leaving the profession at alarming rates and the phenomenon of teacher shortages, in particular in mathematics education (and a few other areas), it would be helpful to know to what extent mathematics teachers leaving the profession have contributed to the mathematics teacher shortage. If mathematics teachers leave the profession at greater rates, greater attention could be paid to developing tailored ways to address the problem. Until official documents record the occupation of teachers in terms of specific subject matter, the problem of teacher shortages will remain unaddressed.

The principles for classification state: "Occupations are classified based on work performed and, in some cases, on the skills, education and/or training needed to perform the work." To more accurately classify the occupation of secondary mathematics teacher, a separate category is needed.

References

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