

**Estimates of the Teacher Shortage in Texas Public Schools
for the 2000-2001 and 2001-2002 Academic Years**

Estimates of the Shortage of Texas Public School Teachers in 2001 and 2002

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June 18, 2002

Introduction

There is a widespread assumption that there exists a significant shortage of teachers in public schools both across the nation and in Texas. Recent estimates put the shortage of teachers in Texas public schools between 37,000 and 40,000 teachers. However, there has been neither little examination of the specific data used in such estimates nor a detailed description of the assumptions behind the estimates. This analysis will offer a number of different estimates of the shortage of teachers in Texas public schools. Each of the estimates will be based on different definitions of teacher shortage, each of which will have different assumptions.

In the 2002 school year, there were 289,000 public school teachers in Texas. Interestingly, this was more than 50,000 greater than the number of teachers in the 1995 school year. This increase in the number of teachers was driven fairly dramatic increases in the number of students enrolled in Texas public schools as well as a decline in the student-teacher ratio over the past seven years.

While there are advantages and disadvantages specific to each of the estimates described below, all of them suffer from two common drawbacks:

(1) Lack of good information on the actual personnel decisions by schools and school districts

When a district has a teaching position open, they can choose to fill that position with an individual who may or may not be qualified to be in that position, or the district may simply choose to not fill the position and increase class sizes instead. For example, if a district is short one mathematics teachers when holding class sizes at 25:1, the district could simply increase the average class size rather than hire an additional teacher. The only data collected on such practices is through the Schools and Staffing Survey conducted by the National Center for Education Statistics. This data has recently been released and SBEC is in the process of obtaining access to the data. If school districts are forced to increase class size because they were unable to find a qualified teacher to hire, or simply chose not to hire another qualified teacher, then many of the following estimates would *underestimate* the true shortage of teachers.

(2) The number of students affected by the shortage of teachers.

At this point in time, the PEIMS data estimates the number of students taught by each teacher, but the estimate is not sufficiently precise. A scenario in which 45,000 under-qualified teachers

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are assigned to teach one and one half million students is quite different than one in which 45,000 under-qualified teachers are assigned to teach less than one million students.

In addition, all of the estimates employing some type of analysis of the percentage of in-field and out-of-field teaching (estimates VI through IX) have two additional common drawbacks:

(3) Only teachers with assignments that require a teacher to hold a certificate are included in the analysis.

Teachers may be assigned to teaching positions that do not require the teacher to hold a certificate. For example, teachers assigned to study hall, discipline management, pupil transportation, and tutorials. Teachers assigned to these areas are not included in any of estimates VI through IX. If a teacher is assigned to these areas for only part of the day, then that part of the day and the associated FTE are excluded from the analysis. One could argue that all teachers involved with students—regardless of the assignment area of the teacher and—should hold a standard certificate, including substitute teachers. However, there is currently not any requirement that such teachers hold a certificate.

(4) Lack of data on some middle school teachers overestimates the number and percentage of teachers assigned out-of-field

Some middle school teachers actually hold the appropriate credentials and possess the appropriate knowledge to be considered as assigned in-field, but a lack of data collection results in such teachers being described as out-of-field. Specifically, SBEC rules allow teachers that have a general elementary certificate as well as 18 hours of higher education coursework in a particular subject area to be appropriately assigned to teach that subject area in grades seven and eight. Unfortunately, no data is currently available that would identify such teachers. Thus, the magnitude of the overestimate of the number and percentage of out-of-field teachers assigned to teach middle school subject is unknown.

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**Summary Table of Estimates of the Shortage of Teachers
in Texas Public Schools**

| NAME OF ESTIMATE | 2000-01 | 2001-02 | Change |
|---|---------|---------|--------|
| Vacant Classrooms | 0 | 0 | 0 |
| Number of All Certified Teachers | 0 | 0 | 0 |
| Number of Teaching Positions to be Filled before the Start of School | 39,652 | 37,000 | -2,652 |
| Number of Teachers Not Holding a Standard Certificate | 21,077 | 33,899 | 12,822 |
| Number of Teachers on Emergency Permits | 14,440 | 14,488 | 48 |
| Number of Teacher Full-Time Equivalents (FTEs) Assigned to Teach Out-of-Field Using a Subject Area Level Analysis | 42,237 | 47,053 | 4,816 |
| Number of Teachers Assigned to Teach Out-of-Field More than 50 Percent of the Day Using a Subject Area Level Analysis | 40,138 | 42,808 | 2,670 |
| Number of Teacher Full-Time Equivalents (FTEs) Assigned to Teach Out-of-Field Using a Subject Level Level Analysis | 45,155 | 56,551 | 11,396 |
| Number of Teachers Assigned to Teach Out-of-Field More than 50 Percent of the Day Using a Subject Level Analysis | 41,197 | 50,381 | 9,184 |

Subject Area Analysis: If a teacher holds any certificate in a particular subject area, then that teacher is considered to be assigned in-field for any course within that subject area. Thus, a teacher with a biology certificate assigned to teach physics would be considered in-field in this analysis.

Subject Level Analysis: A teacher must hold the exact certificate required to teach a particular subject. Thus, a teacher with a biology certificate assigned to teach physics would be considered out-of-field in this analysis.

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**Estimate I:
Vacant Classrooms (2001-2002)**

Description of Estimate

One way to define a shortage of teachers would be the number of classrooms without an adult to instruct the students. To the best of our knowledge, no school or school district has any classrooms that do not have an adult assigned to instruct the students. Thus, under such a definition, there currently is not a shortage of teachers.

| | | |
|-------------------------------------|------------------|----------|
| <u>Shortage of Teachers:</u> | 2000-2001 | 0 |
| | 2001-2002 | 0 |

Advantages and Disadvantages of Estimate

The *principal advantage* of using the *vacant classroom estimate* is that it dispels the myth that there are classrooms of students without any adult assigned to instruct the students. This simply is not the case. All schools and school districts ensure that there is an adult—certified or uncertified—assigned to instruct the students in that classroom.

The *primary disadvantage* of the *vacant classroom estimate* is that it disregards entirely the qualifications of the adult assigned to instruct the students. While every classroom of students is assigned an adult to instruct the students, not every adult so assigned is certified to be a teacher in a Texas public school. Thus, the vacant classroom estimate overlooks the shortage of certified teachers in Texas.

**Estimate II:
Number of All Certified Teachers (2000-2001; 2001-2002)**

Description of Estimate

Another method of defining teacher shortage is to identify the number of certified teachers available to teach. While there are currently about 290,000 teachers employed in Texas public schools, there are approximately 420,000 individuals holding valid Texas teaching certificates who are not employed in Texas public schools. Thus, there are clearly more certified teachers in Texas than there are teaching positions. Under such a definition, there currently is not a shortage of teachers.

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|-------------------------------------|------------------|----------|
| <u>Shortage of Teachers:</u> | 2000-2001 | 0 |
| | 2001-2002 | 0 |

Advantages and Disadvantages of Estimate

The *primary advantage* of using the *number of certified teachers estimate* is that it documents the large number of individuals holding valid Texas teaching certificates who are not employed as Texas public school teachers. This estimate clearly documents that any shortage of certified teachers in Texas public schools is *not* due to the lack of supply of certified teachers, but rather to the lack of willingness on the part of certified teachers to work in Texas public schools.

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The *primary disadvantage* of the *number of certified teachers estimate* is that it documents only the number of individuals holding a certificate when what determines the supply of teachers is the number of individuals actually willing and able to be employed in Texas public schools. Thus, in economic terms, the supply of teachers is actually the number of individuals willing to teach in a Texas public school under the current conditions rather than the number of teachers with the credentials to be a certified teacher in Texas.

**Estimate III:
Number of Teaching Positions to be Filled before the Start of School
(2000-2001; 2001-2002)**

Description of Estimate

From the standpoint of some school district personnel, the shortage of teachers can be defined as the number of teaching positions needed to be filled before the start of school. These unfilled positions could be due to teacher attrition (including retirement), an increase in the number of students, or a reduction in class sizes. Across the state, the number of teaching positions that were needed to be filled to start the 2002 school year was estimated by school district personnel to be slightly under 37,000 (The Texas A&M University System Institute for School-University Partnerships, 2002).

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|-------------------------------------|------------------|---------------|
| <u>Shortage of Teachers:</u> | 2000-2001 | 39,652 |
| | 2001-2002 | 37,000 |

Advantages and Disadvantages of Estimate

The *primary advantage* of using the *number of teaching positions to be filled before the start of school estimate* is that it documents one aspect of the shortage of teachers—namely, the number of teaching positions needed to be filled by the start of school by district personnel to staff their classrooms for the coming school year.

The *primary disadvantage* of the *number of teachers needed to be hired estimate* is that it does not examine the number of under-qualified teachers already in classrooms. *Another disadvantage* is that the estimate does not take into account the number of teachers moving from one district to another. When a teacher leaves one district, the loss of the teacher possibly creates a shortage in that particular district. However, if the teacher becomes employed in another district, then that teacher should not be counted towards an estimate of the shortage of teachers *for the entire state*. In this sense, this estimated shortage number may *overestimate* the state-level need for additional teachers.

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Estimate IV:

Number of Teachers on Emergency Permits (2000-2001; 2001-2002)

Description of Estimate

The shortage of teachers can also be defined by examining the number of teachers not fully qualified to be teachers. Most teachers on emergency permits typically do not hold a teaching certificate from the state of Texas. An emergency permit is granted to a person with a four-year degree but who does not hold a State of Texas Teaching Certificate or who holds a Texas teaching certificate in an area inappropriate for her or his assignment. In most cases, the person does not hold any valid Texas teaching certificate. Emergency permits are initially valid for only one school year, but can be renewed for up to two additional years depending on the total number of semester hours needed to obtain certification and documentation of progress toward certification. This definition assumes that teachers holding emergency permits are less – qualified than teachers holding standard certificates. In the 2002 school year, 14,488 individuals on emergency teaching permits were assigned to be teachers.

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| <u>Shortage of Teachers:</u> | 2000-2001: | 14,440 |
| | 2001-2002: | 14,488 |

Advantages and Disadvantages of Estimate

The *principal advantage* of using the *number of teachers on emergency permits estimate* is that it documents the number of individuals who have not had any training to be classroom teachers with the exception of those teachers holding a standard certificate but on an emergency permit to teach out-of-field for the majority of the school day. With the exception of the teachers on an “emergency-certified” permit that allows them to teach out of field, teachers on emergency permits are the least qualified as measured by objective criteria such as passing an ExCET test or enrollment in an alternative program that provides the teacher some training.

The *primary disadvantage* of the *number of teachers on emergency permits estimate* is that it does not examine the qualifications of individuals teaching on emergency permits. At this point in time, this data is simply not available. With respect to content knowledge, some teachers on emergency permits could actually be more qualified than teachers holding a standard certificate.

Estimate V:

Number of Teachers Not Holding a Standard Certificate (2000-2001; 2001-2002)

Description of Estimate

The shortage of teachers can also be defined by examining the number of teachers not holding a standard certificate issued by SBEC. Teachers without a full certificate include teachers on emergency permits, teachers entering from other states or countries on a one-year certificate, and teachers enrolled in alternative certification programs. A more detailed description of emergency permits is included in the analysis below. Teachers with an out-of-state permit are those individuals moving into Texas from another state or country. The teachers must pass the

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requisite ExCET examinations or have passed the licensure examinations from their own state with a score comparable to an ExCET examination passing score.

This definition assumes that those holding a standard certificate are more qualified to teach than teachers on other certificates or permits. Teachers on one-year certificates, enrolled in Alternative Certification Programs, or employed on an emergency permit have not yet exhibited their content or pedagogical expertise by passing the ExCET examinations. Most out-of-state teachers will have already had some teaching experience, but may or may not have had to exhibit their content and pedagogical expertise by taking a teacher licensure test. In the case of teachers enrolled in Alternative programs, most do not have prior training to be a teacher and vary in their content expertise. With respect to teachers on emergency permits, very few have any pedagogical training and their level of content area expertise varies.

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|-------------------------------------|-------------------|---------------|
| <u>Shortage of Teachers:</u> | 2000-2001: | 21,077 |
| | 2001-2002: | 33,899 |

Advantages and Disadvantages of Estimate

The *principal advantage* of using the *number of teachers not holding a standard certificate estimate* is that it documents the number of teachers who are not fully certified under the rules and regulations set forth by the state. Again, inherent in such an analysis is the assumption that teachers who have met all of the requirements for full certification are more qualified to instruct students than teachers who have not satisfied all of the requirements for full certification. There is fairly consistent research that content area expertise is positively associated with teacher quality as measured by student performance. In addition, there is somewhat consistent evidence that fully certified teachers possess better classroom management and organizational skills than teachers without full certification. Importantly, teachers not holding a standard certificate typically have not demonstrated their content expertise before they begin teaching.

The *primary disadvantage* of the *number of teachers not holding a standard certificate estimate* is that there is no consistent research evidence for one to unequivocally conclude that fully certified teachers are more qualified and effective than teachers holding out-of-state certificates, Alternative Certification Program certificates, or emergency permits. However, the research is fairly clear that subject matter knowledge and teacher verbal ability (as measured by standardized test results such as the verbal section of the SAT) are critical to the quality and effectiveness of teachers.

Another disadvantage of this estimate is that not all teachers are assigned to subjects that require a standard certificate or even a permit. For example, a teacher could be assigned to be in charge of study hall or be a permanent substitute. In the latter case, each individual district decides on the required qualifications to be a permanent substitute teacher.

A third disadvantage of this estimate is that the percentage of time these teachers are assigned to teach students is unknown at this time. Teachers without a standard certificate may not instruct students as great a percentage of the day as teachers with a standard certificate. The data to compete such an analysis is available, but has not been conducted at this time.

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Estimate VI:

**Number of Teacher Full-Time Equivalents (FTEs) Assigned to Teach Out-of-Field
Using a Subject Area Level Analysis (2000-2001; 2001-2002)**

Description of Estimate

Another way to estimate the shortage of teachers is to document the *number of teacher full-time equivalents assigned to teach out of their field of expertise*. The assumption behind this estimate is that if a district must resort to assigning a teacher out of their field of expertise or a teacher without a standard certificate, then the district was unable to find and hire a teacher fully certified in to teach that particular subject area.

In this particular analysis, a teacher must hold a standard certificate in the subject area (e.g., English/language arts, science, etcetera) to which they are assigned to teach. For example, if a teacher is assigned to teach physics and holds any type of science certificate (i.e., chemistry, biology, physical science, etcetera), then he or she is considered to be teaching in-field. Thus, the proper certificate for an assignment is broadly defined in this estimate. In estimates VIII and IX, a more narrow analysis is considered.

Finally, the teacher must be assigned to teach out of field for more than 50 percent of the day in a particular subject area to be included in this analysis.

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|-------------------------------------|-------------------|---------------|
| <u>Shortage of Teachers:</u> | 2000-2001: | 42,237 |
| | 2001-2002: | 47,053 |

Advantages and Disadvantages of Estimate

The *primary advantage* of the *number of teachers assigned to teach out-of-field estimate using a subject area analysis* is that it documents the total FTE count of teachers who do not hold a standard certificate for the content area to which they are assigned to teach. This analysis assumes that both knowledge of content and the knowledge of how to best present and convey content are important in helping children to learn. If one agrees that both content and pedagogical knowledge are necessary to be a well qualified and effective teacher, then the number of teacher FTEs assigned out-of-field is a fairly accurate estimate of the shortage of teachers.

The *primary disadvantage* of this and other estimates is that there is currently no consistent valid research base that unequivocally concludes fully certified teachers are more effective than teachers on one-year certificates, teachers enrolled in Alternative Certification Programs, or teachers on emergency permits. One could argue that certain individuals in Alternative Certification Programs could possess a very strong and deep understanding of the content area to which he or she is assigned to teach, thus should not be considered out-of-field. However, such persons typically have not demonstrated their mastery of the subject area to which they are assigned to teach by passing the appropriate ExCET test before they enter the classroom. Moreover, the ability of such individuals to communicate their content expertise has also typically not been assessed.

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The *second disadvantage* of this estimate is that the FTEs are summed for all the FTEs out of field. In many cases, however, common and financial sense would dictate that district assign a teacher out of field for a small portion of the day. For example, suppose a district has only one Algebra I teacher available to teach five classes per day, the district wants to keep the Algebra I student-teacher ratio at or below 30 to one, and there are 180 students enrolled in Algebra I. The number of students would—given the class size limitation—require at least six classes rather than five. In such a case, the district would have several options: (1) ask the Algebra I teacher to teach an additional class for additional pay, (2) attempt to hire a certified mathematics teacher or a teacher certified in a different subject area for just one class per day, (3) hire a full-time mathematics teacher, (4) hire a full-time teacher not certified or certified in a non-mathematics subject area, (5) or assign a teacher from another field of expertise to teach the one class. Often the best option for districts—especially from a financial perspective—is to simply assign a teacher from another subject area to teach the extra Algebra I class.

Estimate VII: Number of Teachers Assigned to Teach Out-of-Field More than 50 Percent of the Day Using a Subject Area Level Analysis (2000-2001; 2001-2002)

Description of Estimate

Because some teachers under the current conditions will inevitably be assigned to teach out-of-field for one or two class periods per day, the *number of teachers assigned to teach out-of-field more than 50 percent of the day using a subject area analysis estimate* only considers teachers teaching out-of-field for more than 50 percent of the day when estimating the shortage of teachers.

The assumption behind this estimate is two-fold: (1) that a district should hire an additional teacher rather than assign a person out-of-field for more than 50 percent of the day and (2) that presumably the district was unable to find and hire a teacher holding a standard certificate in that particular subject area.

As in the above analysis, a teacher must hold a standard certificate in *only* the subject area to which she or he is assigned to teach to be considered in-field in this analysis. For example, if a teacher is assigned to teach physics and holds any type of science certificate (i.e., chemistry, biology, physical science, etcetera), then he or she is considered to be teaching in-field. The same is true for other subject areas, including foreign language. Thus, the proper certificate for an assignment is broadly defined in this estimate. In estimates VIII and IX, a narrower definition for holding the proper certificate is employed.

The most important aspect of this definition is that only teachers assigned to more than 50 percent of the school day are considered to be out-of-field. This allows for the assignment of some teachers to subject areas out of their field of expertise for several classes a day.

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|-------------------------------------|-------------------|---------------|
| <u>Shortage of Teachers:</u> | 2000-2001: | 40,138 |
| | 2001-2002: | 42,808 |

Advantages and Disadvantages of Estimate:

The *primary advantage* of using the *number of teachers assigned to teach out-of-field more than 50 percent of the day using a subject area analysis* is that it documents the number of teachers assigned out-of-field, but does not include those teachers assigned out of field for only a small portion of the day. In this way, the estimate takes into account the sometimes necessary decision-making processes of school districts. Because of the way schools are currently organized and funded, there will likely be teachers who are assigned out of field for some small proportion of the day.

The *primary disadvantage* of this and other estimates is that there is currently no consistent valid research base that unequivocally concludes fully certified teachers are more effective than teachers on one-year certificates, teachers enrolled in Alternative Certification Programs, or teachers on emergency permits. One could argue that certain individuals in Alternative Certification Programs could possess a very strong and deep understanding of the content area to which he or she is assigned to teach, thus should not be considered out-of-field. However, such persons typically have not demonstrated their mastery of the subject area to which they are assigned to teach by passing the appropriate ExCET test before they enter the classroom. Moreover, the ability of such individuals to communicate their content expertise has also typically not been assessed.

The *other disadvantage* is that the estimate assumes those teachers assigned to teach out-of-field for less than 50 percent of the day do not contribute to the shortage of teachers or are considered to be well-qualified. From the standpoint of students or parents, however, a teacher assigned out-of-field for just one class a day can be extremely important, especially if the teacher does not have a strong command of the subject matter knowledge.

**Estimate VIII:
Number of Teacher Full-Time Equivalents (FTEs) Assigned to Teach Out-of-Field
Using a Subject Level Analysis (2000-2001; 2001-2002)**

Description of Estimate

While estimates VI and VII counted the number of teachers assigned out-of-field as a method to estimate the shortage of teachers, the *number of teacher full-time equivalents assigned to teach out-of-field using a subject level analysis* is different in that it employs a narrower perspective in making the decision about whether a teacher is assigned in-field or out-of-field.

In this particular analysis, a teacher must hold a standard certificate in the subject area *and* the subject to which she or he is assigned to teach. For example, if a teacher is assigned to teach physics, then he or she must hold a science composite certificate or a physics certificate to be considered to be assigned in-field. Similarly, a journalism teacher must have a journalism

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certificate to be considered in-field. Thus, the proper certificate for an assignment is defined more narrowly in this estimate than in the subject area estimate.

The assumption behind this estimate is that if a district must resort to assigning a teacher out of her or his field of expertise or a teacher without a standard certificate, then the district was unable to find and hire a teacher fully certified in to teach that particular subject area.

Furthermore, this estimate is based on the assumption that a teacher must hold the proper standard certificate for each subject that she or he teaches in order to be well-qualified. This estimate assumes that simply having a standard certificate in any subject within the subject area is not sufficient to effectively teach a subject. For example, this estimate assumes that a physics teacher with a science composite or physics certificate is better qualified to teach physics than a teacher with a biology certificate.

| | | |
|-------------------------------------|-------------------|---------------|
| <u>Shortage of Teachers:</u> | 2000-2001: | 45,155 |
| | 2001-2002: | 56,551 |

Advantages and Disadvantages of Estimate

The *primary advantage* of the *number of teachers assigned to teach out-of-field estimate using a subject level analysis* is that it documents the total FTE count of teachers who do not hold a standard certificate for the content area to which they are assigned to teach. This analysis assumes that both knowledge of content and the knowledge of how to best present and convey content are important in helping children to learn. If one agrees that both content and pedagogical knowledge are necessary to be a well qualified and effective teacher, then the number of teacher FTEs assigned out-of-field is a fairly accurate estimate of the shortage of teachers.

The *primary disadvantage* of this and other estimates is that there is currently no consistent valid research base that unequivocally concludes fully certified teachers are more effective than teachers on one-year certificates, teachers enrolled in Alternative Certification Programs, or teachers on emergency permits. One could argue that certain individuals in Alternative Certification Programs could possess a very strong and deep understanding of the content area to which he or she is assigned to teach, thus should not be considered out-of-field. However, such persons typically have not demonstrated their mastery of the subject area to which they are assigned to teach by passing the appropriate ExCET test before they enter the classroom. Moreover, the ability of such individuals to communicate their content expertise has also typically not been assessed.

The *second disadvantage* of this estimate is that the FTEs are summed for all the FTEs out-of-field. In many cases, however, common and financial sense would dictate that district assign a teacher out of field for a small portion of the day. For example, suppose a district has only one Algebra I teacher available to teach five classes per day, the district wants to keep the Algebra I student-teacher ratio at or below 30 to one, and there are 180 students enrolled in Algebra I. The number of students would—given the class size limitation--require at least six classes rather than five. In such a case, the district would have several options: (1) ask the Algebra I teacher to

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teach an additional class for additional pay, (2) attempt to hire a certified mathematics teacher or a teacher certified in a different subject area for just one class per day, (3) hire a full-time mathematics teacher, (4) hire a full-time teacher not certified or certified in a non-mathematics subject area, (5) or assign a teacher from another field of expertise to teach the one class. Often the best option for districts—especially from a financial perspective—is to simply assign a teacher from another subject area to teach the extra Algebra I class.

**Estimate IX:
Number of Teachers Assigned to Teach Out-of-Field
More than 50 Percent of the Day Using a Subject Level Analysis
(2000-2001; 2001-2002)**

Description of Estimate

A final method to estimate the shortage of teachers is to document the *number of teachers assigned to teach out of their field of expertise for more than 50 percent of the day*. The assumption behind this estimate is two-fold: first, that a district should hire an additional teacher rather than assign a person out-of-field for more than 50 percent of the day and, second, that the district was unable to find and hire a teacher fully certified in to teach that particular subject area.

In this particular analysis, a teacher must hold a standard certificate in the subject area *and* the subject to which they are assigned to teach. For example, if a teacher is assigned to teach physics, then he or she must have a science composite certificate or a physics certificate to be considered to be assigned in-field. Thus, the proper certificate for an assignment is defined more narrowly in this estimate than in the subject area estimate.

In addition to teachers holding a standard certificate inappropriate for the subject area to which the teacher is assigned, all teachers on one-year certificates, teachers enrolled in Alternative Certification Programs, and teachers on emergency permits are considered to be out-of-field in this estimate. For a complete review of how this analysis was conducted, see the *Who is Teaching* reports on the SBEC website.

The most important aspect of this definition is that only teachers assigned to more than 50 percent of the school day are considered to be out-of-field. This allows for the assignment of some teachers to subject areas out of their field of expertise for several classes a day.

| | | |
|-------------------------------------|-------------------|---------------|
| <u>Shortage of Teachers:</u> | 2000-2001: | 41,197 |
| | 2001-2002: | 50,381 |

Advantages and Disadvantages of Estimate:

The *primary advantage* of using the *number of teachers assigned to teach out-of-field more than 50 percent of the day using a subject level analysis* is that it documents the number of teachers assigned out-of-field, but does not include those teachers assigned out of field for only a small portion of the day. In this way, the estimate takes into account the sometimes necessary

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decision-making processes of school districts. Because of the way schools are currently organized and funded, there will likely be teachers who are assigned out of field for some small proportion of the day.

The *primary disadvantage* of this and other estimates is that there is currently no consistent valid research base that unequivocally concludes fully certified teachers are more effective than teachers on one-year certificates, teachers enrolled in Alternative Certification Programs, or teachers on emergency permits. One could argue that certain individuals in Alternative Certification Programs could possess a very strong and deep understanding of the content area to which he or she is assigned to teach, thus should not be considered out-of-field. However, such persons typically have not demonstrated their mastery of the subject area to which they are assigned to teach by passing the appropriate ExCET test before they enter the classroom. Moreover, the ability of such individuals to communicate their content expertise has also typically not been assessed.

The *other disadvantage* is that the estimate assumes those teachers assigned to teach out-of-field for less than 50 percent of the day do not contribute to the shortage of teachers or are considered to be well-qualified. From the standpoint of students or parents, however, a teacher assigned out-of-field for just one class a day can be extremely important, especially if the teacher does not have a strong command of the subject matter knowledge.

Conclusion

The nine estimates above provide different perspectives on the shortage of teachers in Texas. The estimates range from 0 to 56,500. On average, estimates V through IX document that the shortage of teachers is between 10 and 20 percent of the current number of public school teachers (289,000 in 2002). This translates into a shortage of between 29,000 and 58,000 teachers, depending on the estimate. **In general, one can fairly safely assume that the shortage of teachers is approximately 45,000 for the 2001-2002 academic year.** Moreover, the shortage of teachers has increased from the 2000-2001 to 2001-2002 school year. The average estimate for the shortage of teachers in 2000-2001 was approximately 40,000 teachers.