This paper concerns the supply and demand for special education personnel for the 1986-87 school year. Obtaining valid, reliable, and comparable data on all the elements that generated personnel need was not possible. Single indicators were most commonly used to obtain data for planning by states, school districts, universities, and the Federal Government, although efforts were underway to identify and analyze the multiple factors affecting supply. Summarized data from the report are presented concerning personnel employed (1986-87), personnel needed (1986-87), and examination of Office of Special Education Programs personnel-needed data. Five tables taken from the complete report detail: (1) number, distribution, and percentage change of special education teachers employed by handicapping condition, school years 1985-86 and 1986-87; (2) the same data for special education personnel other than teachers; (3) number and distribution of special education teachers needed by handicapping condition during school year 1986-87; (4) the same data for special education personnel other than teachers; and (5) teachers employed, teachers needed and the children served under the Education of the Handicapped Act-B and Chapter 1 of the Education Consolidation Improvement Act (state operated program). (DB)
PERSONNEL EMPLOYED: 1986-87

Counts of special education teachers employed in 1985-86 and 1986-87 are presented in Table 32. States and Insular Areas reported that the number of special education teachers employed increased from 291,954 to 296,196, or by approximately 1.5 percent from 1985-86 to 1986-87. Teachers of learning disabled students comprised 37.1 percent of all special education teachers in 1986-87, while teachers of mentally retarded students represented 20 percent. The largest percentage shifts from 1985-86 to 1986-87 by handicapping condition were for teachers of deaf-blind students (down 20.3 percent) and teachers of visually impaired students (up 10.5 percent).

States reported that 223,096 nonteaching staff were employed in 1986-87, compared to 229,872 in 1985-86, a decrease of 3 percent. (See Table 33.) Teachers' aides accounted for 53.5 percent of all non-teaching staff. The largest shifts in the employment of staff other than teachers were a 20 percent decrease in the number of audiologists, a 24 percent decrease in the number of vocational education teachers, and a 26 percent decrease in the number of diagnostic staff. Categories with large percentage increases include state education agency supervisors, occupational therapists, and recreational therapists.

PERSONNEL NEEDED: 1986-87

For 1986-87, States and Insular Areas reported that 26,798 additional teachers were needed to fill vacancies and replace uncertified staff. This figure is equivalent to 9 percent of all special education teachers employed. Table 34 presents these figures for different handicapping conditions. As has been true for several years, States reported that the greatest need, in absolute numbers, was for teachers of students with learning disabilities, mental retardation, emotional disturbance, and speech or language impairments. These four types of teachers accounted for 82 percent of all teachers needed. The number of teachers needed for programs for the students with emotional disturbance equalled 15 percent of those employed. For programs serving students who are deaf-blind, the comparable figure was 14.6 percent; for multihandicapped and other health impaired, it was over 10 percent.

Table 35 presents counts of the number of personnel other than teachers needed in 1986-87. The States reported a need for 12,254 additional staff members as compared to 13,712 in 1985-86. In terms of numbers of non-teaching staff needed, paraprofessionals, occupational therapists, and other non-instructional staff are most needed. When compared to the number of personnel
employed, occupational therapists (36.7 percent of those employed), work-study coordinators (20.9 percent of those employed), physical therapists (15.6 percent of those employed), and recreational therapists (10.8 percent of those employed) were most needed.

EXAMINATION OF THE OSEP PERSONNEL-NEEDED DATA

To assess the validity, reliability, and comparability of the OSEP State-reported data, Decision Resources Corporation conducted a study that included interviews with State special education data managers, local directors of special education, and directors of intermediate education units. Using several years of OSEP data, patterns of variability in reporting were analyzed and hypotheses concerning relationships between reports of personnel needed and other related variables were examined.

The results of the study indicate that States use three primary methods to collect the personnel-needed data:

* The vast majority of States send forms to local education agencies (LEAs) for completion, and the State educational agency (SEA) collects and then compiles the data.

* Several SEAs abstract the data from State reports or use estimation techniques to arrive at counts of personnel needed.

* In a few States, the SEA sends forms to intermediate education units (IEUs), which collect and compile the data before sending them to the SEA for final compilation.

These methods of data collection have a substantial effect on the magnitude and variance in reports of need. Specifically, SEAs that abstract data from State reports or use estimation techniques show lower levels of year-to-year variance in counts of personnel needed, exclude more of the required components of need as defined by OSEP, and consequently report less need relative to child count than SEAs collecting data from LEAs or IEUs.

The number of different types of teaching certificates offered in a State appears to influence the magnitude of reported need. States with non-categorical certification have a larger pool of qualified applicants to fill a given vacancy than States with categorical certification, and thus tend to report lower needs given their child counts, compared to States with categorical certification requirements.

To ascertain the validity of the personnel-needed data, correlation coefficients were calculated between some of the personnel-needed counts and other data available in the annual OSEP State data reports. (See Table 36.) Several relationships were found among these variables. For example, the relationship between number of teachers needed in 1985-86 and the teachers needed in 1986-87 was examined; the correlation for the total number of teachers needed in both years was .93. The levels of correlation varied when broken down by handicapping condition. The highest correlations were for teachers of students with emotional disturbance (.95) and for teachers of students with multiple handicaps (.91). The lowest correlation was for teachers of

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students with other health impairments (.43). Correlations for needed non-teaching staff in 1985-86 and 1986-87 ranged from .01 for work-study coordinators to .81 for physical education teachers, with an overall correlation of .52.

A high negative correlation between the ratio of pupils to teachers needed and pupils to teachers employed in 1986-87 would suggest that States with low pupil-to-teacher-employed ratios reported needing fewer teachers, given the size of their student population. (Table 36 provides the data by State used to calculate these ratios.) However, this idea was not supported by the correlation coefficient of .17.

The relationships found were generally in the low to moderate range; there are several possible explanations for these findings. Either the personnel-related data are not a completely accurate measure of need, the anticipated relationships may be too simplistic, or counts of personnel needed are more highly correlated with such factors as funding levels, certification policies, geographic location, method of data collection, and other factors unavailable for analysis. As noted previously, study findings indicate that the OSEP personnel-needed data are not completely comparable by state due to different data collection methods.

CONCLUSIONS

Personnel supply, demand, and resulting need are priority concerns of special educators as they move to serve new populations with disabilities. Although these concepts are better defined than in the past, obtaining valid, reliable, and comparable data on all of the elements that generate need has not been possible to date. Single indicators have been most commonly used to obtain data for planning by States, school districts, universities, and the Federal government. Although currently available information on supply of special educators is fragmented and sometimes contradictory, efforts are underway to identify and analyze factors affecting supply.
## Table 32

Number, Distribution, and Percentage Change of Special Education Teachers Employed by Handicapping Condition, School Years 1985-86 and 1986-87

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning disabled</td>
<td>111,427</td>
<td>109,762</td>
<td>-1.5</td>
<td>37.1</td>
</tr>
<tr>
<td>Speech and language impaired</td>
<td>39,747</td>
<td>39,481</td>
<td>-0.7</td>
<td>13.3</td>
</tr>
<tr>
<td>Mentally retarded</td>
<td>61,411</td>
<td>59,138</td>
<td>-3.7</td>
<td>20.0</td>
</tr>
<tr>
<td>Emotionally disturbed</td>
<td>32,774</td>
<td>30,891</td>
<td>-5.7</td>
<td>10.4</td>
</tr>
<tr>
<td>Hard of hearing and deaf</td>
<td>8,200</td>
<td>8,599</td>
<td>4.9</td>
<td>2.9</td>
</tr>
<tr>
<td>Multihandicapped</td>
<td>9,078</td>
<td>8,425</td>
<td>-7.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Orthopedically impaired</td>
<td>4,681</td>
<td>4,368</td>
<td>-6.7</td>
<td>1.5</td>
</tr>
<tr>
<td>Other health impaired</td>
<td>3,376</td>
<td>3,554</td>
<td>5.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Visually handicapped</td>
<td>3,261</td>
<td>3,602</td>
<td>10.5</td>
<td>1.2</td>
</tr>
<tr>
<td>Deaf-blind</td>
<td>298</td>
<td>238</td>
<td>-20.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Not categorized</td>
<td>17,701</td>
<td>28,139</td>
<td>59.0</td>
<td>9.5</td>
</tr>
<tr>
<td>Total#/</td>
<td>291,954</td>
<td>296,196</td>
<td>1.5</td>
<td>100.0</td>
</tr>
</tbody>
</table>

#/Components may not sum to totals due to rounding.
### TABLE 33

**Number, Distribution, and Percentage Change of Special Education Personnel Other Than Teachers Employed, School Years 1985-86 and 1986-87**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychologists</td>
<td>16,313</td>
<td>16,725</td>
<td>2.5</td>
<td>7.5</td>
</tr>
<tr>
<td>School social workers</td>
<td>7,833</td>
<td>7,655</td>
<td>-2.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Occupational therapists</td>
<td>3,120</td>
<td>3,530</td>
<td>13.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Audiologists</td>
<td>961</td>
<td>766</td>
<td>-20.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Paraprofessional</td>
<td>122,504</td>
<td>119,270</td>
<td>-2.6</td>
<td>53.5</td>
</tr>
<tr>
<td>Vocational education</td>
<td>5,782</td>
<td>4,406</td>
<td>-23.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Work-study coordinators</td>
<td>1,989</td>
<td>1,857</td>
<td>-6.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Physical education coordinators</td>
<td>5,931</td>
<td>5,614</td>
<td>-5.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Recreational therapists</td>
<td>367</td>
<td>530</td>
<td>44.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Diagnostic staff</td>
<td>8,624</td>
<td>6,347</td>
<td>-26.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Supervisors</td>
<td>14,957</td>
<td>14,896</td>
<td>-0.4</td>
<td>6.7</td>
</tr>
<tr>
<td>Other non-instructional staff</td>
<td>31,164</td>
<td>31,431</td>
<td>0.9</td>
<td>14.1</td>
</tr>
<tr>
<td>Physical therapists</td>
<td>2,534</td>
<td>2,615</td>
<td>3.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Counselors</td>
<td>6,808</td>
<td>5,645</td>
<td>-17.1</td>
<td>2.5</td>
</tr>
<tr>
<td>SEA supervisors</td>
<td>829</td>
<td>1,362</td>
<td>64.3</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>229,872</td>
<td>223,096</td>
<td>-2.9</td>
<td>99.8</td>
</tr>
</tbody>
</table>

**Note:** For 1985-86 and 1986-87, the total number of personnel employed does not equal the sum of the individual personnel categories because the State of Illinois reported 156 and 444 "other instructional personnel" employed in these years, respectively. Also, these are some slight differences due to rounding.
### TABLE 34

Number and Distribution of Special Education Teachers Needed by Handicapping Condition During School Year 1986-87

<table>
<thead>
<tr>
<th>Handicapping Condition</th>
<th>Teachers Needed</th>
<th>Number Needed as a Percentage of Employed</th>
<th>Percentage of Total Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning disabled</td>
<td>9,564</td>
<td>8.7</td>
<td>35.7</td>
</tr>
<tr>
<td>Speech and language impaired</td>
<td>3,019</td>
<td>7.6</td>
<td>11.3</td>
</tr>
<tr>
<td>Mentally retarded</td>
<td>4,880</td>
<td>8.3</td>
<td>18.2</td>
</tr>
<tr>
<td>Emotionally disturbed</td>
<td>4,650</td>
<td>15.1</td>
<td>17.4</td>
</tr>
<tr>
<td>Hard of hearing and deaf</td>
<td>631</td>
<td>7.3</td>
<td>2.4</td>
</tr>
<tr>
<td>Multihandicapped</td>
<td>910</td>
<td>10.8</td>
<td>3.4</td>
</tr>
<tr>
<td>Orthopedically impaired</td>
<td>326</td>
<td>7.5</td>
<td>1.2</td>
</tr>
<tr>
<td>Other health impaired</td>
<td>376</td>
<td>10.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Visually handicapped</td>
<td>261</td>
<td>7.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Deaf-blind</td>
<td>35</td>
<td>14.6</td>
<td>0.1</td>
</tr>
<tr>
<td>Not categorized</td>
<td>2,143</td>
<td>7.6</td>
<td>8.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26,798</strong></td>
<td><strong>9.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Note: Personnel needed include: (1) number of vacancies that occurred, even if subsequently filled; and (2) number of additional personnel needed to fill positions occupied by noncertified or nonlicensed staff.

a/Components may not sum to total due to rounding.
### TABLE 35

Number and Distribution of Special Education Personnel Other Than Teachers Needed During School Year 1986-87

<table>
<thead>
<tr>
<th>Type of Personnel</th>
<th>Personnel Needed</th>
<th>Number Needed as a Percentage of Employed</th>
<th>Percentage of Total Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychologists</td>
<td>834</td>
<td>5.0</td>
<td>6.8</td>
</tr>
<tr>
<td>School social workers</td>
<td>443</td>
<td>5.8</td>
<td>3.6</td>
</tr>
<tr>
<td>Occupational therapists</td>
<td>1,294</td>
<td>36.7</td>
<td>10.6</td>
</tr>
<tr>
<td>Audiologists</td>
<td>57</td>
<td>7.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Paraprofessionals</td>
<td>5,695</td>
<td>4.3</td>
<td>46.5</td>
</tr>
<tr>
<td>Vocational education teachers</td>
<td>284</td>
<td>6.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Work-study coordinators</td>
<td>388</td>
<td>20.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Physical education coordinators</td>
<td>302</td>
<td>5.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Recreational therapists</td>
<td>57</td>
<td>10.8</td>
<td>0.5</td>
</tr>
<tr>
<td>Diagnostic staff</td>
<td>413</td>
<td>6.5</td>
<td>3.4</td>
</tr>
<tr>
<td>Supervisors</td>
<td>579</td>
<td>3.9</td>
<td>4.7</td>
</tr>
<tr>
<td>Other non-instructional staff</td>
<td>1,120</td>
<td>3.6</td>
<td>9.1</td>
</tr>
<tr>
<td>Physical therapists</td>
<td>408</td>
<td>15.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Counselors</td>
<td>303</td>
<td>5.4</td>
<td>2.3</td>
</tr>
<tr>
<td>SEA supervisors</td>
<td>65</td>
<td>4.8</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12,254</strong></td>
<td><strong>5.5</strong></td>
<td><strong>99.9</strong></td>
</tr>
</tbody>
</table>

Note: Personnel needed include: (1) number of vacancies that occurred, even if subsequently filled; and (2) number of additional personnel needed to fill positions occupied by noncertified or nonlicensed staff.

a/Components may not sum to total due to rounding.
<table>
<thead>
<tr>
<th>State</th>
<th>Children Served</th>
<th>Teachers Employed</th>
<th>Teachers Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>91,231</td>
<td>4,445</td>
<td>264</td>
</tr>
<tr>
<td>Alaska</td>
<td>13,311</td>
<td>1,438</td>
<td>117</td>
</tr>
<tr>
<td>Arizona</td>
<td>51,219</td>
<td>1,052</td>
<td>281</td>
</tr>
<tr>
<td>Arkansas</td>
<td>48,222</td>
<td>1,759</td>
<td>376</td>
</tr>
<tr>
<td>California</td>
<td>191,217</td>
<td>22,011</td>
<td>183</td>
</tr>
<tr>
<td>Colorado</td>
<td>49,515</td>
<td>1,837</td>
<td>370</td>
</tr>
<tr>
<td>Connecticut</td>
<td>64,758</td>
<td>1,992</td>
<td>0</td>
</tr>
<tr>
<td>Delaware</td>
<td>13,275</td>
<td>1,112</td>
<td>49</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>7,114</td>
<td>684</td>
<td>73</td>
</tr>
<tr>
<td>Florida</td>
<td>181,651</td>
<td>11,079</td>
<td>2,290</td>
</tr>
<tr>
<td>Georgia</td>
<td>91,229</td>
<td>5,974</td>
<td>122</td>
</tr>
<tr>
<td>Hawaii</td>
<td>11,658</td>
<td>830</td>
<td>16</td>
</tr>
<tr>
<td>Idaho</td>
<td>15,275</td>
<td>913</td>
<td>281</td>
</tr>
<tr>
<td>Illinois</td>
<td>246,169</td>
<td>25,067</td>
<td>158</td>
</tr>
<tr>
<td>Indiana</td>
<td>105,978</td>
<td>6,610</td>
<td>190</td>
</tr>
<tr>
<td>Iowa</td>
<td>58,205</td>
<td>4,331</td>
<td>962</td>
</tr>
<tr>
<td>Kansas</td>
<td>42,373</td>
<td>3,113</td>
<td>32</td>
</tr>
<tr>
<td>Kentucky</td>
<td>26,841</td>
<td>1,610</td>
<td>125</td>
</tr>
<tr>
<td>Louisiana</td>
<td>62,852</td>
<td>6,893</td>
<td>1,072</td>
</tr>
<tr>
<td>Maine</td>
<td>26,841</td>
<td>1,610</td>
<td>125</td>
</tr>
<tr>
<td>Maryland</td>
<td>90,294</td>
<td>6,191</td>
<td>262</td>
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<td>Massachusetts</td>
<td>142,636</td>
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<td>340</td>
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<td>Michigan</td>
<td>161,446</td>
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<td>445</td>
</tr>
<tr>
<td>Minnesota</td>
<td>92,407</td>
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<td>0</td>
</tr>
<tr>
<td>Mississippi</td>
<td>99,692</td>
<td>6,394</td>
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</tr>
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<td>15,369</td>
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<td>80</td>
</tr>
<tr>
<td>Montana</td>
<td>30,171</td>
<td>1,847</td>
<td>50</td>
</tr>
<tr>
<td>Nebraska</td>
<td>14,743</td>
<td>962</td>
<td>100</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>16,323</td>
<td>1,384</td>
<td>143</td>
</tr>
<tr>
<td>New Jersey</td>
<td>172,018</td>
<td>11,259</td>
<td>466</td>
</tr>
<tr>
<td>New Mexico</td>
<td>19,816</td>
<td>1,455</td>
<td>306</td>
</tr>
<tr>
<td>New York</td>
<td>292,981</td>
<td>28,722</td>
<td>5,416</td>
</tr>
<tr>
<td>North Carolina</td>
<td>109,214</td>
<td>5,806</td>
<td>398</td>
</tr>
<tr>
<td>North Dakota</td>
<td>12,279</td>
<td>906</td>
<td>40</td>
</tr>
<tr>
<td>Ohio</td>
<td>199,211</td>
<td>14,113</td>
<td>1,134</td>
</tr>
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<td>Oklahoma</td>
<td>65,265</td>
<td>3,182</td>
<td>227</td>
</tr>
<tr>
<td>Oregon</td>
<td>47,487</td>
<td>3,745</td>
<td>298</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>201,258</td>
<td>11,509</td>
<td>523</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>19,858</td>
<td>2,127</td>
<td>107</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>19,527</td>
<td>1,193</td>
<td>72</td>
</tr>
<tr>
<td>South Carolina</td>
<td>71,289</td>
<td>3,996</td>
<td>890</td>
</tr>
<tr>
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<td>14,234</td>
<td>4,694</td>
<td>131</td>
</tr>
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<td>Tennessee</td>
<td>96,433</td>
<td>4,870</td>
<td>241</td>
</tr>
<tr>
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<td>201,222</td>
<td>17,870</td>
<td>1,100</td>
</tr>
<tr>
<td>Utah</td>
<td>42,811</td>
<td>2,063</td>
<td>195</td>
</tr>
<tr>
<td>Vermont</td>
<td>11,405</td>
<td>705</td>
<td>98</td>
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<tr>
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<td>Trust Territories -</td>
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<td>BUR. OF INDIAN AFFAIRS</td>
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U.S. & Insular Areas 4,412,601 296,196 26,798
50 States, D.C. & P.R. 4,411,496 295,666 26,595

The figures under children served represent children 0-21 years old served under Chapter 1 of ECIA (SOP) and children 3-21 years old served under ERA-B.

Data as of October 1, 1988.