Motivating our top students

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Introductory Programming

Heterogeneous student profiles
Diverse/divergent prior experience

- Learning to program
- Differentiated teaching
- Motivation

How do we prevent the most able becoming
- De-motivated
- Disillusioned
- Bored
- Lost
Our methods

Literature review
  – Range of perspectives
    • Strugglers
    • Background narrative
  – methods and education over time

Survey (thank you 😊)
  – ~80 respondents, ~40 full sets
  – Quantitative and (rich) qualitative
Survey

• What we do
• Why we do it
Looking for patterns...
# Initial Interventions

Struggling -> Coping -> Advanced

<table>
<thead>
<tr>
<th>Intervention method</th>
<th>strugglers</th>
<th>copers</th>
<th>experienced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Peer support</td>
<td>5</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>2) Differentiated teaching</td>
<td>7</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>3) Slow pace</td>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4) Novelty</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5) External motivation</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6) Nothing</td>
<td>14</td>
<td>17</td>
<td>14</td>
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Later interventions

<table>
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<tr>
<th>Intervention method</th>
<th>Strugglers</th>
<th>Over achievers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Peer support</td>
<td>5</td>
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</tr>
<tr>
<td>2) Differentiated teaching</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>3) Extra Help</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>4) Nothing</td>
<td>9</td>
<td>22</td>
</tr>
</tbody>
</table>
Preferred/predominant approaches

- Paired programming
- Getting to know students
- Collaboration with colleagues
- Student competitions
Emergent approaches/practice

Evolution/extension of existing practice

• includes
  – Streaming /differentiated teaching
  – Meeting student expectations /motivation
  – Research experiences /authentic learning