Suggested Reference


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Early Warning Systems: Tracking and monitoring student progress using National Certificate of Educational Achievement data.

Mark Gan
Earl Irving
Liz McKinley

Presentation at the AARE/NZARE combined conference
Queensland University of Technology
Brisbane, Australia
30 November – 4 December, 2014
Overview

What is an early warning systems (EWS)?
Why have an EWS?
The Starpath Project
How NCEA works
Methodology
Findings
Closing thoughts
Why are EWS important?

Growing international interest (e.g., Education Review Office, 2008; Bruce, Bridgeland, Fox, & Balfanz, 2011; Carl, Richardson, Cheng, Kim, & Meyer, 2013)

To identify students at risk of not achieving (SARONA)

To provide timely interventions to optimise their chances of educational success

In essence, to fulfil the requirements of National Administration Guidelines 1 (iii) and (iv)
What is an EWS?

Use of indicators to highlight a potential problem so corrective action can be taken

Indicators could include:
- academic performance;
- classroom behaviour;
- attitudes to learning;
- attendance

Focus in this paper on academic performance

In NZ, schools can determine how they implement the NAGs i.e., develop own criteria and definitions

Image: Center for Teaching & Learning, University of Texas
Starpath Project

39 partner schools with high proportions of Maori and/or Pasifika students, and/or located in low socio-economic areas

Comprehensive programme of Data Use, Academic Counselling and Target Setting (DUACTS)

Work with teachers to develop capacity to store, analyse and interpret achievement data

Real time tracking and monitoring of student progress
How the National Certificate of Educational Achievement (NCEA) works

Three levels of certificate, one in each of final three years of high school (Years 11-13)

Standards-based assessment – Not achieved, Achieved, Merit or Excellence (NAME)

Both internal and external assessment, but no more than 3 external standards per subject

Each standard carries specified number of credits, usually 3 or 4

Each subject usually offers about 20-24 credits

Students need to obtain 80 credits for each level certificate

Literacy and Numeracy requirements as well
Methodology

Tracking and monitoring visits to all Starpath schools – three p.a. in 2013, year of the study
Field notes from discussions with student achievement managers during these visits
Responses collated by team member
Lead author coded the data, and then by second team member
Iterative process of reading, re-reading >>> coding for emergent themes
Findings

Three sections:

1. Early warning tools
2. Intervention strategies
3. Linkages with tracking progress in junior school
Early warning tools

Tracking and monitoring in visual ways:
1. Aggregated (e.g., by year level)
2. Dis-aggregated (e.g., by gender and/or ethnicity)
3. Comparative (e.g., against national success, ‘schools like mine’, or self i.e., previous cohorts)
Aggregated

Percentage of Year 13 Students Gaining NCEA Level 3 Credits as of End of Term 4

<table>
<thead>
<tr>
<th>Total Number of Credits Gained</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 credits</td>
<td>5.8%</td>
<td>4.0%</td>
<td>4.0%</td>
<td>3.7%</td>
</tr>
<tr>
<td>1 - 9 credits</td>
<td>16.1%</td>
<td>6.3%</td>
<td>11.4%</td>
<td>6.0%</td>
</tr>
<tr>
<td>10 - 19 credits</td>
<td>7.6%</td>
<td>8.1%</td>
<td>5.9%</td>
<td>6.3%</td>
</tr>
<tr>
<td>20 - 29 credits</td>
<td>11.6%</td>
<td>8.5%</td>
<td>6.9%</td>
<td>10.4%</td>
</tr>
<tr>
<td>30 - 39 credits</td>
<td>15.6%</td>
<td>10.8%</td>
<td>7.4%</td>
<td>14.9%</td>
</tr>
<tr>
<td>40 - 49 credits</td>
<td>13.8%</td>
<td>17.5%</td>
<td>16.8%</td>
<td>23.9%</td>
</tr>
<tr>
<td>50 - 59 credits</td>
<td>11.6%</td>
<td>14.8%</td>
<td>11.4%</td>
<td>16.0%</td>
</tr>
<tr>
<td>60 - 69 credits</td>
<td>10.3%</td>
<td>14.3%</td>
<td>16.3%</td>
<td>10.8%</td>
</tr>
<tr>
<td>70 - 79 credits</td>
<td>4.0%</td>
<td>9.0%</td>
<td>6.9%</td>
<td>4.5%</td>
</tr>
<tr>
<td>80+ credits</td>
<td>3.6%</td>
<td>6.7%</td>
<td>12.9%</td>
<td>3.4%</td>
</tr>
</tbody>
</table>
Dis-aggregated (by ethnicity)
Comparative

Percentage of Year 11 Students Gaining NCEA Level 1 Literacy

<table>
<thead>
<tr>
<th>Year</th>
<th>School A</th>
<th>Decile 1-3</th>
<th>Decile 2</th>
<th>Co-ed Decile 2</th>
<th>Co-ed National</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>87.2</td>
<td>74.6</td>
<td>74.9</td>
<td>74.7</td>
<td>75.7</td>
<td>78.6</td>
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<tr>
<td>2010</td>
<td>73.5</td>
<td>74.9</td>
<td>75.8</td>
<td>75.4</td>
<td>75.7</td>
<td>78.7</td>
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<tr>
<td>2011</td>
<td>76.7</td>
<td>71.6</td>
<td>70.4</td>
<td>69.5</td>
<td>79.7</td>
<td>82.5</td>
</tr>
<tr>
<td>2012</td>
<td>89.1</td>
<td>74.6</td>
<td>75.1</td>
<td>74.7</td>
<td>81.1</td>
<td>82.3</td>
</tr>
<tr>
<td>2013</td>
<td>91.5</td>
<td>76.7</td>
<td>76.6</td>
<td>76.3</td>
<td>82.5</td>
<td>83.5</td>
</tr>
</tbody>
</table>
Staffroom data wall
# Traffic lights (RAG)

<table>
<thead>
<tr>
<th>Student</th>
<th>Opt A</th>
<th>Opt B</th>
<th>Opt C</th>
<th>Opt D</th>
<th>Opt E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amara</td>
<td>English</td>
<td>Maths</td>
<td>Science</td>
<td>Geography</td>
<td>Accounting</td>
</tr>
<tr>
<td>John</td>
<td>English</td>
<td>Maths</td>
<td>Science</td>
<td>Chemistry</td>
<td>Visual Arts</td>
</tr>
<tr>
<td>Hone</td>
<td>English</td>
<td>Maths</td>
<td>Science</td>
<td>Geography</td>
<td>Hospitality</td>
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<tr>
<td>Mere</td>
<td>English</td>
<td>Maths</td>
<td>Science</td>
<td>French</td>
<td>Accounting</td>
</tr>
<tr>
<td>Maria</td>
<td>English</td>
<td>Maths</td>
<td>Science</td>
<td>Geography</td>
<td>Visual Arts</td>
</tr>
<tr>
<td>Sione</td>
<td>English</td>
<td>Maths</td>
<td>Science</td>
<td>Chemistry</td>
<td>Music</td>
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</tbody>
</table>
# Student self monitoring

**Student:** Frodo Baggins  
**Form Class:** 11SCI  
**Date:** 18/4/2013

## NCEA Level 1 Criteria Progress Chart

<table>
<thead>
<tr>
<th>Subject</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<tbody>
<tr>
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<td>ø</td>
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<td>ø</td>
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<tr>
<td>Literacy</td>
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<td>ø</td>
<td>ø</td>
<td>ø</td>
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<td>ø</td>
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<tr>
<td>Mathematics</td>
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<td>ø</td>
<td>ø</td>
<td>ø</td>
<td>ø</td>
<td>ø</td>
<td>ø</td>
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<td>ø</td>
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<tr>
<td>Geography</td>
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<td>ø</td>
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<td>ø</td>
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<td>ø</td>
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<tr>
<td>English</td>
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<td>ø</td>
<td>ø</td>
<td>ø</td>
<td>ø</td>
<td>ø</td>
<td>ø</td>
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<td>ø</td>
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<tr>
<td>Food and nutrition</td>
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<td>ø</td>
<td>ø</td>
<td>ø</td>
<td>ø</td>
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<tr>
<td>Drama</td>
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<td>ø</td>
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<td>PE</td>
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<td>ø</td>
<td>ø</td>
<td>ø</td>
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<td>ø</td>
</tr>
</tbody>
</table>

Please shade in each credit you gained and shade the endorsement (M/E) achieved.
Timely intervention strategies

Academic counselling (identify individual needs; provide advice; support and help; resolve problems such as disagreement with teachers)

Remediation classes (lunchtime; before/after school; weekends; vacations)

Homework/study groups

“Walk-in” sessions

“Summer school” programmes (after examination period starts; before final results submitted to NZQA)

Review of courses and assessment strategies to get “runs on the board” regularly through the year

Celebrating milestones (e.g., Achieving 20 credits in Term 1; 25 credits at Merit/Excellence)
Transition of junior students to NCEA

Step up to standards-based framework is big
Preparing Year 7/9-10 students for NCEA Certificate/diplomas based on credit accumulation
Greater use of standardised assessments (e-asTTle/PAT/MiDySiS/STwE)
Assessment practices and reporting mirror NCEA (e.g., moderation of work, use of NAME grades)
Some closing thoughts

On-going assessment > progress can be readily tracked, unlike end of year exam systems.
EWS can lead to pre-emptive action
Focus is on student achievement and progress
Changes the school’s data culture (e.g., collaborative data teams; data walls; use of data in academic counselling)
Danger of only focussing on the borderline students – those they can ‘get across the line’, but ...

We challenge schools to raise achievement for all students through EWS
References


Contact:

Earl Irving
Senior Research Fellow
Tel: +64 9 623 8899 Ext 48519
Email: e.irving@auckland.ac.nz

Starpath Project: Partnership for Excellence
Faculty of Education
The University of Auckland
Private Bag 92019, Auckland 1142
New Zealand