



## **SCHOOL INSTRUCTIONAL LEADERSHIP AND EVIDENCE BASED PRACTICE: A HONG KONG CASE STUDY**

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### **Abstract**

Much has been written about evidence based practice in schools, but few articles describe what it can be in actual practice. This case study serves as a model for practicing school leaders and an illustration of a principle for educational researchers. It is a case study that describes what evidence based practice means in regards to instructional leadership in one Hong Kong secondary college and could be in others.

### **Introduction**

Decision making can be hard work especially if you are a school leader who, as an instructional leader, is charged with making decisions everyday that are to contribute to improvements in student outcomes. School leaders make decisions based on their intuition, insight, values, experience and any combination of these, but it can be argued that in many cases the most effective and appropriate decision making is when decisions are made based on evidence. Coburn & Talbert (2006, p. 469) note that senior school leaders “consistently emphasized the use of data to guide decisions as the most important strategy for improving student achievement.”

As Rowe (2006) surmises for effective decision making, school leaders need to ensure that their day-by-day practice is evidence-based; that their efforts are directed towards collecting and using data as evidence to demonstrate the real tangible impact of teaching and learning (and the work of leadership) to the attainment of the school's desired outcomes. But what is evidence based practice? As described in a research summary paper collated for school leaders (ACT DET, 2007), evidence based practice has two different meanings.

First, it can be about educational research, where quality research can be used by school instructional leaders to inform teaching practice and other aspects of school life such as school policy development. For example, school practitioners might look to educational research to guide such pedagogical decisions as, “What are the most appropriate teaching and learning strategies to use to improve the teaching of English in our context?”

As Stanovich & Stanovich (2003, p.5 ) note, the increasing pressure of accountability on schools has emphasized the need for school instructional leaders to ensure, that before the school adopts any approach to teaching and learning intervention or an innovative instructional package, that they have looked at the research to ensure that the intervention or package actually works.

Evidence based practice of this form has its origins in medicine. In medicine, physicians must be able to justify the treatment that they offer to patients, this has resulted in the evidence-based medicine (EBM) movement becoming highly

influential in medical education and in daily practice ( Hui et al, 2000, p.343). Like medicine there is a need for educators to use evidence to evaluate the variety of commercial products and teaching resources that are promoted to improve student outcomes. Without evidence and data, it can be very challenging for school leaders to differentiate between viable and unviable teaching and learning practices, particularly when related to their school's unique context.

Secondly, evidence based practice can be defined as the process in which schools collect and use their own data to make informed decisions about how to improve teaching and learning in their school. In this definition, schools instructional leaders don't rely *only* on the finding from generalized educational research, but in a sense become researchers within their own site. Data can be collected in the school and used as evidence to monitor progress including the outcomes and development of individuals, groups and cohorts. Such evidence can be used to make informed decisions about intervention programs, the effectiveness of policies and teaching practices, and generally the performance of the school and teachers.

This is about data and evidence that is collected and analyzed by teachers or at least closely guided by teachers in their schools. As Bruniges (2005) notes; "The unique and specialised knowledge, skills, experience and professional capacity of teachers must be valued as fundamental components of any evidence process. That is, the way in which evidence is obtained, collated, interpreted and results strategically utilised, must be interlinked with, and influenced by the profession." (Bruniges 2005, pg.102).

Hattie (2005) says, for school leaders using evidence based practice, it is never the data per se that is important. What is important is the questions practitioners ask about the data, the ways in which they turn data into information and knowledge, and the actions that they take to use this knowledge wisely and effectively (Hattie 2005 in ACT 2007).

Coburn and Talbert (2006) warn that;

"A central argument behind policy promoting evidence-based practice is that evidence of student learning should be used to evaluate and improve educational programs and practices. However, what people take as valid evidence of student learning is likely to shape how they envision this process and how they respond to pressures to enact it." And further "this suggests that how people implement evidence-based practice is likely to be shaped by their conceptions of valid evidence, evidence use, and high-quality research" (2006, p.474)

In this case study, evidence-based practice is defined as the conscientious, explicit and appropriate use of school data in making decisions about the work of teachers, the engagement of students, and ensuring that their daily efforts puts a focus on effectiveness in achieving outcomes. The evidence needs to be meaningful and systematic and meaningful within the context of the school and its community.

In terms of defining school success, what is important is that the students' learning needs are identified, instructional strategies developed and consideration given to how this will be evaluated, with a view to understanding what differences the teacher's program will make to student learning. It might be in the form of reference to data and statistics, to identifying student learning needs through application of standardised tests, through collecting narratives or stories, through documented case studies, or analyses of formative assessment items. It means that the school leader is required to collect and examine data, to look at student records and results over time, to look at scores and to look for patterns.

Masters (2005) believes that there are different models for using data to improve learning but he summaries that most include four iterative elements that operate at both the classroom and whole school levels. The four elements are: identification and planning (What do we know?); systematic observations and synthesis of evidence (What do we do?); reflection about what has worked well and what has not worked (What do we know now?); and a commitment to replicating effective practices (What do we do now?).

Masters (2005) elaborates these four elements into a more detailed process:

- What are we dealing with? What is the issue here?
- What baseline data do we have?
- What do we know already know about effective solutions?
- What tools will we use to find out more (do we have these tools or do we need to access / develop them?)
- What is our plan? (people and processes, milestones, performance measures, timelines, costs)
- How do we gain buy-in (student, parent, school community)? How do we identify and overcome challenges?
- How do we interpret and assess the data?
- How do we disseminate the outcomes of the process?
- Is there evidence of progress? What should we do now?

A word about instructional leadership and accountability - an important aspect of our college's ethos is to value communications with parents and to see them as partners in their children's learning. It is therefore deemed essential that parents are provided with as much accurate information as is possible to allow them to make informed decisions about their child's progress, their work effort and their motivation. As noted by the ACT DET report (2007) "Teachers and school leaders have always been accountable – in the sense of having a professional and moral responsibility to be open and fair in dealings with students, parents and carers and the wider community. Tools now available to educators allow this responsibility to be carried out more effectively. A reliable base of school information on student progress and whole school improvement then facilitates accountability to parents (directly and through school boards), to system-level agencies and through them to the ... public through elected governments." (ACT DET 2007, p.2)

This paper focuses on the effective collection, management and application of school and system data in a Hong Kong Secondary College. Evidence Based Practice in this article reports on the second type of practice, which is the accumulation of evidence or data to inform and resolve important day-to-day instructional leadership decisions for improving student outcomes.

## Evidence based practice at Jockey Club Ti-I College

Jockey Club Ti-I College is a Secondary School of approximately 1,020 students. Students are in co-educational classes from Secondary Form 1- 6. While the school sets its own lower secondary curriculum within a general framework, for Forms 4 – 6 the school teaches to the set curriculum of the Education Bureau (EDB) as it prepares students for the externally conducted examinations, of the Hong Kong Diploma of Secondary Education.

The adoption of evidence based practice at JCTIC, was not accidental, but planned as a direct response to the shift in educational paradigm caused by the creation of the Hong Kong Diploma of Secondary Education (HKDSE) and the New Secondary Studies Curriculum (NSSC). In terms of instructional leadership the school realized that in the introduction of the new NSSC curriculum there was the opportunity to revitalize the school's underlying principles of pedagogical practice. These changes included a commitment to formative and summative assessment, the improved use of feedback, a re-focus on setting outcomes in order to improve student achievement in teaching and learning, and enhancing the role of parents as partners in student learning. To achieve these changes the school moved to adopt evidence based practice across the school. Evidence-based practice is the philosophy or a 'mind-set', that the school believed teachers needed to accept in order to make the other change viable.

In order to implement evidence based practice, the school crafted four strategies or mechanisms over three years. These were the Assignment Performance Index (API) and the Quiz Management Index (QMI), and a year later the Quiz & Exam Data Analysis and Support Program and Small Steps Improvement Plans (SSIP).

In this paper we only report on the API and QMI as examples of evidence based practice.

### 1. Assignment Performance Index (API)

*The Achievement:*

With the implementation of the API system, all students and their parents can monitor work performance and progress daily by monitoring their API online. This index provides 'just in time' information that is vital to student-centred study, planning and student motivation. It is also essential information for parents who support and motivate their children to succeed in their studies.

*Evidence:*

Each student has set work requirements (e.g. homework, projects, essays, etc). The API is a measure of the students' work effort. It is a simple indicator based on how much of the set work is completed satisfactorily and completed on time. Data is collected on each of the 1000+ students. The Index provides information on the individual student and importantly for planning interventions, it also provides information on groups and cohorts of students.

$API = L + N \times 2$       L = number of late submissions of work requirements  
N = number of times work is not submitted at all

A lower API indices a better performance

11-20 quite acceptable with some late submission

21-30 frequent lateness and failure to submit

> 30 severe lateness / high levels of non submission

#### *How the evidence is collected:*

Every teacher is required to enter the Assignment Performance information on the individual students in all their classes. The data entry process is made simple by the use of an online API program, which consists of a drop down menu and 'click-the-box' system. The API program automatically calculates the index and uploads it to the student's online file. The group or class report is also automatically generated and provided to the teacher and school administration.

Students and their parents can access the student's report online through a webhosted system at any time.

#### *How the evidence is used?*

The API data is considered to be evidence of student work effort and as such it is an important indicator of processes of learning and is a direct indicator of student attainment. This evidence is of great value to (1) individual student, (2) to their parents, (3) to the teacher and to the (4) school's leadership.

##### *1. Individual student*

The API provides a cumulative score that enables the individual student to assess their own work effort. This information is important to student-centred learning and self-ownership of study and work routines. Students can compare their API scores. Students can also set targets for achievement. The final cumulative API is reported in the end of year Student Report Card which is an official record of student attainment.

##### *2. Parents*

Close monitoring of the student's work effort is important to parents, this system provides 'just-in-time' information and overcomes the problems associated with parents only learning about their child's erratic work efforts through the end of Semester report when it is too late. The system also puts the ownership in the hands of parents as they can monitor student activity when and as they wish as opposed to relying upon teacher reporting.

The student and their parents can access their API online at any time, as it is webhosted. Parents have responded very positively to the API. Parents have their own log-in usernames and passwords and can monitor their child's scores regularly and without reliance upon their teenager's accurate reporting of their progress to them. The API as a 'number' index has been applauded for providing a 'simple indicator' of work effort, where as before parents were only informed by some teachers if their child failed to hand in a major assignment.

Using the API parents can see not only what assignments or work requirements are late or not handed in at all on a daily basis, but they can also access a cumulative score that indicates their child's progress and motivation within a subject. Parents are also directly informed when the API projections on a student's work effort indicate a possible deficiency in student attainment. Parents are encouraged to work with their children to set targets for improved API scores and by doing so to motivate student work effort. Parents are also encouraged to talk to the subject teacher when they detect low API scores.

##### *3. Individual class and subject teachers*

The API provides a cumulative score for the individual student and also an overall comparative report for the whole class or cohort. This information has proven to be highly valuable to teachers. Before the system, while some teachers kept written records of students work effort, it was not a common practice. Many teachers did not collage data on such activities as, for example homework not completed over a semester. While they did keep accurate records on summative assessment results

(e.g. student results in term tests or major projects) they rarely kept information on formative assessment.

The API provides a 'user-friendly' system for collating formative assessment data and the provision of a simple indicator to inform teacher planning and self-review of teaching and learning programs. API information from across the class is useful to such things as reviewing which assignments are used in the following year. For example, in Form 4 Chemistry, a particular laboratory exercise was discontinued and replaced with another, when the API scores clearly demonstrated that the students of the three Chemistry classes had great difficulty in completing the lab reports within their time constraints. While the Chemistry teachers had thought this to be the case, the evidence of the API was able to confirm their intuition and convince the curriculum authority to desist with the laboratory practical.

#### *4. Whole School use of evidence, patterns projections and interventions*

School staff have different roles in analyzing and using the API data as evidence. The class or Subject Teachers, the Form Teachers (homeroom), the Academic Committee Coordinators, the Vice Principal use this data to develop a comprehensive report for the Principal on a term by term basis.

Overall API rates between classes are compared. Cohorts of students with higher API scores may be investigated and measures taken to identify common issues (e.g. if there are any structural problems preventing student's completing work requirements) and to enhance work achievement, including reviewing the performance of the subject teacher as well as counseling the students of the class. Using this evidence, individual students can be picked up, warned, counseled, and given extra support before it is too late.

School Leadership, through the school's Academic Committee (AC), monitor the student's API. The AC makes projections on student's performance in the API at the end of every month. These projections are used to inform parents (through an email system) and to indicate weaknesses in class achievement and the possible need for intervention.

Individual students with a high API are noted by the program and information is passed to the designated Vice Principal. The VP with assistance of teachers will interview the student and contact parents / guardians. Other measures may be taken to improve the API including students required to stay after school to complete work requirements in rare cases.

**Table comparing the average API in the 1<sup>st</sup> Term of the past 3 years**

<b>Form</b>	<b>2012-13</b>	<b>2011-12</b>	<b>2010-11</b>
<b>F.1</b>	<b>6.35</b>	<b>7.24</b>	<b>5.68</b>
<b>F.2</b>	<b>11.04</b>	<b>11.25</b>	<b>12.21</b>
<b>F.3</b>	<b>5.80</b>	<b>9.73</b>	<b>10.22</b>
<b>F.4</b>	<b>6.63</b>	<b>9.32</b>	<b>7.51</b>
<b>F.5</b>	<b>7.96</b>	<b>9.25</b>	<b>12.83</b>
<b>F.6</b>	<b>8.06</b>	<b>5.78</b>	<b>5.24</b>
<b>F.7</b>	<b>---</b>	<b>6.44</b>	<b>9.44</b>
<b>Overall</b>	<b>7.64</b>	<b>8.66</b>	<b>9.02</b>

With the exception of Form 6, the other forms had significant improvements in assignment performance. In particular, the average API value of Form 3 has decreased by 40.3%. The overall average API value has decreased by 11.8%.

## Quiz Management Index

### *Achievement:*

With the implementation of the QMI system all students can monitor their progression towards achieving learning outcomes online. Parents are also able to have access at anytime to up-to-date information on their child's learning. The evidence of learning provided by this index enables students to develop their student-centred learning plans and enables teachers to review teaching approaches and develop intervention strategies in a timely fashion..

### *Evidence:*

Every student has to meet different assessment requirements (e.g. quizzes, tests, examinations, projects, etc). The QMI is a measure of the students' attainment over time. QPI gives information on the overall performance of an individual student in the various quizzes / examinations he/she has attempted. Data is collected on each of the 1000+ students. The QMI is a 'single' figure indicator of student attainment based on their overall scores through there subjects studied.

$$QMI = \frac{\sum \frac{\text{Quiz Mark}}{\text{Full Mark}} * 100}{\text{No. of Quizzes}}$$

A QPI value of '**50**' can be considered as equivalent to a 'passing' standard "Subject QPIs" and the students "Overall QPI".

### *How the evidence is collected:*

Teachers conduct and mark student's quizzes, tests, examinations, and after assessment and moderation (as appropriate) they upload the student's results to the QMI (within two weeks of the assessment date).

The QPI is not calculated according to the exact weighting of different papers of different subjects, but is an 'indicator' of the students' overall performance and attainment. The QPI does not include data on other forms of formative assessment or teaching and learning attainment (such as "contribution to class discussions", etc).

### *How the evidence is used:*

#### *1. Students*

Through the QMI students have direct access to information that they did not have before the system was put in place. This information provides them with feedback on their improvement. Basically the focus has been not on 'end-point' achievement of outcomes, but on the 'distance-travelled', or the improvement that the student has made. This is particularly important in allowing students to plan their own learning programs and priorities such as setting learning targets. For example, in History a student may know that they will need to score at least 76% to qualify for JUPAS (university entrance standard based on previous years entrance scores), using the QMI they can chart their progress towards this goal and set targets on what they need in various summative assessments along the way.

## *2. Parents*

Parents have responded very positively to the QMI. As with the API, parents have their own user names and log-in passwords and can therefore monitor their child's scores regularly and without relying upon their teenager's accurate reporting of their test results. The index provides parents with information on the ranking of students in the class, this is valued as it enables parents to set targets and monitor improvement of fall in attainment performance.

The Parent Teacher Association (PTA) reports that many parents use the QMI and that the evidence of learning enables them to give guidance to their children concerning study patterns, attitude, and in some cases to seek other support such as extra tuition.

## *3. Individual class and subject teachers*

Feedback to teachers is essential for improving teaching and learning. The feedback that is necessary is evidence of learning or learning improvement. The QMI, along with the API, provides a cumulative index for the individual student and also an overall comparative report for the whole class or cohort. This information has proven to be highly valuable to teachers. Before the system, all teachers maintained 'Mark Books' which were paper based records of the assessment of students. This paper based scheme was supplemented by some teachers who used their own software applications such as databases like Excel. A system wide application that could monitor and report on the evidence of learning for individuals and cohorts was not used.

The QMI provides a user-friendly system for collating summative assessment data and also provides a report based on a simple indicator to inform teachers about student learning progress that is needed for planning and self-review of teaching and learning programs.

## *4. Whole school approach*

The School Leadership (Academic Committee) monitors the students' QMI closely. Students with a poor QMI are picked up by the program and noted to the Academic Committee. The AC Form Coordinator with assistance of subject teachers and Form Teachers will interview the student and contact parents / guardians. Other measures may be taken to help the student to improve their QMI within a subject or their overall QMI this includes enhanced programs (outside school hour tutorial classes) and programs focused on behavioural or motivational change.

Overall QMI scores between classes within subjects are compared. Cohorts of students with low QMI scores may be discovered and investigated and measures taken to enhance work achievement, including assisting the subject teacher and counseling the students of the class.

An important aspect of the QPI data is that it is used to provide an estimation of students' academic performance well before the end of the assessment period (e.g. before the end of year or end of semester assessment report is distributed). Students with poor projections based on their cumulative QPI are counseled and may choose to change their motivation, revise their study patterns and implement different learning strategies.

Finally, the QMI evidence can be used by the school's leadership to monitor and review the performance of class groups and as such it provides information directly attributable to the performance of teachers. In some instances comparison of class data on similar assessments may give 'just-in-time' information to enable the school to provide additional support to a teacher or to assist the teacher to change their teaching strategies during the term or semester.



As an example, the 10 week QMI evidence of the performance of students in Class 2D English indicated that of the five Form 2 classes that the attainment of class 2D was markedly lower than expected when compared to the results of the other classes. This result was based on cumulative test scores using the same tests across all Forms. As a result, the Academic Committee undertook an inquiry into the low QMI average scores and the school put in place intervention strategies. These strategies included, identifying and counseling three students in Form 2D who were regularly disruptive in English lessons, providing time coverage for the English Department Head to work closely with the English Teacher of 2D including in-class collaborative planning and teaching, revising the teacher's Scope of Work documents for 2D English, and conducting one afternoon a week 'catch-up' tutorial classes for low QMI students of 2D for 5 weeks. This was successful for the results showed a major improvement in the QMI for the next quarter.

## **Conclusion**

The experience of Jockey Club Ti-I College has been that the value of evidence based practice for instructional leadership lies in the ability to provide:

- strategic feedback to inform decision making such as operational plans, strategic improvement plans and the selection of pedagogical approaches that will bring about improved performance.
- diagnostic feedback into various school processes to guide improvements on a micro level and continuous improvement basis (such as identifying where teachers need to focus effort in addressing gaps in student achievement).
- data for analysis of trends in performance over time (projections and predictions on attainment).
- feedback around the measurement methods themselves (formative and summative assessment, and valid assignment tasks)

School leaders as instructional leaders examine the outcomes of various audited processes and assessed strategies and track the results to guide the teaching and learning process. The implementation of the API and QMI systems over three years has greatly enhanced the school's effectiveness in terms of its commitment to formative and summative assessment, the improved use of feedback to students, parents and feedback to teachers, enhanced ability for students (student centred learning) to set their own outcomes and for teachers to review and set appropriate learning targets, and importantly the API and QMI have greatly enhance the role of parents as partners in student learning.

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