SECTION

02

EdUHK's Data Collection and Analysis

Task Force on Academic Management Information and Data Management System (TFAMIDMS)

The Academic Management Information System (AMIS) was implemented in 2014. AMIS provides the Senior Management, Heads of Department (HoDs), and programme leaders with consolidated academic management information about Key Performance Indicators (KPIs)/ PIs to inform academic planning, implementation and development.

Task Force on Academic Management Information System

In response to the Report of a Quality Audit of The Hong Kong Institute of Education (HKIEd) in 2011 that the former Institute should "place high priority on developing a Management Information System that provides meaningful data and aggregations" to support tracking progress on goals and effective decision making, the Senior Management at its meeting held on 12 December 2012 agreed that the University's management information system should be enhanced in stages through modifications and appropriate interfacing, beginning with the development of an AMIS. Correspondingly the Task Force on AMIS under the chairmanship of the Vice President (Academic) and Provost [VP(AC)&Pr] was established to oversee the development work. AMIS was launched in 2014 and further upgraded in 2018 to include new Key Performance Indicators (KPIs), and the institution-specific KPIs (now renamed as UGC KPIs) and Performance Indicators in the following hyperlink: https://amis.eduhk.hk

Task Force on Survey and Data Management (SDM)

With a view to addressing the need for a coordinated approach to the administration of surveys and evaluations in EdUHK, a Task Force on SDM, under the co-chairmanship of the VP(AC)&Pr, and the Associate Vice President (Assessment), was set up in 2018 and tasked to propose possible means to streamline and simplify existing survey and data collection activities related to student learning and propose short and long terms plans for survey and data management to cover existing and new surveys and establish a platform for surveys and evaluations.

Streamlining and Re-configuring of Task Forces on AMIS and SDM

A review of the Terms of Reference and Membership Composition for the two aforesaid Task Forces was conducted with an aim to maximising the synergy of the two Task Forces, optimising the efficiency and effectiveness in the data collection, repository of information wealth and efficiency of time/ manpower management.

With the support of the Task Force on the AMIS and the VP(AC)&Pr-AVPs/Deans/Heads Meeting, a simple merger of the two existing Task Forces, transforming these into the "Task Force on Academic Management Information and Data Management System (TFAMIDMS)" was approved to take effect from 2019/2020 by the Learning and Teaching Quality Committee (LTQC) at its meeting on 15 May 2019.

In view of the evolving role and scope of responsibilities of the TFAMIDMS, the paper on "Proposed Changes to Task Force on Academic Management Information and Data Management System" was considered by the LTQC at its meeting in early June 2022 and supported by the TFAMIDMS in late June 2022. The new Terms of Reference and Membership Composition became effective in September 2022.

The Central Reserve Allocation Committee (CRAC) Project：
Improving QA&E by Predicting Student Performance Using Data Analytics

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With a view to enhancing the current QA&E mechanisms for student learning in the University, the Central Reserve Allocation Committee (CRAC) project **"Improving QA&E by Predicting Student Performance Using Data Analytics"** targets developing a set of data analytic tools that will enable the identification of EdUHK students who may be at risk in their academic endeavors. In addition to the first two objectives introduced in the following Section by the Programme Team at the faculties, the project also includes a third objective, namely the "automation and improved visualisation of the existing basic data analysis", to streamline, unify and enhance the current procedures of programme / course GPA data extraction, processing and analysis with the assistance of Office of the Chief Information Officer (OCIO).

This Objective 3 is an upgrade of the existing practice to a more automatic and holistic approach which covers the following existing analyses:

- Programme GPA Analysis
- Course GPA of Programme
- Distribution of Award Classification
- Profile of Graduates by Award Classification

Until the development of the new automated tools, the current analysis involves routine manual processing, including data extraction, data cleaning, transferring and formatting data across different software, etc. Automation of these standandised routine procedures would streamline the reporting process, allowing staff to focus on and put more effort into qualitative data analysis, which includes the explanation of data trends, and follow-up analysis on particular observations, etc.

The new electronic tools for enhancing the current procedures of data handling and analysis, being deployed via the Academic Management Information System (AMIS) since October 2022, allow the University to comprehend the overall profile of its student population in a more efficient and timely manner.

With the completion of the new tool development, members of the Learning and Teaching Quality Committee (LTQC) as well as their delegates could access the reports in the AMIS. These colleagues could access the data based on their needs and working schedule, reducing the time and effort required for data retrieval and compilation in the past.

New tools on AMIS
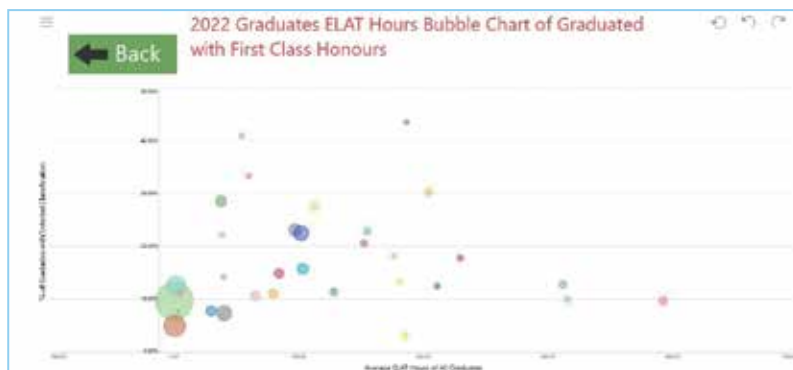
An example of automated report on graduate profile

Adopting new and revised PMs/UKPIs for the 2022-25 triennium for the development of a new Learning and Teaching Plan

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Establishment of Targets and Indicators Related to Learning and Teaching

Since the implementation of the University Accountability Agreement in the 2019-22 triennium, the University has formulated Sector-wide Performance Measures (PMs) and University-specific KPIs (UKPIs) for the examination of the University's performance in various activity domains with reference to these datasets.

To facilitate the University's collection of data in relation to learning and teaching, a set of related targets and indicators under the following two categories was approved by the LTQC in June 2019:

(i) Sector-wide PMs, UKPIs and Internal KPIs/ Performance Indicators (IKPIs/IPIs) related to learning and teaching; and

(ii) Targets and indicators other than PMs, UKPIs and IKPIs/IPIs for University Learning and Teaching Plan (L&T Plan).

Through this initiative, different stakeholders of the University including departments, units, and programmes would be able to engage in self-
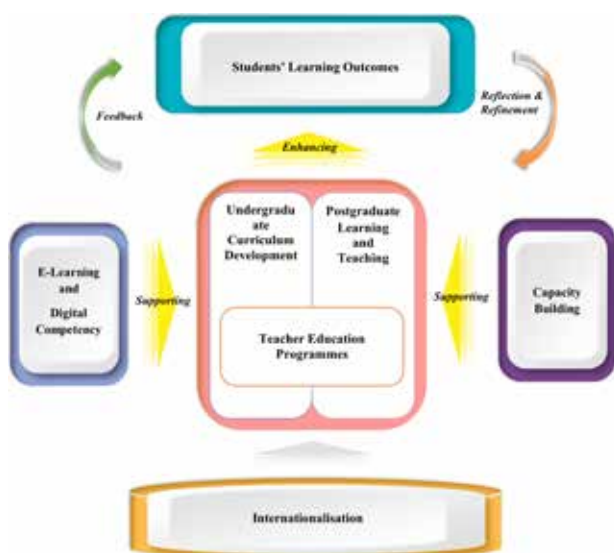

Learning and Teaching Plan on University's Learning and Teaching Website.

reflective processes by referring to tangible targets and indicators as references to their performance, and thereby allow focusing of their strategies and resources for further improvement in areas of concern. In addition, relevant trend data and evidence would be useful for programme planning, planning of learning and teaching-related activities, capacity building, as well as future audit and reporting exercises.

Articulation of Targets and Indicators with Learning and Teaching Plan

Subsequent to the introduction of PMs and UKPIs by the UGC, the L&T Plan 2019-21 was the first L&T plan mapped with learning and teaching related PMs, UKPIs and IKPIs/IPIs, and other indicators for the achievement of key milestones under each domain. With clear targets on different indicators, Faculty, the Graduate School and relevant units will revisit their work in different domains, and formulate strategic actions through the annual collection of Faculty/ Graduate School Learning and Teaching Report/ Plans. Based on the consolidated inputs and updates, the corresponding parties identified in the L&T Plan could monitor the achievements of the milestones, report to relevant committees, and make timely adjustments to the indicators and targets in accordance with the University's latest developments, as well as the updated strategies and policies related to learning and teaching.

Articulation among Thematic Areas of Learning and Teaching Plan

Analysis of Performance Measures (PM) of UGC-funded Universities

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The UGC introduced the University Accountability Agreements (UAAs) to serve as a formal agreement between the University and the UGC to enhance the accountability and transparency of the university performance in the UGC sector. The first set of the UAAs for the 2019-22 triennium between the UGC and individual universities was signed in 2019 and was renewed in 2022 for the 2022-25 triennium. In addition to setting out the overall strategic directions and the principles underpinning the allocation of funding in the 2022-25 triennium, the UAA contains performance indicators which help the UGC assess the performance of universities against their individual circumstances. Such indicators comprise **sector-wide PMs** and **UKPIs** in the following five activity domains:

(a) Quality of student experience of teaching and learning;

(b) Research performance and research postgraduate experience;

(c) Knowledge transfer and wider engagement;

(d) Enhanced internationalisation and engagement with the Mainland; and

(e) Financial health, institutional social responsibilities and sustainability.

With such availability of data, analyses and comparisons of PM and UKPI data across all the universities is conducted every year, with comprehensive analysis among UGC-funded universities, longitudinal trends within EdUHK and at the programme level. The PM/ KPI figures of EdUHK are available on the AMIS with analysis in different dimensions as applicable, e.g., by programme, study mode, etc. AMIS users can access and extract the data as appropriate. Together with our internal KPIs, this facilitates the University community to adopt an evidence-based approach to assess the University's performance in different domains, to take stock of the implementation progress against our strategic goals and identify new areas for development and improvement. For example, in response to the decrease in experiential learning activities participation (UKPI 1.1) during the pandemic, hybrid/blended learning was adopted. Integrated face-to-face and online delivery were used for experiential learning activities, enabling students to participate more flexibly. This strategy was effective, resulting in a rebound in the student participation rate which is comparable to rates in the pre-pandemic years.

By way of monitoring, annual reports are submitted to various Committees / Task Forces, including the TFAMIDMS, allowing the University to better understand its performance relative to other sister universities for continuous improvement. For instance, on *Undergraduate satisfaction with the quality and value gained from their teaching and learning experience* and *PM1.1(b) Undergraduate satisfaction with their overall learning environment*, colleagues from the programme with overall highly rated performance were invited to share their experiences and good practices on programme administration as well as student support. The University also closely communicates with students and keeps them informed of the ongoing enhancements in learning and teaching support offered by the University.

PM/KPI on AMIS

Participation % of undergraduate students joining experiential learning activities

University Data Strategy

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In anticipation of the growing importance of data for performance review and management decision-making, the University Data Strategy was formulated in April 2022. It provides an overarching and systematic framework to articulate the identification, processing and management of key data assets, which in turn facilitates and supports the use of quality data for continuous enhancement in areas of learning and teaching (L&T), programme quality assurance and enhancement, and student support provisions, etc.

Seven key elements of Data Strategy

The University Data Strategy was formulated by referring to a framework from the Stony Brook University, US., under which seven key elements of data assets below are introduced[1]:

(i) Data Acquisition

(ii) Data Governance

(iii) Data Quality

(iv) Data Access

(v) Data Literacy and Usage

(vi) Data Extraction and Reporting

(vii) Data Analytics

There are clear definitions of each key element which enable the data custodian units to review the pertinent mechanisms and procedures in the handling of data assets in a holistic and organised manner.

Data Strategy and its interaction with data custodian units and data users, and L&T-related Committees

The figure below outlines the framework of the seven key elements of data assets in Data Strategy and demonstrates its interaction with data custodian units and data users, and L&T-related committees in the University.
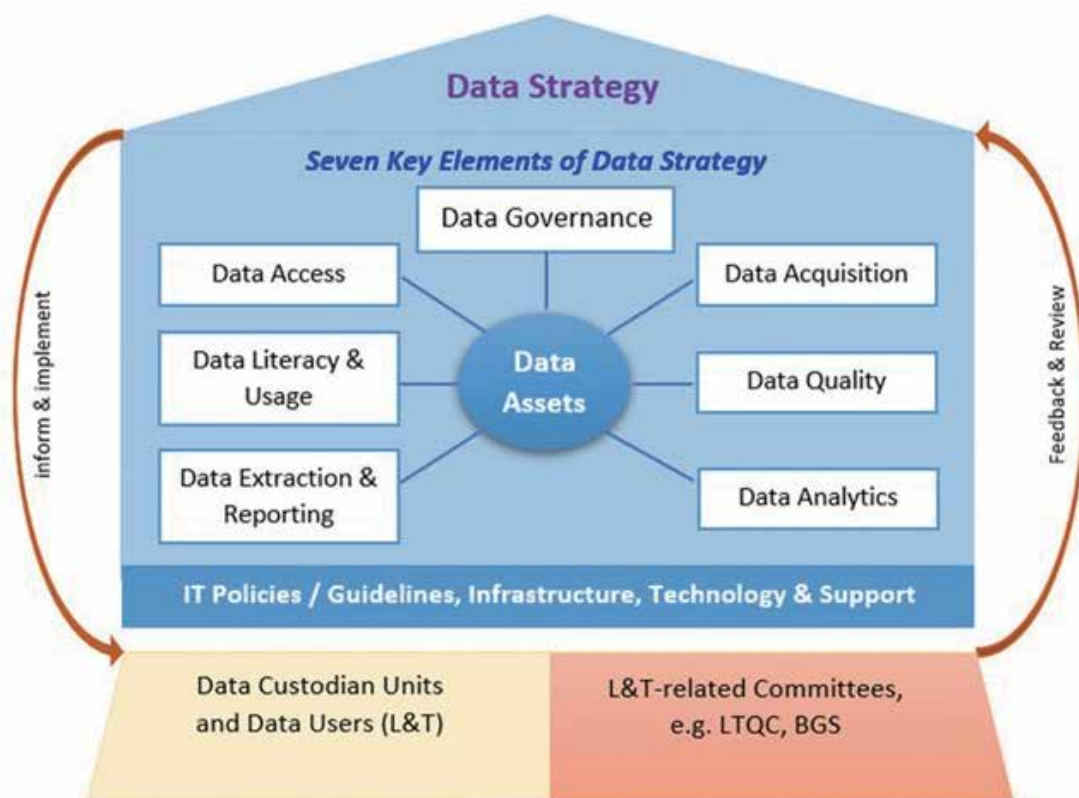
First of all, data-related policies and guidelines (e.g., Information Security Policy, Guidelines on Personal Data Protection) and specific rules about data governance and data access in the University regulate the management of data. Infrastructural and technological support required in data management are also provided. Secondly, data custodian units manage their data assets according to the approach of seven key elements in the University Data Strategy; and collects, analyses, and shares the data under its custodianship with relevant data users (who have access rights) for further processing and usage. Finally, L&T-related committees, such as the LTQC and Board of Graduate Studies (BGS), oversee the implementation of data management, analysis and reporting for data assets under their purview, make data-informed policy decisions, give feedback on the use of data and reports that make use of data analytics for follow up actions, and review the use of data as necessary.

Progress and Achievements

At the current stage, the University Data Strategy focuses on L&T-related data assets. Data custodian units have undergone a comprehensive review of the seven elements of data assets under their purview from July to August 2021 and recorded these details in a data profile. As of September 2021, a total of 13 important data assets have been identified and maintained under the Data Inventory, for example, Banner Student; Institutional Research on Graduates; Student Evaluation of Teaching; Students' Evaluation of GILOs; Experiential Learning and Achievements Transcript, and Online Survey of Data Collection on Students' Research Outputs & Involvement, etc.

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1   Hosch, B. J. (2020). Key elements of a data strategy. In K. Power (Ed.), Data strategy in colleges and universities: From understanding to implementation (pp. 14-36). Routledge.

Data Strategy

Seven Key Elements of Data Strategy

Data Governance

Data Access

Data Acquisition

Data Literacy & Usage

Data Assets

Data Quality

Data Extraction & Reporting

Data Analytics

inform & implement

Feedback & Review

IT Policies / Guidelines, Infrastructure, Technology & Support

Data Custodian Units and Data Users (L&T)

L&T-related Committees, e.g. LTQC, BGS

Interaction of Data Strategy with other units/users and committees for L&T-related data

Interaction of Data Strategy with other units/users and committees for L&T-related data

The Data Strategy framework raised awareness of better organisation and articulation of data processing and management in data custodian units. For example, during the review process, some units were able to clarify and specify data governance and data analytics as these were not made explicit before. The Data Strategy framework helps to build a foundation for quality data which is essential for the University to advance its mission and goals.

Secondly, the University is able to have a holistic view of the existing data assets and consider if updates are required from time to time to support the latest development in the respective domains. For example, during the compilation of the Data Inventory on learning and teaching, it was found that additional data assets were needed to support the review and analysis of online learning and teaching, especially amidst the pandemic situation, during which most learning and teaching activities were taking place virtually. Following the review, two additional data assets, i.e., the Survey on Students' Learning Experience and University LMS – Moodle have been incorporated into the Data Inventory. Academic programmes are also required to conduct annual programme reviews with reflection on the feedback data regarding online learning and teaching. Further, an inter-institutional project with the Hong Kong Baptist University that was completed in May 2023 shed light on how teachers are able to make informed decisions by making use of the learning analytics of course learners in the Moodle learning management system.

Development of Online Student Evaluation of Teaching

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The development of online Student Evaluation of Teaching (SET) started in February 2017. There were suggestions to provide students with an alternative way to channel their feedback via electronic means, such as via computers or smartphone apps, instead of via paper form only. The Working Group on online SET was then formed under the Learning and Teaching Quality Committee (LTQC) to study the development and implementation of online SET. Since Semester 2 of 2017/18, three rounds of pilot exercises have been conducted, and all the SET surveys have adopted the online platform since 2021/22.

Positive feedback from students and staff members has been received, and they found that the system is more reliable in terms of data accuracy. Students feel more comfortable in using the online system as their handwriting on open-ended questions could not be easily recognised. It also maintains a higher level of privacy. Furthermore, it is agreed that online SET is more environmentally friendly and that its administration is more efficient and convenient.

Apart from the above-mentioned positive feedback, the online SET platform benefits the University on various fronts. It connects SET data to other Universities' databases (e.g., Banner) and forms a big database for other potential studies whenever necessary. For the stakeholders, including departments and staff members, the online platform provides a central storage for the systematic archival of SET records which facilitates future data retrieval. More importantly, the gradual transition from the paper mode to online mode aligns with the paradigm shift for online learning.

Currently, the online SET system provides two gateways for students and for staff members respectively. The gateway for students is a mobile-friendly webpage which facilitates students' completion of SET surveys during lessons. This platform/ webpage allows students to complete the surveys of their registered courses during the designated period and is accessed via https://set.eduhk.hk. The gateway for staff is an administrative platform to control the surveys and view relevant survey results and is accessed via https://staffset.eduhk.hk.

Further automation of the system is ongoing so as to facilitate data consolidation and analysis. It is expected that data transfer from the system to the Academic Management Information System (AMIS) platform can be automated and the SET summary reports at different levels will be accessible on the platform in the next stage, and stakeholders will be able to make use of the available data to fit their purposes.

10 January 2023

(Left) Online SET platform for student access (https://set.eduhk.hk/)
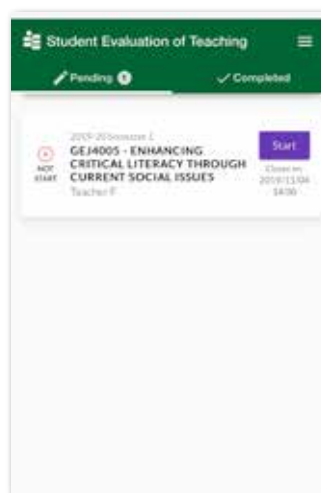
(Right) Survey platform after student's login

From Learning and Teaching Experiences to Optimising Learning Opportunities: The EdUHK Experiences During and Beyond the Pandemic

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Soon after the initial outbreak of the Covid-19 pandemic, a survey was conducted to understand the learning experiences of EdUHK students from all levels of study with online learning, and a review exercise with self-reflection for Academic/ Teaching staff was conducted by the sixteen departments and the Centre for Language in Education (CLE) at EdUHK to ensure the quality of online learning and teaching. From the quantitative and qualitative data obtained, we found that the challenges both parties faced under the crisis were twofold - technical and pedagogical.

According to the first survey on the student online learning experience conducted in March 2020, students rated 5.50 (SD: 2.23) on the overall learning experience with the real-time synchronous lessons (via ZOOM). At that time, one third of the written responses were related to technical difficulties encountered during the initial transition to online learning. This also echoed with the self-review submitted by the three Faculties of EdUHK. Technical problems using Zoom in connecting students and academic/ teaching staff were reported. Another problem was the low learning motivation incurred from the remote and distributed learning environment of using Zoom to conduct learning and teaching. These two problems were commonly reported in both student surveys and the reflective reports from faculty members. As such, multiple parties (LTQC, LTTC, OCIO, Faculties, etc.) implemented a set of coordinated strategies to create crisis-resistant learning communities among academic/ teaching staff and students, including organising "Workshops on Quality Online Teaching and Learning" for staff members and "Getting Ready for Online Learning with Zoom at EdUHK" workshops for students.

Stepping into the second year of the pandemic, a new series of workshops focusing on various educational tools were rolled out in response to the need for engaging students in online learning and teaching activities. A total of 47 sessions were offered to 700 academic/ teaching staff participants. It is reflected in the survey on "Overall Impact and Effectiveness of SPD programme" that the academic/teaching staff appreciated the timely support in suggesting suitable tools for conducting online lessons. The survey on the student online learning experience conducted in May 2021 also revealed that students began to embrace the pros of online learning in their written comments, such as "The benefits of online learning are that you are attending the lessons in the comfort of your home & at the same being able to have more time regarding your school work.". They rated 6.87 (SD: 2.15) on the overall learning experience with the real-time synchronous lessons (via ZOOM), which is around 25% higher than in the first survey. In the most recent survey conducted in May 2022, students rated 7.48 (SD: 1.97) for the same item.

With more than two years of experience, our data and experience sharing from staff and students showed us that we are emerging stronger after Covid-19 by focusing on three things -

(i) pedagogical innovations: smart use of technologies for interactive learning and teaching, including the introduction of using virtual learning spaces, such as Spatial, for immersive learning;

(ii) self-regulated learning: helping students set goals for their learning, monitoring their own learning progression, and making reflection on their learning processes; and

(iii) alternative/authentic assessment: assessing students' learning through activities that are close to the real-world practices.

Thematic projects and staff professional development activities in these three areas are on-going.

Survey on "Overall Impact and Effectiveness of SPD programme"

Understand the most updated trend in teaching. Thinking of trying out with those innovative teaching.

Attending PD activities has helped me clarified my choices of e-learning tools such as Padlet, Flipgrid, Nearpod to be integrated into my online synchronous teaching in 2020-21.

Chart with mean of B10 from 5 surveys

How do you rate the overall learning experience with the real-time synchronous lessons (via ZOOM)?