

Data and Assessment in Education

The power and benefits of data and
assessments to schools and educators

Contents

Introduction	3
The Past	4
An overview of past educational challenges	4
Informing future decisions with past data	4
How COVID-19 continues to impact education	5
Have challenges of the past been resolved?	6
The Present	7
How current solutions can address past challenges	7
Adaptive learning cycles	8
Data and Assessment in Primary Schools (EA)	8
Data and Assessment in Secondary Schools (EP)	9
The Future	10
How technology will transform education	10
Practical implementations of AI	12
How will technology assist teachers?	12
Conclusion	13
Bibliography	14

Introduction

Due to evolving education standards, new pedagogical methods and heightened industry pressures, there is greater demand than ever before for teachers to personalise student processes. Teachers are forced to spend more time on administrative tasks and individualised content and less time on building critical student relationships.

Teachers require the right tools to identify student needs and provide timely solutions without increasing their workloads. Digital data and assessment tools can offer educators a compass, helping them to:

- Navigate diverse student needs
- Gauge individual student progress
- Identify individual strengths and weaknesses
- Drive evidence-based decisions for future learning processes

Education Perfect (EP) is a comprehensive digital toolkit with product and learning designs drawn from evidence-based research. EP's platform contains learning,

assessment and analytics features across a range of global subjects and curriculums, including curriculum-aligned content, engaging learning experiences, intelligent assessment tools, and rich data insights. The platform is designed to help teachers engage students, track student growth and easily differentiate teaching and learning.

This whitepaper will discuss **past** challenges in assessments and the use of student data, and how **current** solutions – like EP's online suite of learning tools – can inform **future** decisions. We'll explore the ability of analytics to reduce time-consuming classroom tasks, so teachers are instead able to dedicate further time to delivering personalised learning, which in turn improves student outcomes.

The Past

An overview of past educational challenges

In the past, school leaders and educators have faced a number of critical challenges due to limited data and assessment capabilities. Typically, this is due to:

- Manual assessment processes, which consumed significant time for educators and affected the frequency and depth of assessment feedback
- Assessment styles biased towards particular learning styles
- Subjective assessment marking between educators
- Insufficient technology integration, which often prevents the adoption of data-driven assessment tools and methodologies
- Concerns about security and data privacy
- A lack of alignment with student-specific learning objectives

- An educator's inability to meet the individualised needs of an entire classroom
- Narrow views of student performance; a lack of data available to understand poor or unexpected student performance

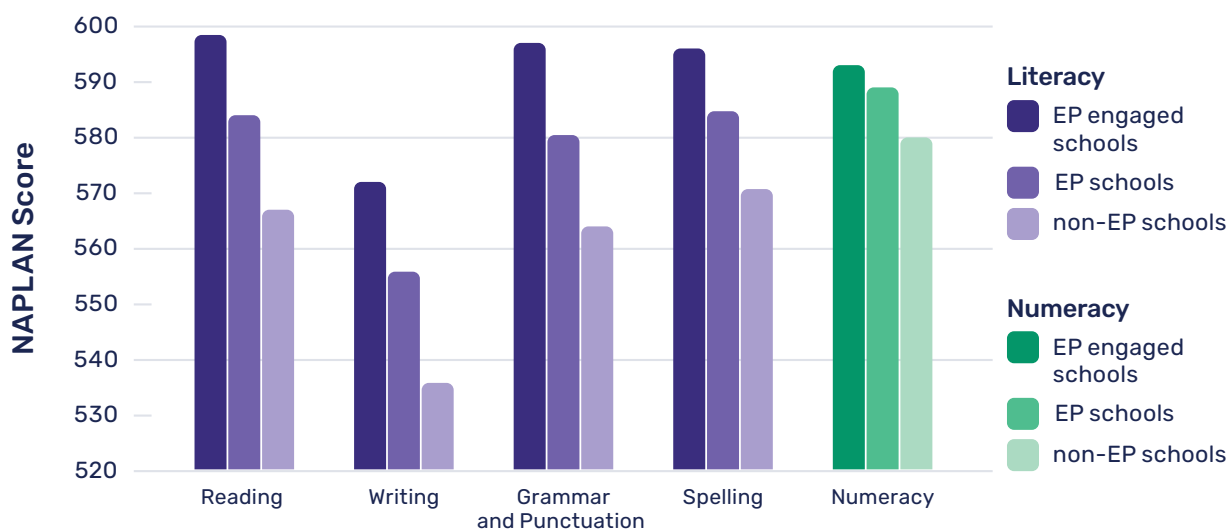
Overcoming these challenges requires better technological integration, user-friendly, accessible resources, and assessments that objectively reflect diverse student capabilities.

Informing future decisions with past data

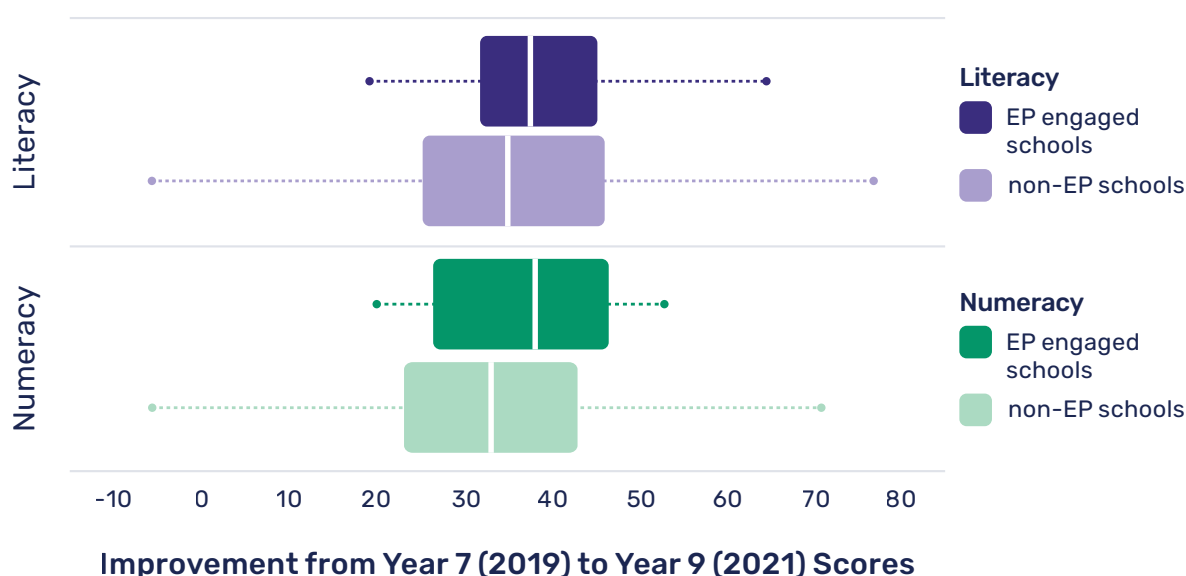
The best way to understand past educational challenges is by analysing relevant data. By reviewing trustworthy research, we can inform future decision-making.

In 2022, EP conducted a longitudinal investigation into how providing teachers access to learning, data and assessment tools designed to address the above outlined challenges affected student outcomes in Australia. This analysis compared NAPLAN (National Assessment Program –

Average Year 9 NAPLAN Scores by Domain and EP Engagement Level (2021)



Cohort Improvement in NAPLAN Scores Year 7 (2019) to Year 9 (2021)



Literacy and Numeracy) results for Year 7 and Year 9 students in 2019 and 2021 with usage of EP over the same time period. In summary, EP's comparative analysis showed that **EP schools scored 1.5% - 3.8% higher than schools who did not use EP, and highly engaged EP schools scored 4.4% - 6.7% higher than schools not using EP.**

This analysis provided strong evidence that EP schools performed better in NAPLAN testing and saw greater learning growth from Year 7 to Year 9. This performance could be attributed to a number of EP's features – but ultimately, objective data suggests that EP increased national testing performance in schools. From these findings, we can infer that EP is likely to continue to positively affect NAPLAN results in the future.

How COVID-19 continues to impact education

Prior to COVID-19, remote learning and digital resources were available, though not prioritised. In 2020, the world saw a rapid transition to remote learning that might have otherwise taken decades.

The shift to remote learning saw teachers increasingly rely on:

- Online management systems and digital libraries
- Data utilisation to track progress through participation rates, quiz scores, and assignment submissions
- Interactive online assessments to evaluate student understanding and progress
- Immediate feedback tools to identify learning gaps

A 2021 study by the Australian Institute for Teaching and School Leadership suggests that the pandemic also significantly increased Australian teachers' workloads. A large-scale survey of 12,000 NSW public school teachers found that, while teaching remotely, educators experienced a:

92%

increase in the complexity of their work

54%

increase in the collection, analysis and reporting of data

84%

increase in their administrative tasks

74%

increase in hours

81%

increase in lesson preparation time

Similar reports can be found across the world. In 2020, the Canadian Teachers' Federation (CTF-FCE) conducted a national teacher survey and collected a total of 15,119 completed responses. When combined with the responses from the random samples of the survey conducted by the Alberta Teachers' Association (ATA), 17,443 Canadian teachers were consulted.

72.7% of teachers from the combined surveys stated concern about getting their students what they would need to be successful with remote learning. Only 15% of teachers stated their students were checking in on a weekly basis, and the vast majority of educators struggled to maintain contact with students without a centralised communication platform.

EP aims to streamline these online processes for teachers and students by providing a single platform for all learning across subjects rather than having to navigate across various platforms and applications.

Upon returning to face-to-face learning, 83.4% of respondents stated that they were rethinking how the curriculum might be taught in the future, and 71.5% were rethinking their approaches to student assessment. This demonstrates the continued impact of COVID-19 on both educators and students post-pandemic.

Have challenges of the past been resolved?

The experience of using digital resources – particularly during the pandemic – highlighted the benefits of a blended learning approach that combines digital resources with traditional teaching methods. Teachers and students continue to embrace EdTech post-COVID, with studies showing that **79% of teachers report sustained or more positive student** attitudes toward EdTech from 2022-2023.

This statistic is reinforced when we look at the number of schools EP now provides digital resources to. Pre-COVID, EP had over 1,500 schools as customers, with over a million students using the platform. Once global schools began

transitioning to remote learning, EP saw an immense spike in subscriptions, with more than 5,000 global schools registering for remote teaching and learning solutions. A large number of schools found EP's digital resources extremely valuable and, since returning to face-to-face schooling post-pandemic, have retained usership of the platform.

As of this whitepaper's publication, EP continues to provide resources to:

- 1.8 million students
- Over 50,000 teachers
- 5,000 global schools

"Education Perfect arrived at our school when COVID-19 hit, and it was a valuable resource for assisting with online learning. As we step into the new normal the benefits are ongoing."

- Geraldine Courtney, a teacher from Whites Hill State College, Brisbane, 2023

"We all know that the year forced us (and all other schools) to take a leap of faith when the COVID-19 lockdown occurred, and Education Perfect...helped turn what was essentially a dark time for many into a positive experience."

- Peter Grant, a teacher at Otumoetai College, 2020

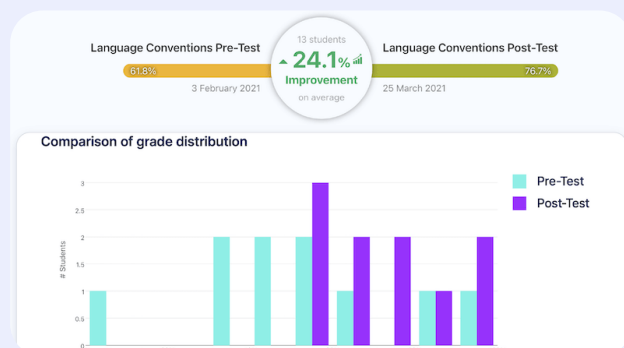
The Present

How current solutions can address past challenges

Though many past educational challenges have been resolved, a 2022 Grattan Institute survey of 5,442 teachers and school leaders found that over 90% of teachers are still not provided with enough time to prepare for effective teaching, let alone time to address the individualised needs of every student.

EP's online features have been meticulously designed and verified to improve student engagement and optimise time in class with students. EP provides data and assessment capabilities so educators can easily monitor and track student growth and personalise learning. Through these features, EP allows educators to:

- Provide students with instant feedback, enabling them to learn more quickly
- Automate marking to optimise time spent with students
- Interpret student analytics in visual, user-friendly dashboards
- Determine starting points for student growth
- Adapt learning styles to individual students (e.g. Smart Lessons, gamified elements, pre-built assessments, personalised exams, and more)
- Create post-tests to evaluate the effectiveness of their teaching



"I love the level of data we can gather on student assessments. By using the analysis tags, I can clearly see how students are progressing on the skills I care about."

- Laura Shevlin, a teacher from Namadgi School, Kambah, 2023

"I have been using EP to supplement student learning in English. I love how easy it is to keep an eye on how students are progressing and identify the students who struggle. It makes it easy to identify the areas that students are struggling with and then plan future lessons around the data collected. It also allows me to celebrate the successes when mapping their progress over time."

- Matthew Dixon, a teacher from Clairvaux MacKillop College, Brisbane, 2023

Adaptive learning cycles

Growing classroom sizes have substantially affected educators' ability to personalise their learning. However, the emergence of the adaptive learning cycle allows teachers to use data and algorithms to tailor unique resources to each student.

The adaptive learning cycle follows a recurrent process for problem-solving that leverages student data to provide students with personalised learning experiences. The cycle allows teachers to continually monitor student performance – typically through varied assessments – and adjust learning pathways based on the progress achieved. The standard cycle contains three major stages:

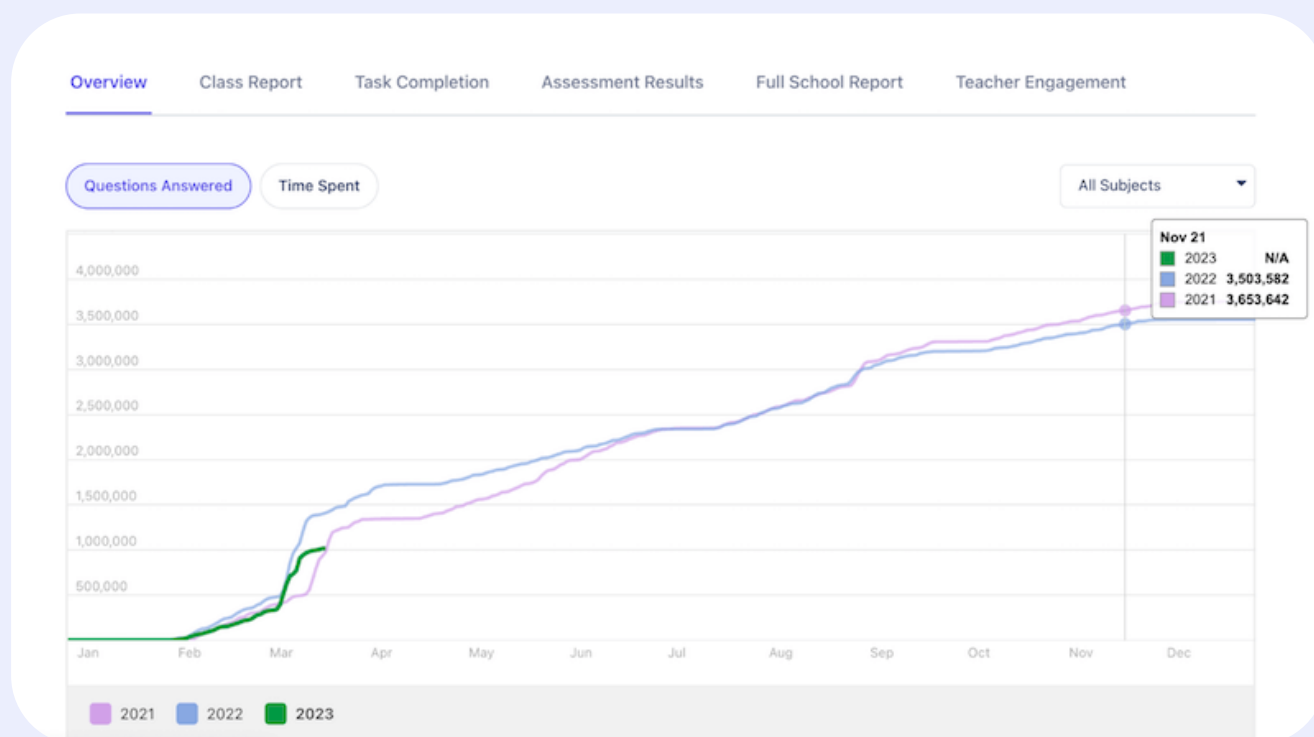
- **Assess:** Evaluate the students' abilities through formative assessments
- **Monitor:** Continue to observe the student's learning behaviour, assessment results and growth patterns
- **Remedy:** Based on the student data collected, educators can create a plan to remedy any performance gaps or improve engagement

EP's curriculum-aligned toolkit is designed to provide dynamic and interactive features guided by the adaptive learning cycle. The resources enable educators to allocate the perfect assessment format to each student. Educators can set differentiated work based on individual student needs, and multi-media integration and lesson gamification are offered to maximise student engagement. 2023 modelling indicates that using EP's pre-built, curriculum-aligned lessons saved teachers an average of over 44 hours of planning, marking and feedback time.

To summarise, EP's material uses collated data and customised assessments to deliver activities optimised for student success.

Data and Assessment in Primary Schools (EA)

Educational data and assessments lay the groundwork for lifelong learning, particularly in younger students. Digital tools such as EP provide comprehensive views of a child's development, and by evaluating their progress through data and assessments, educators can tailor teaching methods across their entire education.



While EP's assessment features are available for primary schools, EP offers an additional assessment product, Essential Assessment (EA), which is specifically designed to meet the needs of early years learners and perfectly suited to Australian Primary Schools.

EA is a trusted assessment and curriculum partner to over 2,800 satisfied schools around Australia. The platform supports data-driven teaching and instructional leadership by providing curriculum-aligned data to plan and monitor growth in primary schools.

EA provides a unique focus on developing:

- Foundational, curriculum-aligned numeracy and literacy
- Advanced performance mapping capabilities that enable teachers to meticulously track growth against curriculum sub-strands

Each of these focuses enables teachers to meticulously track growth against sub-strands of the curriculum.

Continued class and cohort data analysis within each strand and sub-strand is provided, along with guidance on the developed and potential Numeracy and Literacy progressions within each sub-element.

"[EA] has been a handy tool in the classroom and for students to utilise at home. The support offered by the consultants is comprehensive, efficient and consistent."

- Head of Junior School, Wagga Wagga

Data and Assessment in Secondary Schools (EP)

As students move to secondary schools and their learning journeys become more individualised, comprehensive data and assessments are more

important than ever. Data provides a roadmap for tailored content by helping students identify their strengths, areas for improvement and ideal subject choices. Similarly, data-driven insights aid educators in designing targeted interventions and support systems to ensure that students are provided the necessary resources to excel.

EP's formative and summative assessment capabilities are optimised for secondary school students and educators and are available with all of EP's subjects & curriculums. EP tracks student performance across multiple factors to provide rich, usable data insights for all users, providing easy access to collated learning data that allows for more time to action effective teaching and learning.

EP learning data facilitates:

- Differentiated delivery
- Individualised resourcing
- Personalised assessments
- Future lesson recommendations

EP's comprehensive analytics enable effortless differentiation, adaptive learning and lesson recommendations. InsightsPro, an advanced analytics product, is a natural next step for users used to build a holistic understanding of students' capabilities beyond EP's available data. It delivers deep data insights based on multiple data and assessment sources, allowing teachers to build complete student data profiles. It accomplishes this by:

- Integrating your student data into any school management or assessment system
- Quality-checking data for inconsistencies
- Delivering clean, reliable data output
- Displaying and understand data through an intuitive, user-friendly visual design

Insights Pro provides educators with a complete picture of student performance and wellbeing, which can be tracked at a student, class and school level or by specific cohorts.

The Future

How technology will transform education

EP's mission has always been to use technology to improve learning. Our use of technology allows us to reach students in a variety of ways and provide diverse, accessible learning pathways, and as student needs evolve, it makes sense that the required technology will, too.

The shift towards personalised learning is poised to redefine the future of education, where adaptive capabilities and Artificial Intelligence (AI) will play pivotal roles. This technology will continue to evolve as educational needs evolve, such as:

- Advanced learning analytics across a broader range of assessment styles, offering deeper insights into student progress, learning patterns, and areas of improvement

- Immersive learning and real-world experiences
- Automated administrative assistance
- Predictive analytics to anticipate students' future learning needs and potential challenges
- Integration of emerging technology and multiple data sources to provide comprehensive overviews of student progress
- Accessibility; improving speech recognition, natural language processing, and more
- Continuously up-to-date content and assessments

However, when discussing the future benefits of AI, ethical considerations must also be discussed. Though AI holds immense potential to enhance student learning experiences, it is crucial for educators and school leaders to carefully consider the potential implications of integrating AI into the classroom.



Challenges and solutions of AI in the classroom:

Challenges	Solutions
Collecting and storing student data	All data collected is strictly necessary for educational purposes and is stored securely with robust data protection measures. Safeguards are in place to prevent unauthorised access or misuse. Students and guardians are also required to consent to the use of data collection.
Algorithm bias if inadvertently trained on subjective data	Regular audits and algorithm updates will be mandated in order to minimise bias and ensure fair representation of students, regardless of demographics or location.
Potential disparities in student access to technology	Specific measures will be implemented to bridge this gap and ensure that all students – regardless of socioeconomic status – will have equal access and opportunity to benefit from AI-supported resources.
Replacing teachers rather than supplementing them	AI will be viewed as a tool to support educators and enhance student learning experiences. It will only serve to preserve the critical role that teachers play in student development and growth.
General ethical impacts	Assessments will be regularly undertaken to evaluate the ethical impact of AI on education. This will include an analysis of any unintended consequences of AI, the evolution of the technology, and how to make any necessary adjustments if required.

EP has worked to incorporate these ethical considerations of AI into guiding principles. Through intense research, EP has created four values to direct its implementation of AI:

- AI must remain **centred around humans**; enabling and empowering – instead of replacing – the efforts of teachers. Teacher needs will always remain at the centre of EP’s design, and this will remain the same as our technology advances.
- All data will remain **private, secure** and **safe** for users. Teacher and student well-being is EP’s utmost priority, as well as maintaining alignment with government and industry policies in digital safety and education.
- Any integrations of AI into EP will be **meaningful**. No technology will be implemented simply for the sake of industry buzz. Any future use of AI will take a holistic, problem-solving approach.
- AI will serve as an **equaliser** for all student and teacher needs. EP is committed to leveraging technology to improve platform accessibility and inclusivity.

By keeping these four principles in mind, the possibilities of AI in education are endless. In the near future, EP aims to use AI to empower educators, streamline efficiencies, equip students with essential skills, and enable fully independent learning.

EP has a long list of potential ways that the above goals can be achieved, some of which include:

- Introducing specific courses about the effective use of AI
- AI assisted lesson generation
- Individualising help, hints and explanations for students as required
- Encouraging critical thinking and originality when using AI as a resource
- Providing immediate recommendations to teachers for faster student interventions

Practical implementations of AI

EP's top priority is to enhance data and analytics features to further deliver custom learning experiences that address the unique needs of each student through real-time feedback, individualised learning pathways, lesson recommendations, and adjustable assessments. The incorporation of AI into the platform will enhance these features even further.

Though technology is never ideologically neutral, the research base for EP's learning design has been validated by Johns Hopkins University and has earned a certification from Digital Promise. It will continue to provide clear and objective links between pedagogical theory and practical applications for teachers in the classroom.

To ensure that EP's use of AI remains aligned with best practice, we closely follow the AI standards as set out in various government frameworks, including 'The Australian Framework for Generative AI'. EP's practices continually reflect any updates or changes to this educational framework, as well as monitoring new literature published by global government bodies.

Additionally, EP has created an AI Advisory Panel for the purpose of broadening its understanding of user needs. The panel consists of education experts with whom EP can share early concepts and receive trusted feedback. To ensure an

inclusive range of views are reflected in this panel, there is no need for expertise in AI, nor a formal, ongoing commitment to the panel. Members will, in turn, have a voice in the direction of EP's AI products.

How will technology assist teachers?

Discourse around improving, broadening and backing online learning shows that combined online and traditional teaching strategies support richer learning experiences. Technology used by educators to assist their teaching practices is likely to continue in the same vein, though with far more complexity. This will include:

- Student analytics identifying more significant trends and learning patterns
- AI-powered marking providing students with greater feedback to encourage critical thinking and creativity
- Digital teaching modes that optimise teachers' time in class with quality curriculum-aligned content
- Formative assessment tools that will continue to advance beyond traditional tests to suit individual learning styles and address learning gaps

Above all, the integration of data and technology provides educators with a powerful toolkit to better understand their students, tailor instruction, and ultimately improve learning outcomes in a personalised, efficient method.

"As we move forwards [with] AI, Education Perfect has the amazing section of assessment where one can pre and post assessment. I can't wait to try it!"

- Carlyn Mok, a teacher from The Alice Smith School, Malaysia, 2022`

Conclusion

The education industry is set to undergo a transformative shift propelled by the integration of data-driven insights and assessments. The adoption of digital tools like EP equips educators with the means to navigate the intricacies of diverse student needs, track growth, and make informed, evidence-based decisions. In turn, EP enables educators to personalise learning experiences, identify individual student needs and refine teaching methods. This adaptability facilitates the creation of dynamic assessment tools that offer real-time insights into student progress, allowing for immediate interventions and tailored support. These capabilities also pave the way for comprehensive data-driven decision-making, guiding curriculum development and educational policy to align with the evolving needs of students.

Resource adaptability and differentiation features are some of the most significant areas where EP can help teachers reinvest their time and improve student outcomes.

On EP's platform, differentiation can be achieved in a number of ways, such as:

- Assigning specific lesson sections to students
- Assigning specific content to specific students from anywhere within the EP content library
- Offering students the chance to peer review and provide other students with feedback

As we continue to be guided by past challenges and anticipate future needs, it's imperative to recognise that leveraging data and assessments isn't merely a pedagogical choice – but a commitment to nurturing a holistic education ecosystem where every student is provided equal opportunity to reach their potential.

Bibliography

- Australian Institute for Teaching and School Leadership (AITSL) 2022, 'The Impact of COVID-19 on Teaching in Australia', ORIMA Research, https://www.aitsl.edu.au/docs/default-source/research-evidence/impact-of-covid-19-literature-synthesis.pdf?sfvrsn=7abdac3c_2 (accessed 22 December 2023).
- Carr, M. 2022, 'Back to school after lockdown - advice for supporting our learners and teachers', The Educator Online, <https://www.theeducatoronline.com/k12/news/back-to-school-after-lockdown--advice-for-supporting-our-learners-and-teachers/279002> (accessed 22 December 2023).
- Clever 2023, 'Classroom of the Future Report 2023', Clever, https://www.clever.com/wp-content/uploads/2023/08/CLEVER_CLASSROOM_OF_THE_FUTURE_REPORT_2023.pdf (accessed 22 December 2023).
- CTF/FCE, 2022, 'Canadian Teachers Responding to Coronavirus (COVID-19) - Pandemic Research Study', CTF/FCE, <https://files.eric.ed.gov/fulltext/ED610460.pdf> (accessed 22 December 2023).
- Education Perfect 2023, 'Empowering and effective: How digital learning can support every learner to achieve their potential', Education Perfect, <https://www.educationperfect.com/wp-content/uploads/2023/06/EP-Research-Base.pdf> (accessed 22 December 2023).
- Education Perfect 2023, 'Our Impact', Education Perfect, <https://www.educationperfect.com/our-impact/> (accessed 22 December 2023).
- Education Perfect 2023, 'Seamless integrations', Education Perfect, <https://www.educationperfect.com/secondary/integrations/> (accessed 22 December 2023).
- Education Perfect 2023, 'The power of formative assessment', Education Perfect, <https://www.educationperfect.com/wp-content/uploads/2023/05/Formative-Assessment.pdf> (accessed 25 January 2024).
- Education Perfect 2024, 'What options are there for setting assessments?', Education Perfect, <https://help.educationperfect.com/article/314-what-options-are-there-for-setting-assessments> (accessed 22 December 2023).
- Essential Assessment 2024, 'The ULTIMATE assessment and curriculum tool', Essential Assessment, <https://www.essentialassessment.com.au/> (accessed 22 December 2023).
- Education Perfect 2023, 'EP improves learning with advanced algorithms and text-to-speech technology', Education Perfect, <https://www.educationperfect.com/partners/aws/> (accessed 22 December 2023).
- Hunter, J, Sonnemann, J, Joined, R 2022, 'Making time for great teaching: How better government policy can help', Grattan Institute, <https://grattan.edu.au/report/making-time-for-great-teaching-how-better-government-policy-can-help/> (accessed 22 December 2023).
- Nicou, JP. 2024, 'Education Perfect provide a lesson in class by offering free online learning', NetSuite, <https://www.netsuite.com/portal/resource/articles/erp/education-perfect-provide-a-lesson-in-class-by-offering-free-online-learning.shtml> (accessed 22 December 2023).

Get in touch

 educationperfect.com

 [educationperfectnz](https://facebook.com/educationperfectnz)

 [epforlearning](https://twitter.com/epforlearning)

 [educationperfect](https://linkedin.com/company/educationperfect)

 [educationperfect](https://instagram.com/educationperfect)