ASSESSMENT FOR LEARNING WITH ICT

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WHAT

Assessment has always been an integral part of the education landscape. The information from assessments can be used for several purposes. It provides valuable insights into students' learning and serves as a reference point for their progress. At a broader systemic level, data from assessments provide schools with a better understanding of how entire cohorts are progressing.

Assessments can take many forms and are useful to external organisations such as Institutes of Higher Learning (IHLs) or employment organisations for admission exercises and employment (Stiggins, 2005).

One common form is summative assessments, which are conducted to determine the students' level of proficiency and understanding at a particular point in time. Though summative assessments are useful indicators of knowledge acquired, they do not lend themselves well for developmental purposes. In contrast, the practice of Assessment for Learning (AfL) may serve a more developmental need for the teachers and students in teaching and learning (ARG, 1999).

Some education researchers often use AfL interchangeably with formative assessment because of their similar characteristics.

Due to the different interpretations of formative assessment (Broadfoot et al., 1999), the Assessment Reform Group (Broadfoot et al., 2002) established the ten principles of AfL and stated it as "the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there" from the research conducted by Black and Wiliam (1998a, 1998b).

An AfL position paper presented at the 2009 Third International Conference on Assessment for Learning, Dunedin, New Zealand, clarified and summed up the essence of AfL, and further built on efforts from two earlier conferences (Stiggins & Arter, 2002; Stiggins, 2005). Here, AfL was defined as:

"Assessment for Learning is part of everyday practice by students, teachers and peers that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning".

Subsequently, while academics have made different refinements to AfL's definition, the focal point of AfL is learners' use of assessment evidence to improve their learning (ARG, 1999; Wiliam, 2011).

WHY

While the use of assessment to inform and support learners is not a new concept, summative assessments often play a more prominent role in the school community (Wiliam, 2011). Summative assessments clearly have merits but they may not provide valuable feedback for students' learning. To meet the need for more regular and developmental feedback, educators and students can use AfL to address their educational concerns (Stiggins, 2005; Harlen, 2005).

Classroom practice

In the classroom context, it is not uncommon for teachers to assume the role of sole transmitters of knowledge, with students being the receivers. Part of the reason is the impact of summative assessment. As summative assessment outcomes are used for student streaming and admission purposes, repetitive practice on the content of tests and examinations commonly feature as main preparatory activities.

AfL offers an alternative use for assessments. As the aim of AfL is to enrich learning, the students need to be "engaged in actions that improve

learning" (Wiliam, 2011). By using assessments to evaluate their own learning, students are empowered with active roles in the process of learning. They become both learners and reviewers for their peers (Wiliam & Thompson, 2008).

Adaptive learning

One of the key characteristics of AfL is the frequent use of evidence gathered from various methods as feedback. Besides serving as an indicator of attainment levels, students use this feedback to set goals for the next stage of learning.

The evidence collected from AfL will provide valuable insights to teachers on challenges encountered by students. Teaching activities can then be changed as necessary to address the specific needs of students and enhance their learning.

Motivation of students

When implemented effectively, AfL includes the active participation of students, with the need for students to assess themselves and their peers. Such collaborative learning encourages students to take ownership of their learning, and support their peers in improving the quality of knowledge building and learning.

The independence in learning and the ability to contribute in class enhances the motivation of students. Students who are self-motivated will immerse themselves in the learning process. Even if students are not personally interested in the particular topic, they will still be engaged by tasks designed to enable them to participate through contribution and evaluation of their peers' works (Wiliam, 2011).

Significance to Singapore educators

The focus of education in Singapore has evolved considerably from the "survival-driven" phase to the current "student-centric, values-

driven system". While summative assessments provide important milestone indicators, AfL is increasingly important in improving students' learning (MOE, 2010).

With schools experiencing success in their AfL journeys, we will now outline considerations in the use of AfL.

HOW

Practitioners who are keen to apply AfL in the classroom should consider these four aspects.

Clarify learning goals

Learning intentions and outcomes need to be clearly stated and communicated between teachers and students.

The clear articulation of learning goals allows students to understand and share learning intentions. If students are working in a group, this allows them to develop criteria for success with their peers.

Self-regulated learning

In AfL, lessons should be designed to include opportunities for the students to engage in metacognition.

Circumstances need to be created for the students to explain and describe what they are attempting to do or how they arrive at their conclusions. By structuring self-regulated learning in the lesson, students will develop insights about their own learning. Consequently, teachers will be able to identify learning gaps among the students.

Peer Assessment

Students often learn through observation, discussion, modelling and reflection. The classroom provides an active environment for students to learn from one another.

Peer assessment enables students to develop a deeper understanding of assessment criteria. Learning how to assess others encourages students to develop skills that they can then use to evaluate their own progress and deepen their understanding. It also encourages students to support and re-evaluate their understanding based on feedback and evaluation from their peers.

Use of feedback

Feedback for AfL can be contributed by both teachers and peers. The feedback from teachers is important as it informs students about their learning goals, evidence of their current understanding and learning gaps. Feedback by peers can also be constructive when students are explicitly taught which learning areas to focus on and the appropriate ways to address any issues that arise.

Incorporating ICT for AfL

In recent years, AfL has been highlighted in various curricula (MOE, 2010, 2011, 2012, 2013).

To meet this need, teachers can leverage various technologies to design lessons and learning environments to capture students' learning at appropriate junctures. This will enable both teachers and students to provide valuable feedback on each learner's progress.

Despite its relatively fresh approach to assessment, there are numerous possibilities that have been afforded by technology. The rapid development of ICT has provided teachers with digital platforms that support learning and teaching. These platforms often include features such as constructing digital artefacts and online discussions. There are also web services that enable learners to collaborate remotely. This provides more avenues for constructive feedback to be shared with students.

In the following section, we take a look at how one particular group of teachers used ICT effectively for an AfL lesson. Students were explicitly taught how to provide appropriate feedback to their peers in order to improve their performance. As the teacher facilitated the learning process, she provided appropriate scaffolds to allow each student to progress at their own pace.

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FOR MORE INFORMATION

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LESSON PLAN

Duration: 2 Periods
Level: Primary 2

Subject: English
Topic: English Reading

LEARNING OBJECTIVES:

At end of the lesson, students should be able to:

- Give appropriate feedback during CoL in order for individual students to be more objective when conducting SDL
- Progress at their own pace and speed while teachers scaffold and facilitate the learning process in a fun and non-threatening environment
- Display effective CoL & SDL skills during peer collaboration before re-recording (students are required to add in adjectives or other suitable words/phrases to script)

MATERIALS AND RESOURCES REQUIRED FOR LESSON:

ICT	Materials and Resources
• Moo-O • Visualiser/Laptops	• 3 pieces of teacher's prepared worksheets • Instructions for students (including script) • Completed Checklists • Poster on virtues to be incorporated

LESSON PROCEDURES AND PEDAGOGY:

Time	Procedures	Pedagogy	Materials & Resources
5 mins	**Tuning-In** Students logs in and creates project. Selected students will "Be in Character" and read "Twinkle, Twinkle Little Star" as a spell or as a joke or as a secret.	Reflective	Whiteboard

45 mins	**Lesson Development**	Cooperative learning	Teacher's prepared worksheet
	Teacher recaps with the students the recording of " The Hungry Giant's Soup" in Moo-O and completion of the self-assessment and peer-assessment checklists.		
	Teacher reiterates to the students that the objective of the lesson was to read the story "The Hungry Giant's Soup" with good pronunciation, speed, expression and to improve and record their reading again using the feedback given.	Authentic learning	Visualiser
	Teacher tells the students that she wishes them to display the virtues of tact, enthusiasm and cooperation during the lesson. Students are also told the out of boundary rules.		
	Students engage in "Buddy Chat" time to go over checklist and talk about strengths & weaknesses. In addition, they add a creative touch to their script by adding words/phrases to script.		
	Teacher reiterates the 3 key areas - Pronunciation, speed and expression. Teacher tells students that now they will watch 2 videos of their classmates. They are to assess their classmates' videos using the peer-assessment checklist. After the teacher elicits from the students their responses, the teacher shares her assessment of the recording.		
	This process continues for one more video.		
	Teacher shows a project by teachers showing good pronunciation, speed and expression.		
	Teacher elicits responses from students with regard to teachers' project using the peer-assessment checklist.		
	Teacher gets students to return to their computers to do another recording taking into account the feedback and pointers given earlier on.		

10 mins	**Lesson Closure**	Experiential learning	Teacher's prepared worksheet
	The teacher reviews 2 videos that are published by the students who had their work played earlier on in the lesson.		
	Teacher discusses with the students if the newly published works have improved in terms of pronunciation, speed & expression. Teacher also comments on new words/ phrases added to the script. Students to be praised and acknowledged for their efforts to improve and for showing the virtues of tact and cooperation.		
	Teacher revisits virtues internalised during this activity.		

WINDOW INTO THE CLASSROOM

"Twinkle, twinkle little star, how I wonder what you are," said the little girl quietly while covering her lips. The class watched intently while she performed the timeless rhyme and clapped encouragingly when she ended. "All right, now who can tell me what she was trying to do?" asked Mrs Regina Julian. "I think she was whispering to the star because she was very quiet and speaking under her breath," said one student. "Yes I think so too, and she did a great job. But how could it be even better?" prodded Mrs Regina Julian. "Hmmm, maybe it could be a little slower?" suggested one girl.

Assessment usually triggers images of desks and chairs neatly arranged in an examination hall, with students furiously scribbling on their papers. These summative assessments are important but unless students learn from them, there is little real educational value. To the Primary 2 Professional Learning Community (PLC) team from CHIJ Our Lady Queen of Peace, it is important for assessments to be used as a developmental instrument for students to receive constructive and regular feedback on their work.

The teachers' journey began in 2012 when they decided that learning should be more personalised. Armed with this belief, they designed a programme for Primary 1 students to better understand and meet their learning needs in the English language. Initially, the learning curve was steep as it was not easy to identify each student's learning need, much less provide the appropriate feedback regularly to engage them. However, as the teachers collaborated and designed the lessons and rubrics together, they began to live their lessons on Assessment for Learning (AfL). The team used various technologies to enhance each lesson and carefully designed learning experiences which allowed students to receive feedback at appropriate junctures. The PLC team would conduct Lesson Studies and invite team members to observe the lessons. Such arrangements are made possible when the rest of the students from the level are engaged in

a mass lecture, while the Lesson Study is being conducted. Through regular feedback, the team began to apply AfL principles in improving their own pedagogical techniques. This eventually translated into carefully crafted lessons where students would receive regular feedback in the mini-activities that peppered each lesson.

"Thank you for the encouraging feedback girls. Now I would like you to collaborate with your buddies to read aloud a short story on your computers. You will use the Moo-O reading programme to record your voices as you bring the characters to life through reading aloud. Do check your own reading using the self-assessment checklist but don't forget to listen to your buddy's recording and provide feedback using the peer assessment checklist too," reminded Mrs Regina Julian as she paired all the students and sent them to their workstations.

This was the 2nd Lesson Study observation at the computer laboratory and the P2 PLC team members were present to observe the effectiveness of this AfL lesson after reviewing and improving on the 1st Lesson Study.

The girls enjoyed using the Moo-O reading software because they could listen to their own performance and record themselves during each attempt. This allowed them to learn from their mistakes and their peer's feedback. Based on the advice provided, the girls could record their narrations again to improve their performance. Throughout the lesson, Mrs Regina Julian would also gently remind students about the 'Virtues Ground Rules'. This meant giving constructive feedback with Tact, Enthusiasm and Cooperation. To further motivate each other, students could award digital badges to each other through the Moo-O portfolio too.

Using the self and peer assessment checklists, the girls diligently complimented their buddies when they read well and shared how they could improve in areas such as reading accuracy,

fluency and expression. Caitlin beamed when her friend commended her for her reading and also pointed out, "I thought that the feedback was good because then I slowed down and improved my recording." Once everyone had completed two rounds of recording, Mrs Regina Julian invited everyone to the front of the class.

"Let's listen to three recordings and I want you to assess the reading and provide some feedback," said Mrs Regina Julian as the girls gathered together. After the first recording, she invited them to share their thoughts.

"She read it very well! She sounded like a real giant, very real!"

"I think her voice is very sweet but did she miss out the last part?"

Mrs Regina Julian smiled as the girls assessed each reading and provided some encouraging feedback to their peers. This constructive sharing did not fall on deaf ears as the girls were highly receptive to the suggestions. As Kaitlyn said, "The feedback from my buddy helped me to be clearer in my reading." Eashaa was equally optimistic when she shared that she felt happy to hear her friend's thoughts as she would be ready to learn from her mistakes.

Throughout this English lesson on reading, it was clear that students were improving their reading skills not only through their teacher's guidance but also through self-assessments and their peers' feedback. This multiplied their learning tremendously.

Assessment for Learning requires not only well-designed activities to engage students, but the ability to provide and receive feedback effectively.

This shifts the focus from assessing students' final performance to the process of learning itself, from general and generic comments to personalised feedback that is student-centric.

As Mrs Annabelle Woo, Head of Department for Curriculum Innovation and leader of the AfL initiative, shared, "It's a challenging journey but it's now become a culture of learning." It would appear that the team's 2 ½ years of hard work is reaping its benefits, with students like Emelin saying, "I'm happy to listen to my friend's feedback!"

Here's what some of the Primary 2 PLC team have to share:

"ICT can make a difference in pupils' learning, enabling them to carry AfL independently."

– Ms Melly Chan

"Children can be taught to be self-directed learners even at a young age."

– Mrs Monica Thio

"This Lesson Study on AfL has taught us how to make something routine more fun and engaging for our students."

– Mdm Pek Wei Meow