

Portfolio Assessment

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As I looked back at the year's teaching learning process and the assessment activities done so far, I felt that it was time to collate the evidence of each student's learning in the form of a portfolio. By doing this I could get authentic representations of classroom performance over the assessment period. Portfolios also provide students with the context for assessing their own work and setting meaningful goals for learning. Basically it is a collection of samples of the students' work over the year and an important part of it is the component of self-reflection that explains the rationale for selecting each sample.

Portfolios score high over verbal and written reports because the reader can see the improvement that the child has made in learning each concept through the lens of the selected sample. Not only this, it would give me as well as the students themselves insight into their thoughts as they reviewed their learning. The next step was to compile these processes. This compilation would be a good source of evidence and it led me to design a portfolio assessment. I shared my idea with the children in the next class about the purpose and the process of creating a good portfolio.

The process of collecting evidences that was shared with the children was:

- Choosing important work that demonstrated their road map of learning the concept
- Compiling these documents and creating a file
- Writing their reflections on the journey of learning the concept

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The students showed interest in the fact that they could demonstrate their learning of the concept of Mensuration. Then we had a conversation on how a portfolio differs from a note book. This question led us to an interesting discussion on the different types of portfolios such as *collaboration portfolio*, *showcase portfolio* and *evaluation portfolio*. In a *collaboration portfolio* teacher and student collaboratively collate the work of each individual, while in a *showcase portfolio* the purpose is to view the journey of learning a particular concept and reflect upon it. An *evaluation portfolio* is for the determination of the student's readiness to move to the next concept. We needed to include the activities that we did in the classroom, formative assessments, the teacher's feedback and the corrections that the child has made based on this feedback. All these will provide information about the path that each individual has taken to master the concept. Including the self-reflection on their journey of learning will provide information to other stakeholders such as teacher, parents and school authorities.

At the end of the discussion we decided to create a collaborative portfolio and arrived at a

common list of what the contents of the portfolio would be:

- Entry level assessment paper that we did in the beginning of the chapter
- Worksheets that we did during the derivation of area of the trapezium with my feedback
- Successive drafts of an important work or problem that the child has created
- Records of informal assessments that were made
- Responses for open ended questions
- Same work that repeated over a period of time
- Favorite work
- The best work that was done in the whole process
- The individual project plan and contributions to the project
- Self-reflection
- Teacher's reflection
- Observation record of activities of the individual done by teacher

Following are some of the samples which were considered for the portfolio. I could draw many inferences from them about Ranjith's learning.

1. For which of the following given shapes can we find the area and perimeter? Justify your answer

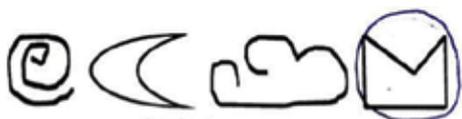


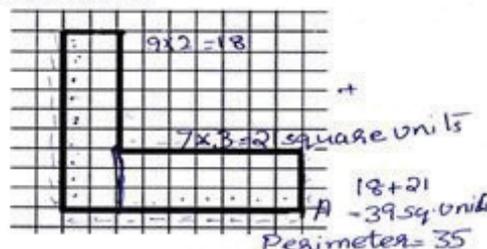
Fig. 1

2. Help Radha to plan 'Project Lawn'. The dimensions of the rectangular plot of land are 5 m and 10 m. If she wants to buy grass seedlings for the lawn, what would we have to find out and what will the unit be for it?

- a. Area in meters
- b. Area in square meters.**
- c. Perimeter in meters
- d. Perimeter in square meters

$$\begin{aligned} \text{Area} &= l \times b \\ &= 5 \times 10 \\ &= \underline{\underline{50 \text{ m}^2}} \end{aligned}$$

3. a) Find the area and perimeter of the figure shown below. Each square in the grid has a side of unit length.



- b) If Ram has a similar L-shaped flower bed, in his garden then how will you find the area of the flower bed?

$$= l \times b$$

In the entry level test Ranjith has shown some basic idea of area and perimeter but he depended heavily on formulae.

Fig.2

The following samples are chosen from the collection of formative assessments carried out during the lesson on Mensuration.

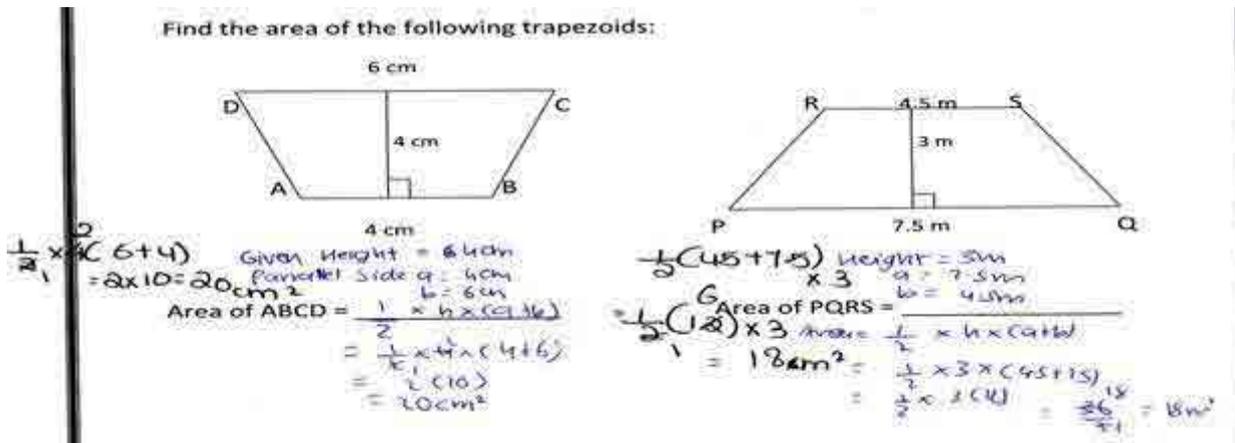
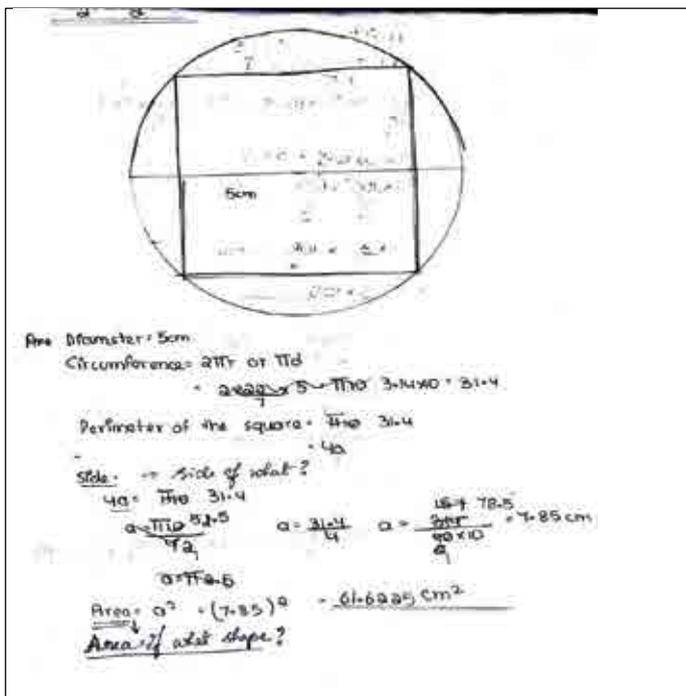


Fig.3

Draw a circle of a diameter 5cm using a compass. What is the area of a square with the same perimeter as the circumferences of the circle?



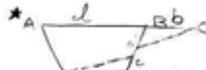
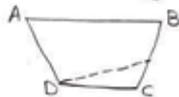
In the sample in Fig. 3, he was using the formula to find the area of the trapezium. After a series of conversations he tried to solve the problem by considering what is given, what needs to be found out and how to find it out. In the sample shown in Fig. 4 he tried to analyse the situation but he made some mistakes such as considering 5 cm to be the radius in spite of recording it as the diameter. Here also he was obsessed with formulae like circumference = $2\pi r$ or πd .

Fig.4

If $AB = l$ and $CD = b$ and height of the trapezium is h , prove using the triangle so formed that the area of both triangle and trapezium is $\frac{1}{2}(l+b)h$.

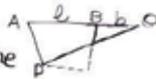


If we cut the trapezium like this:-
We get the picture like this*:-
Which is not a triangle



If we cut the trapezium like this:-

The point O needs to be the mid-point of BC



Consider the area of the triangle ADO

$$\text{Area of triangle} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$\text{triangle ADO} = \frac{1}{2} \times (l+b) \times h \quad \begin{matrix} \text{base} = l+b \\ \text{height} = h \end{matrix}$$

Area of triangle ADO = area of the trapezium ABCD. So Area of trapezium ABCD = $\frac{1}{2} \times (l+b)h$

In the home assignment he analysed the problem and tried to give logical reason for each steps.

Fig 5: Attempting to cut a trapezium to form a triangle

He also included his reflection in the portfolio

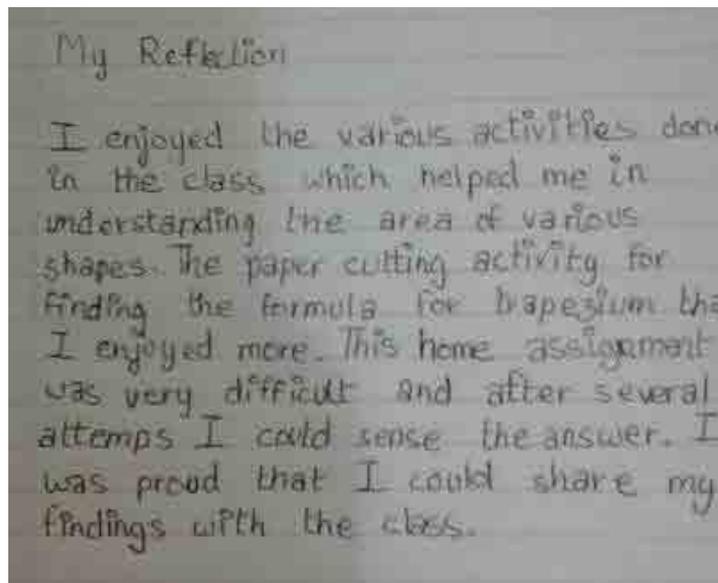


Fig. 6

My anecdotal records for activities during the teaching learning process helped me in analysis of the child's learning or in creating detailed reports. One of the anecdotal records for Ranjith was this.

As I mentioned above these anecdotal records direct me in writing my reflection on his learning.

Name: Ranjith Date :23/8	
Activity	Deducing the area of a trapezium
Observation	<i>Ranjith shows interest and logical reasoning for each step in the worksheet. He has back calculated the area of given trapezium from the formula and used it for finding the area of triangle DCB. He could communicate the findings and provide the rationale for the steps in the deduction.</i>

My reflection

In the entry level test Ranjith showed the basic understanding of area and perimeter of rectangle. After performing various activities I could see the improvement and evidences in analytical thinking. He has progressed far away from using the formula for finding the area to show higher order thinking skills. He also started enjoying the activities and participates in group discussion.

I could understand not only the strengths and weaknesses of Ranjith's learning but also about his efforts. At the end of the whole process some of the children shared that the whole process helped them to understand their strengths and weaknesses and motivated them to work on these. One of the students shared that "the process helped me to compete with myself not with others and I feel that I am responsible for my learning". The students were discussing about creating a similar kind of collection for other topics. I felt very happy to hear this discussion and their feeling towards this assessment. I felt there are so many reasons for this acceptance. It occurs in the child's natural environment and also it invites the child to be reflective about his/her work. Assessment through portfolio is a true learning experience and it gives authentic information about my teaching process. It also made a good platform to increase the interaction with children, with parents and school authorities about the child's progress as it is purely evidence based and focuses on the path the child has traversed to reach to a certain level.

Once I collected the evidences about learning through different assessment strategies, it was

time to sum up all the findings. Summative assessment is always considered for evaluation and grading purpose. Thus it is carried out at the end of a lesson or month or term. I consider summative assessment to be for summing up of learning about a concept or topic at a particular point in time before moving on. It also provides scope for improvement so at such points, it is hard for me to distinguish between summative and formative assessment. I consider all types of assessment for both formative and summative – the purpose of assessment is to know about the learning and change the instruction as per the need.

After collecting the detailed evidences through different ways/strategies, I needed to analyse these and provide detailed feedback to the child and parent about the learning. These evidences have been compared with a predefined set of references for each topic/concepts. I had already decided these set of references for each concept which aligned to the goals and objectives of the topic. These frames of reference in each topic are called indicators and they helped me in analyzing the evidences collected. Indicators that I decided for the area of a trapezium are

- Identify the basic types of polygons – triangles and rectangles- after folding or cutting the trapezium.
- Use the mensuration formulae of rectangle and triangle.
- Derive the proposed formula and give justification for the steps taken
- Communicate the logical reasoning for each step of the deduction

In this manner I drew up indicators for each topic and these indicators are linked to the development of critical skills like problem solving, logical reasoning, mathematical communication, estimation, number sense, generalization, data collection etc. that a child need to develop in mathematics. Analysis of the evidences gives references for the development of these skills. Apart from these skills I also get evidences about the child's behavior, attitude and interest towards mathematics. These detailed evidences collected on daily basis help me in writing a detailed report on the child's learning and it benefits me in communicating with the child, parent and school authority in a structured way.

As I mentioned in the earlier entry, a cooperative head teacher and higher authority empowered me in choosing appropriate assessment strategies to collect the evidences about student learning. This also provided a sense of responsibility for the child's learning. The freedom to choose the appropriate assessment strategies to collect the evidences was an important thing in CCE that a teacher like me felt empowered by in the classroom. I am able to know about my students

as a teacher rather than as an external observer. By carrying out CCE I could actively assist the learning process. Earlier I could use only written tests for evaluating the children. This was a barrier for me to collect valid evidences about them. CCE also provided an opportunity for in depth discussion with each of my students through these assessment strategies. This equipped me to understand each of my students and help him/her to learn the concepts through the way he/she is comfortable. The continuous aspect of CCE enabled me in strengthening the assessment procedure in terms of its reliability and validity. Through these effective assessments I could devise a self-evaluation strategy among children at the end which made them responsible for their learning.

I also think that by the recording of anecdotal evidence, teachers have a clear idea about his/her students and their learning. Earlier we never used to document the information anywhere. I look at CCE to provide me the platform to think, analyse, draw inferences and document about the child's learning. This enables me to have continuous conversation with students, parents and policy makers about the nature of learning and to avoid subjectivity. My experience over the last year with formative assessment convinced me that the CCE had indeed shown me the way to develop a finer sensitivity to the nuances of my teaching and the student's learning. But it was important not to get overwhelmed by the workings of the system. It was important that CCE works for me, not that I work for CCE.



The CCE column is the product of the Azim Premji University Resource Centre. The team members who worked on this article are Sindhu Sreedevi and Sneha Titus. **SINDHU SREEDEVI** was a Mathematics teacher for 5 years during which she had opportunities to learn the practical aspects of teaching, learning and assessment processes. Along with that she was also coordinating several external assessments in the school. **SNEHA TITUS** is Associate Editor of *At Right Angles* and Assistant Professor and a mathematics resource person at the University Resource Centre.