Active learning?

What do I mean by this term, and why does the process that it describes matter to me?
I need to use an anecdotal example to explain my answers to these questions.
I prefer simple words, and concepts. So, I simplistically define active learning as
learning where learning and development are centred on questioning - preferably
self-questioning - and seeking answers.

Many years ago, I was troubled by the fact that most of my students were finding it difficult to solve the problems that I issued as part of their coursework in structural mechanics. I wanted to discover what was creating these difficulties for them. It made sense to me to simply ask them to tell me precisely how and what they were thinking, as they struggled for solutions. So, I planned to get them to 'talk out' their thoughts aloud at such times, like trainee drivers on a police instruction course. I first experimented on myself, to find out what such reporting would entail for them.

I dug out a problem sheet that was two or three years old, sat down in a quiet room, and talked out my thoughts to a 'Dictaphone' as I solved several of the problems - one or two of which were quite demanding. I replayed the tape, noting the awkwardness of some of my wording, the omissions when I was at a loss for words to immediately report my thoughts, immediate memories of important thinking which had escaped being reported, and the occasional self-prompting that had led to me to consider or disregard a fresh option.

Consequently, when I asked students to record what I called 'recorded protocols,' I found it useful to share these individual experiences. This countered any risk that the students would distrust an activity that allowed me into the privacy of their thinking because I had shown them that I had been there myself. The cost and difficulties of transcribing the consequent stumbling, and sometime profane, recordings led to a sequence of assorted developments (Cowan, 1980) in which eventually I simply paired up students to play back their own recordings to each other, supplementing or clarifying the record when necessary, hoping to summarise the approach that had or had not been effective. The peers were briefed to only ask occasional questions, hopefully nudging the recorded student to progress (Cowan, Lowley and Bingham, 1981).

The pairs summarised and shared with me points of interest that had arisen from their scrutiny of their recordings. Overall, their summaries were interesting to me for their diversity, and often the disregard by the problem solver of the approach they had been taught in class (Cowan, 1977). One of my abiding memories of this stage was a passionate outburst from an indignant peer: 'Two years we've shared a room and done our coursework together. And you've had a better way of doing these than me, and you never told me!'

More importantly, within two or three weeks I found myself being approached by students who wanted to share with me that this activity had prompted them to change their approach to tackling problems in structural mechanics, with much more success. They had become action researchers of their own practices, engaging in meta-cognitive scrutiny of their

thinking and problem-solving - a process in which subsequently they did not need the facilitation of peer interaction. I hope that this description answers the first of my opening questions, with the self-reported enhancement of performance my rationale for advocating self-managed active learning (Cowan, 1994).

In the example I have just given, where the task was set by someone other than the learner; the learner then had to ask and answer questions about method, such as 'How am I doing this? How could I be doing this? How could I be more effective in tackling this task?'. When the task is open-ended with regard to outcomes, as in a project, the learner should be asking 'How could I tackle this? How should I tackle it? Have I identified and explored all the options?'. When the learning and achievement are self-managed, the learner also needs to ask 'How well am I doing this? How should I be judging how well I am doing it?'.

For me, the facilitative tutor of active learning is a person who asks questions whose worth the learner then perceives, and so can respond constructively. The truly active learner should do much of this questioning for themselves, whatever the nature of the demand they are addressing. I recall a project student who was asked by the course structure to keep a weekly learning journal and share it with me as her tutor. I added facilitative comments before returning her entries. One week she sent the journal with a cover note: 'I don't think I need to do this anymore, John. When I look back over what I've written, I can see what questions you'll ask me, and I just answer them.' She was a truly active learner (Cowan and Cherry, 2012).

Professor John Cowan, 2024

References

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