

## Capitalising on University Students' Metacognitive Qualities

by

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A study of first year university non-major chemistry students found that many students expressed an understanding and awareness of their own learning. The students in this study, some with no chemical background were confronted with learning basic chemistry when chemistry was not necessarily their greatest passion. Despite this some students were observed to make rapid progress showing motivation, application and enthusiasm.

The results of the research provided an insight into students' opinions about what and how they were learning. University students responsible for their own learning made choices that were influenced by internal factors such as their prior chemical and mathematical knowledge, their modelling ability, their use of representations and their motivation to learn chemistry, and external factors such as the unit structure, assessment requirements, time management, teaching resources, and learning strategies.

Responses to interview questions and an *On-Line Survey* provided evidence that many of the university students taking the introductory chemistry units were: aware of the learning processes that they were undertaking; understood the representational nature of the chemical symbols, appreciated the value of particular learning strategies; and acted intentionally and mindfully when learning. These qualities are characteristics of the intentional learner (Bereiter & Scardamalia, 1989).

The data revealed a high level of metacognitive awareness by some individuals of their personal learning. Students with greater metacognitive awareness are better situated to have a rewarding learning experience. The results of this study support the framework of intentional learning described by Pintrich & Sinatra (2003). Although metacognition occurred spontaneously in some students who were extremely focused, and experienced learners –

just not experienced in learning chemistry, there is the possibility of introducing and developing this trait in other students to enhance learning.

#### References

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