



Abstract

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problem-based learning

A comparison of the effects of problem-based learning and lecturing on the development of students' critical thinking

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Background Educational approaches are thought to have facilitative or hindering effects on students' critical thinking development. The aim of this study was to compare the effects of problem-based learning (PBL) and lecturing approaches on the development of students' critical thinking.

Methods All 79 Year 1 undergraduate nursing students at a university in Hong Kong were randomly assigned to 1 of 2 parallel courses delivered by either PBL ($n = 40$) or lecturing ($n = 39$) over 1 academic year. The primary outcome measure was students' critical thinking disposition as measured by the California Critical Thinking Disposition Inventory (CCTDI). Individual interviews were also conducted to elicit the students' perceptions of their learning experience. Data were collected at 4 timepoints spanning 3 years.

Results The overall CCTDI and subscale scores for the PBL group were not significantly different from those of the lecture group at the first timepoint (pretest). Compared with lecture students, PBL students showed significantly greater improvement in overall CCTDI ($P = 0.0048$), Truthseeking ($P = 0.0008$), Analyticity ($P = 0.0368$) and Critical Thinking Self-confidence ($P = 0.0342$) subscale scores from the first to the second timepoints; in overall CCTDI ($P = 0.0083$), Truthseeking ($P = 0.0090$) and Analyticity ($P = 0.0354$) subscale scores from the first to the third timepoints; and in Truthseeking ($P = 0.0173$) and Systematicity ($P = 0.0440$) subscale scores from the first to the fourth timepoints.

Conclusions There were significant differences in the development of students' critical thinking dispositions between those who undertook the PBL and lecture courses, respectively.