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CRITICALLY REFLECTIVE PEDAGOGICAL MODEL FOR CONSTRUCTION EDUCATION

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ABSTRACT

Leading a critically reflective teaching practice is essential for university lecturers to ensure they are offering a quality learning experience for students. However, developing as a reflective lecturer is challenging and thus requires a well-defined guideline. This study, building on existing theories of reflective teaching, introduces a new model of critically reflective teaching practice. The research essentially involved the operationalisation of Brookfield’s four-lens model in the author’s teaching practice for creating a reflective pedagogical model. Qualitative data were collected from four different sources and subjected to a thematic content analysis. Findings were then consolidated to inform the development of the new, reflective teaching practice model. The model could function as a blueprint for lecturers to guide them in the continual improvement of their teaching for sustained high quality.

Keywords: construction education, pedagogy, critically reflective teaching, teaching quality.

INTRODUCTION

Scholarships of learning and teaching in higher education strongly advocate that critically reflective educators are excellent educators who continually improve the worthiness of their teaching by repeated refining of their pedagogical approach. McKay (2007), for instance, claimed that critically reflective educators possess many qualities that can deliver better learning experiences for students. These include: (1) critically reflective educators lead a more innovative practice, freeing themselves from routine behaviours, and they often consider different methods of delivering a particular course to make learning more effective; (2) they are self-driven in their professional development and continually learn about effective pedagogical practices by attending seminars/workshops and through readings; and (3) critically reflective educators are actively involved in the overall program/curriculum planning, development and change at the school level that will drive a more effective teaching. Thus, universities desire that all their lecturers lead a critically reflective teaching practice to ensure their institutions provide quality degree programs and learning experiences for students.

The reflective teaching practice, as a paradigm, is applied across different levels; preschools, schools, teacher education colleges and universities. The pathway that one should take to become a critically reflective educator is significantly influenced by the teaching and learning context. In universities, disciplinary variation may have an impact too. To this end, this study reports on the exploration of a construction management lecture in search of a pragmatic model for critically reflective teaching practice.

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THEORETICAL BACKGROUND

Cornu and Peters (2005) defined reflective educator as one who engages himself/herself in critically reflective processes whilst Schon (1990) defined the reflective practitioner as one who is engaged in “reflection-in-action”. Critical reflection in practice or reflection-in-action is elaborated by Rolfe et al (2001) as deliberating methodically and meticulously over one’s practice to learn from actions, thereby making impactful changes to it. Johns (2002) concurred that guided reflection is a process of self-enquiry that enables a practitioner to realise effective strategies for/within the practice.

Developing as a reflective lecturer is a learned behaviour that requires time and practice. Equally, a strategic pathway should be followed for the process so that the best outcomes can be reaped. In a seminal work, Brookfield (1995) proposed a four-lens model that can be engaged to become a critically reflective lecturer. The lenses proposed by Brookfield are as follows:

1. *The autobiography (self-reflection)* – is the footing of critical reflection in that lecturers focus on their experience as learners. This enables them to see their practice from the point of view of “what their students may experience”.

2. *The students’ eye (student feedback)* – relates pedagogical approaches that may need adjustments or that can be improved for better effects.

3. *Colleagues’ experiences (peer assessment)* – fostering critical conversations with colleagues about one’s teaching, through mentoring, advice seeking and feedback, can yield useful insights for practice.

4. *Theoretical literature (engaging with scholarly literatures)* – lecturers who research, present and/or publish scholarly work about their teaching demonstrate an enlarged, forward-thinking practice.

This model has been well-received and largely adopted in universities as a blueprint that can be utilised by desiring lecturers to lead a reflective practice.

RESEARCH METHOD

The research essentially involved operationalising Brookfield’s four-lens model in the author’s teaching practice for creating a reflective pedagogical model. Data collection and analysis was qualitative in nature. Data were collected from four different sources and subjected to a thematic content analysis. Findings guided the development of a new, reflective teaching practice model. Ensuing sections describe the data collection and analysis methods in line with the four lenses discussed above.

Examining with Lens 1: The Autobiography as a Construction Learner

As the starting point of critical reflection, the author contemplated over the teaching received during his undergraduate and postgraduate studies. Four themes were adopted to neatly consolidate the reflections, including: (1) characteristics of the lecturer, (2) course delivery methods, (3) learning resources provided, and (4) assessment methods. Table 1 depicts the reflections under two columns, known as “Qualities I liked” and “Qualities I disliked”.

**Table 1**

<table>
<thead>
<tr>
<th>Qualities I liked</th>
<th>Qualities I disliked</th>
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Table 1: Self-reflections as a learner

<table>
<thead>
<tr>
<th>Qualities I liked</th>
<th>Qualities I disliked</th>
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<tbody>
<tr>
<td><strong>1. Characteristics of the lecturer:</strong></td>
<td><strong>Arrogant lecturers who perceive themselves superior to everyone else</strong></td>
</tr>
<tr>
<td>• Helpful lecturers with a friendly nature</td>
<td>• Being late to class or not turning up for class and wasting students’ time</td>
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<tr>
<td>• Being punctual</td>
<td>• Partial/discriminatory lecturers</td>
</tr>
<tr>
<td>• Respecting students’ views</td>
<td>• Being late to class or not turning up for class and wasting students’ time</td>
</tr>
<tr>
<td>• Listening to students’ concerns and issues</td>
<td>• Partial/discriminatory lecturers</td>
</tr>
<tr>
<td><strong>2. Course delivery methods:</strong></td>
<td><strong>Same format all the time – lectures followed by labs/tutorials</strong></td>
</tr>
<tr>
<td>• Using a variety of techniques such as lectures, site visits, group tasks,</td>
<td>• Insufficient information or support provided to students for learning</td>
</tr>
<tr>
<td>presentations, and practice-based projects</td>
<td>• In-flexible/boring methods of learning</td>
</tr>
<tr>
<td>• Providing one-on-one support in tutorial classes</td>
<td>• One-way communication channel</td>
</tr>
<tr>
<td>• Filling the classroom with bi-directional communications</td>
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<tr>
<td><strong>3. Course resources provided:</strong></td>
<td><strong>Boring, wordy slides of theories without connections to the real world</strong></td>
</tr>
<tr>
<td>• Well-structured and logically organised lecture slides/notes</td>
<td>• Repeating the same teaching materials year after year without much updating on</td>
</tr>
<tr>
<td>• Full of real world examples or cases to explain theories well</td>
<td>account of recent developments</td>
</tr>
<tr>
<td>• Providing additional materials or information about further readings.</td>
<td></td>
</tr>
<tr>
<td><strong>4. Assessment methods:</strong></td>
<td><strong>Being purely theoretical and overly loaded</strong></td>
</tr>
<tr>
<td>• Assignments are related to the real world and manageable in terms of expectations and the duration for completion</td>
<td>• Insufficient time for completion</td>
</tr>
<tr>
<td>• Well specified submission expectations</td>
<td>• Unspecified and unclear submission expectations/requirements</td>
</tr>
<tr>
<td>• Availability of the lecturer to clarify issues in the course of preparing the submission</td>
<td>• Distributing the assessment task and then leaving everything to students</td>
</tr>
</tbody>
</table>

Examining with Lens 2: Students’ Views Teaching Effectiveness

Students are the direct consumers of teaching as they experience its effects on their learning firsthand. Their judgment on the effectiveness of teaching should therefore be given significant considerations. Moreover, the main source for student feedback should be their rating of teachers and teaching. Hence, the second part of the reflection involved interrogating past student feedback on the author’s courses.

The author collected student feedback received on three courses he taught over two consecutive years. The feedback is referred to as CATEI, which has two forms: Form A (Evaluate the Course) and Form B (Evaluate the Course Lecturer). There were responses from 99 students (out of 155) from the three courses in both forms. A detailed content analysis of CATEI results was undertaken in that attention was paid to the qualitative feedback provided by students on both forms. Subsequently, students’ comments were aggregated, as outlined below, under the same four themes.

**Student preferred lecturer characteristics**

The students’ identified nine traits of effective lecturers, viz. : (1) having excellent knowledge of the subject and is able to communicate it in a very organised manner; (2) approachable and helpful to students; (3) prompt in replying to students’ queries; (4) encouraging students to do their best; (5) friendly with students; (6) having a
passion for teaching; (7) patient and understanding; (8) showing a positive/enthusiastic attitude; and (9) cheerful, delightful and smiled.

**Student preferred course delivery methods**

The students’ opinions on effective course delivery methods include: (1) teaching skills which are relevant to industry practices – teaching practical courses; (2) well-structured, organised courses and clarity and simplicity in lessons; (3) integrating lectures, tutorials and assignment tasks for better understanding of the subject; (4) interesting and challenging course contents; (5) keeping the lessons productive by engaging students; (6) variety of teaching styles used - lectures, tutorials, online quizzes, games, simulations, discussion groups, projects, etc.; (7) using case studies and real world examples; (8) providing hands-on tasks to help students understand theories better and offering one-on-one support to students (if needed); and (9) using modern tools to create interactive and flexible learning environments.

**Student preferred qualities of learning resources**

The students perceived that learning resources provided to them should have qualities such as: (1) clearly structured course resources (lecture slides/notes) with adequate explanations/details embedded; (2) uploading course materials to the learning management system before the class to enable students to add their notes during the class; (3) providing adequate tutorial questions for practice; (4) using online video resources to enable flexible learning off campus; (5) providing past exam papers and past assignments for viewing; and (6) better physical resources – adequate room size with necessary infrastructure and technical problems are resolved efficiently.

**Student preferred assessment methods**

For assessment methods, the students preferred: (1) using continual assessments rather than a final exam; (2) having a number of small multiple choice quizzes throughout the course with other major assignments; (3) appropriate proportioning of marks among various assessment tasks, depending on the level of efforts involved by students; (4) providing adequate information and instructions for assessment tasks; (5) providing adequate time and support to complete assessment tasks; (6) setting moderately difficult assessment tasks because very difficult ones destroy student confidence; and (7) providing feedback and being reasonable in marking.

**Examining with Lens 3: Learning from Colleagues’ Experiences**

In order to compare and contrast the above findings, the author elicited information from four experienced colleagues from his discipline who have secured several awards for teaching excellence. One of the respondents was the recipient of both the Vice-Chancellor’s Teaching Excellence Award and the Dean’s Teaching Excellence Award. The second respondent has received the Dean’s Teaching Excellence Award twice and several commendations from the Associate Dean Education. The other two have received commendations from the Associate Dean Education for receiving better teaching evaluations. The same four themes above were used for the conversation, and the points they raised are discussed below under appropriate questions.

**In your experience/opinion, what are the qualities that effective lecturers possess?**

- Empathy – understanding the fact that students have different backgrounds, needs, motivations and skills.
• Listening to students to understand the differences they bring along.
• The style of teaching is able to cover the learning abilities of the whole cohort – having multiple teaching styles and being able to switch between styles in a class. For example, lecturing (providing structured information), demonstrating with relevant examples/cases, using metaphors, using visual media, etc.
• Being able to create a positive atmosphere for active student learning – better physical layout of the classroom for discussions and interactions; using the whiteboard and/or transparent sheets with the overhead projector for explanation so that students will participate in what you are doing by way of taking notes.
• Strong knowledgebase in what you are teaching.
• Preparation and organisation for every class you teach – what you want to cover and the depth and breadth of it, how you want to deliver, and planning the activities according to the time available.
• Effective communication and articulation skills – presentation, use of right media, body language, and entertainment.

In your experience/opinion, what should be the characteristics of course resources provided to students?

• Provide detailed course details/outlines at the onset of teaching to inform students of - why they do this subject; how this subject fits in the overall degree and professional competencies required; and what you expect from them in terms of attendance, participation, respect, communication, submissions, etc.
• Make available a range of materials to support student learning in both digital and hardcopy formats – background/additional readings for particular topics; inspirational examples/cases; past examples of assignments; and a list of references (web links and references) to relevant materials.
• In the preparation of learning resources for students: structure the coverage logically, enabling self-study by students; link the materials with class tasks and assignments; and optimise the content – not too much or too little.

In your experience/opinion, what are the qualities of effective delivery methods?

• Make students feel calmed and engaged in learning instead of stressed out – use humour; maintain consistency in wordings used in learning materials and verbal explanations; have short burst lectures; and interact with students individually.
• Do not hide behind the lectern, rather walk around the class and interact with students – this also reduces students using distractors such as mobile phones, laptops, etc. during the class.
• Make a balance between the use of pre-populated powerpoint slides and whiteboards/transparent sheets for writing in the class. Excessive reliance on powerpoint slides dumb the class and students become passive and do other things without participating in learning.
• Use cases to anchor teaching onto contexts – provide situated learning.

In your experience/opinion, what are the qualities of effective assessment methods?

• Using a mix of assessment tasks to suit the nature of the course and students – in class tasks/quizzes, research assignments, exams, reflective journals, etc.
• An assessment task provided to students must be clear in terms of: objectives of doing it, how it fits into the overall course structure, submission expectations, and how it is going to be assessed.
• Provide rapid detailed feedback and maintain consistency in feedback style with the use of a template.
• Use group assignments in large classes to promote discussions and collaborative learning, and encourage peer reviews.

Examining with Lens 4: Engaging with Pedagogical Literatures

In an attempt to view student learning through the lens of pedagogical scholarships, the author undertook a comprehensive review of literatures on university learning and teaching and identified critical variables of quality learning and teaching in higher education; the findings are summarised below.

The framework that was developed in the UK to measure the quality of university teaching highlighted six characteristics of effective university teaching, which are: (1) *Teaching on the course* – staff are good at explaining things, staff make the subject interesting, staff are enthusiastic about what they are teaching, and the course is intellectually stimulating; (2) *Assessment and feedback* – clear marking criteria notified in advance, fair assessment arrangements, prompt feedback, and feedback is helpful to clarify things students did not understand; (3) *Academic support* – sufficient learning support from staff and accessibility of staff; (4) *Organisation and management* – the course is well organised and any changes in the course or teaching are communicated effectively; (5) *Learning resources* – adequate resources provided for learning, which are easily accessible; and (6) *Personal development* – nurturing in students confidence, improved communication skills and increased problem solving abilities (the National Student Survey 2013).

Kember and McNaught (2007) suggested nine indicators of effectiveness in learning and teaching, including: (1) the course content is enough to explain concepts well; (2) application focused teaching (theory is related to applications); (3) challenging students’ thinking; (4) promoting student engagements and active learning; (5) better teacher-student relationships (communication, friendly environment, attention to individuals); (6) motivating students to learn; (7) better organisation of the course; (8) flexibility in learning; and (9) assessment tasks are authentic for the discipline and consistent with the desired learning outcome. They further suggested the use of active learning tactics such as projects, case-based teaching, problem-based learning, reflective journals, and experiential learning to facilitate deep learning.

Similarly, Hativa (2000, p332) identified three dimensions of effective teaching: (1) *Organisation* - linking the lesson to the previous one and to the overall framework of the course, and dividing the lesson or the topic into subtopics; (2) *Interest/engagement* – motivating to study, presenting intellectual challenges, introducing diversity into the lesson, and activating students during the lesson; and (3) *Positive classroom climate* – demonstrating care for students and their learning, behaving respectfully towards them, providing encouraging feedback, and being accessible.

Liu et al (2012) argued it is crucial that courses are designed such that learning tasks inherently motivate students’ active engagement, and motivation depicts a strong, positive correlation with high-level cognitions. Kamardeen (2013) proposed a six-element model to assist the development of a motivating course. These elements include: (1) developing course curriculums that are relevant to real world issues; (2) using blended delivery methods that promote active learning; (3) incorporating application-focused assessments and providing prompt and balanced feedback to students; (4) recognising students’ efforts and performance via encouraging remarks.
and/or rewards; (5) maintaining a close yet professional relationship with students; and (6) creating an interactive classroom environment. Chandler and Mayer (2001) postulated that interactive learning environments that enable students to have some control over their learning progress offer better benefits to students. Kamardeen (2014) demonstrated that the utilisation of adaptive eLearning tasks would provide such a learning experience for students.

**FORMULATION OF A NEW PEDAGOGICAL MODEL**

Carefully consolidating the findings, a new model for leading a critically reflective teaching practice is synthesised as shown in Figure 1. The model theorises that students enrolled in a particular subject would realise quality learning experiences and outcomes only when the lecturer adheres to and embraces certain key principles governed by the four core pillars of teaching practice, known as: lecturer’s characteristics, course contents, delivery strategies and assessment methods.

![Figure 1: Model for critically reflective teaching practice](rics.org/cobra2015)

The first pillar, lecture’s characteristics, proposes that lecturers should: (1) keep abreast of the latest developments in knowledge and industry practices related to the subject by attending academic conferences, and industry forums, seminars and workshops; (2) show a passion for teaching the students by enthusiastically interacting with them with a positive attitude; (3) recognise and be considerate of differences student pose in cognitive and physical capabilities, and other study/personal circumstances, which impact learning; (4) adopt clear communication and explanation methods in class with the use of short-burst deliveries/discussions, real-world examples and visual media as well as retaining students’ interest by entertaining learning; (5) supporting students to do their best and being easily approachable both during and outside class hours to clarify student queries; and (6) demonstrate good organisation with punctuality, better structures of in-class activities and prompt updating on issues that affect learning progress.
The second pillar establishes five quality requirements for course contents that lecturers should meet. These are articulated as: (1) make connections between current real-world scenarios and theories discussed, and avoid teaching pure theories without applications; (2) develop challenging, yet manageable, learning tasks that provoke deep learning; (3) provide a range of materials to support learning, such as additional readings, inspirational cases/documentaries, samples of past assignments, video recordings of lectures, etc.; (4) offer flexible learning opportunities by making tasks and materials available online; and (5) organise classroom layouts and infrastructure compatible with the learning activity taking place on a given day.

The third pillar, delivery strategies, urges lecturers: (1) utilise a blended delivery model by mix-matching lectures, hands-on exercises, online activities such as forums, blogging, etc., games and competitions, projects/case studies, eQuizzes, class presentations, etc.; (2) stimulate students’ motivation and confidence by recognising their efforts and achievements openly in the class with encouraging remarks, rewards and/or bonus points; (3) articulate the connections between previously known knowledge and the current lesson, as well as assessment tasks and lessons; (4) leverage advanced eLearning technologies, like adaptive eLearning, social media and other web 2.0 tools, to brace student-driven deep learning; and (5) offer additional support to underachieving students.

The final pillar sets standards to be followed by lecturers in designing assessments to stimulate learning. They are: (1) adopt the continual evaluation system with more formative and less summative (e.g. final exam) tasks to provide students with multiple opportunities to demonstrate capabilities; (2) reinforce learning and better understanding of the subject through constructive alignment of assessment tasks with course contents, learning outcomes and real-life scenarios; (3) frame the performance expectations and marking criteria explicitly and communicate with students from the onset; and (4) provide forward-looking timely feedback to allow students to act on, remediate and subsequently improve.

The practical strategies to be used by lecturers in meeting the key principles in the four pillars are not static, rather they need to be continually improved in response to: (1) insights and reflections drawn from personal teaching and learning experience; (2) feedback given by students, both formally and informally, on teaching and the subject; (3) lessons learnt from peers through collegial feedback and/or from success and failure stories of colleagues; and (4) advancements in pedagogical scholarship.

CONCLUSION

This article offers a new pedagogical blueprint for leading a critically reflective teaching practice. It is believed that the implementation of the new model in a lecturer’s academic portfolio could bring about two significant implications, viz.: (1) it can ensure that students gain a good learning experience at universities, which is relevant to industry practices; and (2) it can enable academics to continually adopt a well-informed, scholarly approach to university teaching, which can result in positive feedback on and recognition for their teaching quality. However, these need to be tested and validated in real course teaching environments. Hence, an action research strategy is suggested to operationalise the proposed model in courses and then evaluate how it helps to improve teaching quality and student learning.
REFERENCES


