

Exploring Processes of Teaching and Learning: The Case of Education for Critical Thinking in Ghana, Kenya, and Botswana

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Abstract

This review examines recent literature on the processes of teaching and learning in African Higher Education, focusing on studies of teaching ‘for critical thinking’ in Kenya, Ghana, and Botswana. The findings suggest that practices aimed at supporting critical thinking in African universities share a number of similarities with those highlighted in the literature published elsewhere in the world. For example, the reviewed studies highlight the importance of curricular alignment, academic development, and varied assessment formats, while also acknowledging important limitations related to infrastructure, workload, and faculty and student attitudes. However, the review also exposes a crucial theoretical gap in the existing literature in the form of on-going reliance on theories of teaching and learning that were initially developed based on studies of Western university contexts. As both teaching and learning are cultural processes, this limitation may be preventing this emerging body of literature from fully supporting universities to develop new ways of teaching that best benefit their student populations.

Key words: higher education, academic development, pedagogy, critical thinking, teaching and learning, Africa, Kenya, Ghana, Botswana

Cet examen de la littérature récente sur les processus d’enseignement et d’apprentissage dans l’Enseignement supérieur africain, se concentre sur

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les études de l'enseignement de l'esprit critique au Kenya, Ghana et au Botswana. Les résultats démontrent que les pratiques qui visent à soutenir l'esprit critique dans les universités africaines partagent un certain nombre de similarités avec celles mises en valeur dans la littérature publiée ailleurs dans le monde. Par exemple, les études examinées mettent en avant l'importance d'un alignement des programmes, du développement académique, et des formats d'évaluation variés tout en reconnaissant d'importantes limitations liées aux infrastructures, à la charge de travail, et aux attitudes du personnel enseignant et de la population étudiante. Toutefois, cet examen met également à jour un fossé théorique majeur dans la littérature existante dû à la dépendance encore actuelle aux théories d'enseignement et d'apprentissage initialement développées en se fondant sur des contextes d'universités occidentales. Étant donné que l'enseignement et l'apprentissage sont des processus culturels, cette limite pourrait empêcher cette littérature émergente de soutenir au mieux les universités dans leur développement de nouvelles manières d'enseigner qui bénéficient complètement à leurs populations étudiantes.

Mots clés: enseignement supérieur, développement académique, pédagogie, esprit critique, enseignement et apprentissage, Afrique, Kenya, Ghana, Botswana

Introduction

For decades, the literature on African higher education focused primarily on issues of infrastructure and (to a certain extent) governance, with little attention paid to pedagogy or student learning.¹ However, in response to the fact that universities across the continent are experimenting with various pedagogical reforms, largely due to concerns about the underemployment of graduates, a small body of literature has recently emerged, which focuses on teaching and learning processes within African university classrooms. This is a welcome development, as teaching and learning are fundamentally cultural processes. An increase in locally-generated literature on university pedagogy, therefore, offers a rich opportunity for discussions on how universities can best support students' intellectual and personal development.

This article explores this issue by examining recently published literature on critical thinking, an oft-cited outcome of pedagogical reform in the region. We start by defining key conceptualisations of critical thinking and briefly outlining the primary canon of literature on this concept within uni-

versities.² This is followed by an exploration of the interactions between this body of literature and scholarly work from three African contexts heavily represented in the literature (Ghana, Kenya, and Botswana). The intention is not to *compare* teaching for critical thinking efforts in the three contexts; rather, our analysis juxtaposes literature from elsewhere in the world with the sample drawn from these three countries, with the objective of identifying locally-derived approaches or theories that might guide pedagogical reform efforts elsewhere in the region. The article concludes by drawing out the implications of our findings, both for research into African higher education and for university efforts to reform pedagogy across the region.

Defining Critical Thinking

While definitions of critical thinking vary, discussions surrounding the concept often draw from seminal thinkers such as John Dewey (1933) and Robert Ennis (1964). Dewey (1933) defines reflective thinking as “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends” (p. 9). Similarly, Ennis (1964) defines a critical thinker as someone who is proficient at judging by determining, amongst other factors, a statement's reliability, authority, and logic. Dewey's and Ennis' emphasis on reasoning, reflection and evaluation of knowledge is supported by more recent literature, including King and Kitchener's (2004) contributions on the role of ‘reflective judgment’ and Halpern's (2013) work on the cognitive skills involved in thinking critically.

These definitions emphasise cognitive skills, but others, such as Facione (1990) and Perkins et al. (1993), posit that critical thinking also involves dispositions, such as inquisitiveness, diligence, and fair-mindedness. Giancarlo-Gittens (2009) describes such dispositions as “a person's internal motivation to think critically when faced with problems to solve, ideas to evaluate, or decisions to make” (p. 20). Although this strand of literature originated 30 years ago, the conceptualisation of critical thinking as a disposition continues to be developed [see, for example, Davies' (2015) taxonomy of dispositions]. Ongoing discussion on whether or not a person with the skills to think critically who opts not to use those skills (i.e. lacking the disposition) can truly be considered a ‘critical thinker’ (e.g. Case, 2009) highlights a subtle distinction between critical thinking as an ability or action (thinking) or as an embodiment (thinker).

Critical theory offers another conceptualisation of critical thinking. In this iteration, reflection continues to be stressed, but the theory is that critical thought must be tied to action, or *praxis*. The emphasis is for learners to

1. A notable exception is South Africa, where teaching and learning has been an important preoccupation of scholars in the context of the post-apartheid transformation agenda.

2. Our analysis focuses specifically on evidence relating to the development of critical thinking skills amongst undergraduate students.

move beyond refining a skills set and work towards social transformation (Burbules and Berk, 1999). Critical pedagogies have subsequently emerged, in which educators encourage students to question power and oppression, and empower them to address issues affecting their lives (Giroux et al., 1988; Mezirow, 1997).

All three conceptualisations of critical thinking have featured in the scantier body of literature emerging from African contexts. For example, Asimeng-Boahene (2009) examines how proverbs from across Africa can be used as a culturally responsive tool for critical thinking by supporting skills, such as understanding different points of view, and nurturing dispositions, such as curiosity, objectivity, and persistence. Though a novel approach, this conceptualisation of critical thinking echoes themes in Western literature. Moving away from the paradigmatic dependency that has long been a challenge for African literature (Brock-Utne, 2003; Mazrui, 1994), there have also been attempts to explore alternative understandings of critical thinking and re-examine dominant models. For instance, Nsameng (2005) explores how intelligence is understood within an indigenous group in Cameroon, noting that participation and social responsibility are paramount (as opposed to more ‘Western’ understandings of intelligence as linked to particular individual strengths). While Nsameng states that his study also reflects other parts of Africa, others caution against generalisations. Horsthemke (2009) contends that, because of the plurality of contexts within the continent, higher educational thought cannot be essentialised into ‘African ways of knowing’.

Critical Thinking as a Desired Outcome of a University Education

Regardless of how critical thinking is defined, when it comes to university contexts, the concept is typically discussed in a normative sense. That is, universities aspire to develop critical thinking because there is a sense that cultivating critical thinking skills in university graduates is an inherent good to society, the individual, and the workplace (Davies, 2006). Rhetoric surrounding ‘graduate skills’ often emphasises critical thinking as necessary for entering professional careers and as attractive to employers who seek graduates capable of demonstrating flexibility and generic skills sets (Mishkind, 2014). On a more macro-scale, developing critical and creative thinkers to support innovation is assumed to help countries compete in the global market and knowledge economies (Crosling et al., 2015). These themes are also apparent in recent regional literature that links competences like conceptual thinking to employability, innovation, and the knowledge economy (Hahn and Teferra, 2014; Kapur and Crowley, 2008). Similarly, critical thinking is seen as central to the aims of civic education, as it prepares learners for participation in society (Gourley, 2012) and plays a pivotal

role in developing solutions to address complex issues, such as climate change, human rights, disease, and poverty (Bawa and Munck, 2012). Such challenges preoccupy many African youth, as evidenced by movements such as #metoo, #feesmustfall, and other protests. Calls for transformative pedagogies within higher education have occurred in tandem with this form of student engagement (see Lotz-Sisitka et al., 2015).

The Development of Critical Thinking Skills During University

To date, the vast majority of literature on *how* universities might support the development of critical thinking has focused on high-income, largely ‘Western’, contexts. This so-called ‘international’ body of literature supports two broad conclusions: 1) that university education can have a positive impact on the development of critical thinking skills (see, for example, Pascarella and Terenzini, 2005 for the United States (US); Saavedra and Saavedra, 2011 for Colombia); and 2) that students enrolled at university often do *not* improve their critical thinking ability (see Arum and Roksa, 2011, and Blaich and Wise, 2010 for the US; Phan, 2011 for Hong Kong; and Schendel, 2015 for Rwanda). Although apparently contradictory, these two conclusions are complementary, in that they work together to demonstrate that, although critical thinking can be improved through university education, mere attendance at university is not sufficient for such learning to occur.

Related to this overall conclusion, a substantial body of literature, elaborated in this section, has explored the factors that affect whether or not students improve their critical thinking ability during university. Most of this work focuses explicitly on the academic experiences provided to students in university classrooms, although some engages with the impact of both faculty and student attitudes on teaching and learning processes.

Academic Experiences

In terms of academic experiences, the literature (described in detail below) highlights four elements that are particularly likely to have a positive impact on critical thinking development:

1. University curricula which are progressive in nature, i.e. where individual modules build upon one another to support the gradual development of critical thinking skills, and in which all modules reinforce the use of such skills;
2. A sufficiently high level of challenge and provision of adequate support to enable students to succeed;
3. Ample opportunities for active and collaborative learning; and,
4. A diversity of assessment methods, many of which require open-ended responses in which students must apply their learning to new prob-

lems, coupled with a sufficient level of formal and informal feedback on such assessments to enable student success.

The Structure of the Curriculum

Cultivating clear connections between the individual modules that comprise a curriculum appears to be particularly important for developing critical thinking skills (Kember and Leung, 2005; Terenzini et al., 1995), as encouraging students to ‘see’ similarities between apparently disparate subjects supports their ability to look at things from a new perspective. The *sequence* of modules also appears to be a significant factor (Fung, 2017; Terenzini et al., 1995). Explicitly incorporating critical thinking into the curriculum in a progressive manner appears to have a particularly profound effect on student outcomes (Hatcher, 2009). Gradually exposing students to the use of critical thinking in different circumstances – and progressively expecting more advanced demonstration of such skills – can help to ‘scaffold’ students’ cognitive development throughout their time on campus.³

An Appropriate Level of Challenge

In terms of the coursework on individual modules, scholars agree that critical thinking is most likely to develop if students are exposed to high levels of academic challenge while also having access to sufficient academic support (Blaich and Wise, 2010; Hammond and Gibbons, 2001; Moon, 2008). This is understandable, given that cognitive development is most likely to occur as a result of ‘conflicts’ when students are confronted with new information that challenges their pre-existing understanding (Piaget, 1975). In order to stimulate such conflicts, students must be exposed to new ideas and situations (King and Kitchener, 1994). Studies have indicated that certain kinds of coursework are particularly effective in providing a sufficient level of academic challenge to stimulate the development of critical thinking skills. For instance, evidence from the US suggests that requiring students to complete a substantial amount of reading and writing can have a positive effect on critical thinking (Tsui, 2002), likely because reading exposes students to new perspectives while writing requires them to develop their own arguments. Challenging class discussions and independent research projects also seem to stimulate the development of critical thinking skills, as they require students to actively construct their own understanding of course content and provide an opportunity to practice metacognitive skills, such as determining what is unknown about a given question or situa-

tion (Akman and Alagöz, 2018; Tsui, 2002) student-centered, question and inquiry-based, free of memorization and focused on high-level cognitive skills (critical-creative thinking and problem-solving).

However, research findings suggest that challenge in itself is not necessarily conducive to cognitive growth. It seems that, without simultaneous provision of an appropriate level of support, students are likely to retreat from the moments of conflict that appear to be necessary for intellectual development (Baxter Magolda, 1999; Perry et al., 1970; Wass and Golding, 2014). As discussed in the previous section, ‘scaffolding’ the overall student learning experience by gradually requiring the use of more sophisticated cognitive skills in the curriculum appears to be helpful, as such gradual exposure is likely to limit the tendency to disengage with more challenging assignments. Existing research also suggests that instructors can provide scaffolding within their individual modules by carefully balancing the level of familiarity with a particular teaching method with the level of familiarity with particular course content. For example, in a series of experiments related to the use of debate in classrooms, Kuhn (2005) observed that students were more likely to engage with more sophisticated arguments if allowed to debate a familiar subject, such as music, than when required to debate more ‘academic’ subjects.

Active and Collaborative Learning

The particular teaching methodologies used in university classrooms also appear to have a significant impact on the development of critical thinking skills. The use of so-called ‘active’ teaching methodologies has consistently been found to have an impact on students’ cognitive development. Dewey (1933 (renewed 1960)) was the first to argue that project-based learning was the best way to stimulate reflective thinking. A number of studies have since demonstrated the positive influence of experiential, problem-based and inductive pedagogical techniques on the development of critical thinking ability (e.g Kim et al., 2013; Osborne, 2010). ‘Authentic’ learning experiences that approximate real-world scenarios seem to be particularly helpful (Beavers et al., 2017; Kuhn, 2005), as does engagement with ‘ill-structured problems’, i.e. those that have no “correct solution” and “no way to prove definitively that a proposed solution is correct” (King and Kitchener, 1994, p. 6). Studies have also found that collaborative learning techniques, such as the incorporation of class discussions and group projects into course curricula, can encourage the development of critical thinking skills (Malatji, 2016).

However, it appears that active and collaborative methods do not always yield positive results, as these methods can be implemented in ways that do not support the development of critical thinking skills (Arum and Roksa,

3. ‘Scaffolding’ refers to the process of “‘controlling’ those elements of [a] task that are initially beyond a learner’s capacity, thus permitting him [sic] to concentrate upon and complete only those elements that are within his [sic] range of competence” (Wood, Bruner and Ross, 1976, p. 90).

2011; Blaich and Wise, 2010). The crucial dimensions of such activities for cognitive development are the level of active engagement with the subject matter and the amount of interaction with various viewpoints and perspectives. Class discussions that require students to defend their positions on controversial issues, for instance, have been found to positively influence the development of critical thinking skills (Healey, 2012). Similarly, although traditional lecturing methods have been found to be ineffective in encouraging critical thinking (Tsui, 2002), lecturing that requires a substantial level of internal or external student dialogue appears to have a potentially positive impact on intellectual development, given the high level of interaction and substantial exposure to alternate perspectives inherent in such a method (Baxter Magolda, 1999). In contrast, it appears that class discussions in which instructors test for student recall or allow students to simply ask clarifying questions about the course content do not have the same effect on cognitive development. Similarly, it seems that projects require a high level of student participation and engagement with other perspectives in order to influence critical thinking ability (Shim and Walczak, 2012), while those that focus on consensus – or where there is a lack of diverse opinions or understandings of group members – can also limit the benefits of collaborative learning for cognitive development (Arvaja and Pöysä-Tarhonen, 2013).

Assessment and Feedback

Studies have also demonstrated strong links between assessment practices and critical thinking. The format of examinations appears to play an important role in cognitive development, with open-ended examinations being widely assumed to be superior to other assessment formats (Cooney et al., 2008; Entwistle and Entwistle, 1999). Much like the literature on active and collaborative learning, however, studies in this domain suggest that simply selecting an appropriate assessment format is not sufficient to ensure the development of critical thinking. The objective of the open-ended question must also push students to form new understanding, i.e. by challenging them to demonstrate their own understanding of content by applying their knowledge to new situations. Furthermore, in line with the principle of providing both challenge and support, the literature suggests that students are more likely to perform well in examinations requiring synthesis and application of new knowledge if they have the opportunity to practice such techniques in class and through other assignments (Golden, 2018). Provision of feedback – both during the term and in relation to examination performance – also appears to play a crucial scaffolding function, as it helps students to understand their current level of ability in relation to the outcomes they aspire to (Frank et al., 2018; Kim, 2015).

Student Attitudes

A complementary body of literature to the work on academic experiences within classrooms examines the impact of student attitudes on learning outcomes, including critical thinking. A particularly dominant theme is the notion of student ‘approaches to learning’, first advanced by Marton in 1976. Marton’s seminal work proposed two qualitatively different approaches to learning: a ‘surface’ approach, in which students are motivated simply by progressing to the next stage and, therefore, apply the minimum amount of effort in order to progress, and a ‘deep’ approach, in which students are motivated by a desire to learn and understand and, therefore, engage meaningfully and appropriately with the task at hand.

Subsequent work in this area has indicated that learning is dependent on what students intend to gain from the learning process (Entwistle, 1997), and, crucially, that approaches to learning are influenced – both positively and negatively – by pedagogical factors (Biggs, 2001; Entwistle, 1997). Furthermore, the extent to which students believe critical thinking is something innate as opposed to something that can be developed may also influence their attitude towards thinking critically (Duro et al., 2013).

Work in this vein is important for two reasons: first, because studies have indicated that the degree of a student’s engagement with his or her university education may be the single most important factor influencing the development of critical thinking ability (Astin, 1984; 1993; Kuh et al., 2005), and second, because studies suggest that the kinds of pedagogical approaches likely to foster critical thinking skills are also likely to lead to deeper levels of student engagement and ‘deeper’ approaches to learning. For example, appropriate levels of challenge and support have been found to have a positive impact on fostering ‘deeper’ approaches to learning (Entwistle, 1997), as does the regular use of active and collaborative learning methods (Kuh et al., 2005) and varied and open-ended assessment questions that require students to apply their understanding of the subject matter to new situations (Entwistle and Entwistle, 1997; Melovitz Vasan et al., 2018).

Faculty Attitudes

With the possible exception of the curriculum (given that, in many contexts, university curricula are developed without much direct faculty input), the academic experiences discussed in the literature require a particular ‘teaching orientation’ (Kember and Gow, 1994) in order to be implemented effectively (namely, a ‘learning facilitation’ orientation, in which lecturers perceive their role as providing the conditions in which students can construct their own learning, rather than a ‘knowledge transmission’ one, in which they construe their role as being fundamentally about ‘transmitting’

knowledge to students). In her study of four ‘extreme case’ institutions in the US, Tsui (2001) identified three faculty attitudes which seemed to have a particularly strong positive effect on critical thinking ability: instructor belief in students’ potential to improve their critical thinking ability; enthusiasm for teaching and willingness to invest extra effort in teaching practices; and a perception of teaching as a process of mutual learning, rather than the transmission of facts. Although Tsui does not use the ‘teaching orientation’ terminology, these findings support the notion that a learning facilitation orientation is necessary to support the development of critical thinking skills, as they imply that critical thinking is only likely to develop in classrooms in which faculty members view their role as being one of creating enabling conditions, rather than one in which expert knowledge must be passed from lecturer to student.

However, such faculty attitudes are affected by disciplinary and personal backgrounds, as well as by faculty beliefs about their role and identity (Tabulawa, 2013; Thonney and Montgomery, 2019). They are, therefore, unlikely to change purely as a result of a proposed reform (as discussed in Schendel, 2016a, in reference to Rwanda and Haynes et al., 2016, in reference to the US). There is, however, evidence that the particular ‘culture’ of a department or institution can have a positive mitigating effect on such influences. Tsui (2000), who explored this question in the US, argued that collegiality and exchange around pedagogical practices, regular pedagogical training, and high levels of general job satisfaction all influenced faculty attitudes towards teaching, regardless of individual background. Schendel’s work in Rwanda (2016b) also identifies collegiality and, specifically, the development of a shared pedagogical philosophy as a critical factor.

Culture and Critical Thinking

Taken as a whole, therefore, the broader literature on critical thinking suggests that particular kinds of academic experiences are more or less likely to positively affect the development of such thinking, depending on student and faculty attitudes. However, the majority of this work has been conducted in ‘Western’ (i.e. American, British and Australasian) contexts. It has included very little discussion on cultural dimensions that may affect the applicability of the findings to other contexts. The one exception to this rule is a small body of literature, which focuses on differences between ‘Western’ and ‘Eastern’ models of cognition, and rests primarily on data from American and European universities in which large numbers of students from East Asia have recently chosen to study. In her analysis of the critical thinking ability of Asian students in the UK, for example, Durkin (2008) observed that Asian students were less likely

to demonstrate criticality in their academic work, not because of a lack of ability but because of an aversion to critique, which they tended to see as a confrontational, and therefore offensive practice. Although this work has not focused on Africa, the central arguments in this debate are instructive, as they highlight the major concerns in assuming similarities in cognitive development across cultures, a theme which has been much discussed within the cross-cultural psychology field for many years (see, for example, Goodnow, 1976, who focused on different cultural interpretations of what constitutes a ‘problem’ and how it should best be solved; and Wober, 1972, who highlighted cultural differences in the definition of what constitutes ‘intelligence’). Research into the cultural dimensions of teaching and learning also sheds light on the ways in which the cultural context can affect assumed links between particular pedagogical approaches and student outcomes. For example, studies have identified cultural differences in students’ willingness to distinguish themselves from others (Philips, 1972) or question authority figures (Harkness and Super, 1982) and have problematised the notion of collaborative learning by highlighting different cultural values around cooperation and competition (Rogoff, 2003; Tabulawa, 2013). There are also more fundamental tensions, such as between more ‘extreme’ interpretations of critical thinking (i.e. those embodied in discussions of critical pedagogy) and the political environments that exist in many parts of Africa, wherein universities tied to the political system may not tolerate much questioning of the status quo (Kapur and Crowley, 2008).

Linguistic ability has also been discussed in relation to the development of critical thinking skills. Low levels of linguistic ability may impact student participation in activities requiring active communication (e.g. classroom discussions or oral presentations), as students tend to withdraw and avoid engaging in dialogue if they are not confident in their communication skills (Shizha, 2012). Kember and Gow (1990) also found that the effort required to learn in a foreign language is likely to encourage surface approaches to learning, although a more recent study of Japanese university students (Manalo and Sheppard, 2016) and the other concerning their second language proficiency. In Study 1 described here, reports written by 110 Japanese second year university students, who had received instruction in academic discourse for critical evaluation (which is one aspect of critical thinking suggests that, when provided with guidance on how to demonstrate critical thinking in their second language, students can demonstrate these skills in both languages.

In the aggregate, the clear implication of this body of literature is that critical thinking might best be ‘taught’ (or encouraged) in different ways, depending on the cultural context. It may, for instance, be unlikely that

classroom discussions or small group projects will have a positive impact on critical thinking if implemented in a cultural context in which consensus is valued over individual expression (a cultural characteristic often ascribed to African cultures, as highlighted by Ngara (2012)) or in an educational context in which students are required to use their second or third language (a typical circumstance in many African university classrooms). The relative lack of engagement with the cultural dimensions of teaching and learning in the international literature is, therefore, problematic in helping to guide pedagogical reform efforts at African universities. For this reason, the recent increase in empirical work examining pedagogy *within African universities* represents an important opportunity to engage with local dimensions, which may be important for African universities to consider when conceptualising such efforts.

Examining Pedagogy for Critical Thinking in Three African University Contexts

In this section, we synthesise the findings of some of this recent work, focusing on literature in formal, public and private universities from Ghana, Kenya, and Botswana. These countries were selected for three key reasons. First, much of the recent literature focuses on them, likely due to recent pedagogical reform efforts implemented in the three contexts; second, the university systems of all three countries have been influenced by similar models of university education – namely the British colonial model and the American model, which have heavily influenced many of the pedagogical reforms attempted across the region – and, as a result, have long used English as their language of instruction; and third, they stem from three main regions of sub-Saharan Africa (West, East and Southern). Although the three countries cannot be seen as ‘representative’ of the region in any practical sense, there is an argument for reviewing their scholarly output as indicative of regional publications on teaching and learning at the university level.

The studies referenced in this section were identified through searches in the core educational literature databases (i.e. ERIC and the British Educational Index), a number of regionally-specific websites (e.g. African Journals Online), relevant organisational websites (e.g. that of the World Bank, the Association of African Universities, the Association of Commonwealth Universities, and the UK Department for International Development), and more targeted searches in specific education journals (e.g. the *International Journal of Educational Development* and *Compare*). All of the studies were published since 2012.

Before beginning the review proper, it is important to acknowledge that this body of literature has two overarching limitations. First, it does not

include studies from Francophone Africa. Second, almost none of the identified studies included any assessment of critical thinking ability. Arthur et al.’s (2013) study of a problem-solving intervention targeting prospective mathematics teachers in Ghana did include pre- and post-tests of critical thinking. However, the majority of the studies reviewed for this article discuss student learning in a more qualitative way, by relying on lecturer and student perceptions of critical thinking development at university. Despite this limitation, the literature offers useful insights into the themes that currently dominate the literature on teaching and learning within African university contexts.

Synergies with the Broader Literature *Active and Collaborative Learning*

The identified literature demonstrates that active and collaborative teaching methods are being implemented within all three country contexts, including class discussions (Iloanya, 2017; Kilonzo, Sandfort, and Liu, 2016), projects (Ketilhoilwe and Silo, 2016), presentations (Amoako-Sakyi and Amonoo-Kuofi, 2015; Moalosi et al., 2012), and tutorials (Amoako-Sakyi and Amonoo-Kuofi, 2015). A number of studies explicitly discuss student engagement with or interest in project-, problem- and community-based learning (Amoako-Sakyi and Amonoo-Kuofi, 2015; Ketilhoilwe, 2016; Kiptoo et al., 2015; Moalosi et al., 2012; Munezero and Bekuta, 2016; Tagoe, 2014). In others, adherence to more ‘active’ teaching methods was implicit, as students were described as being engaged in ‘real-world’ tasks (e.g. Moalosi et al. (2012), which describes students working in teams to create a product design for an entrepreneur and then testing the design on users and retailers, and Ketilhoilwe and Silo (2016), in which students worked in groups to identify methods for safely disposing of oil and then worked with a non-governmental organisation to realise their plan). In addition to using ‘active’ methods, both examples also incorporated a collaborative element.

Furthermore, a number of studies indicate that there is some lecturer support for moving away from more traditional forms of pedagogy. In Assuah and Ayebo’s (2015) study of undergraduate mathematics in Ghanaian universities, for example, lecturers used and recommended group work as a means to increase understanding. They also indicated it was a comfortable way for students to express themselves, although they cautioned that some stronger students may dominate. Other examples include a Communication Skills course in Ghana that implemented a blended learning approach, in which face-to-face sessions were no longer used for lecturing but as an avenue to promote dialogue, both between the lecturer and the students and among the students (Gyamfi and Gyaase, 2015), and

an education department initiative in Botswana that used blogs and wikis to communicate with both lecturers and their peers (Iloanya, 2017).⁴

Assessment and Feedback

Studies from the three country contexts also engage with international understandings of how assessment format relates to student learning. Arthur et al.'s (2013) study of a problem-solving intervention in a mathematics teacher education programme in Ghana concludes that assessments in mathematics predominantly test 'lower-order' thinking skills (Bloom, 1956), making students dependent on applying a rule rather than thinking critically. This conclusion is supported by the findings of Amoako-Sakyi and Amonoo-Kuofi's (2015) study of a medical school in Ghana, where they found that a mismatch between learning and assessment was undermining an attempt to implement problem-based learning (i.e. while the programme was designed to focus on problem-solving, some assessments only required recall). Importantly, Amoako-Sakyi and Amonoo-Kuofi conclude that such alignment problems are likely to discourage and demotivate students – a finding that complements other work investigating the relationship between pedagogy and student motivation. Such alignment issues may be widespread, as other studies noted the same theme (e.g. Nartey and Dorgbetor, 2014).

The importance of feedback is mentioned by a number of studies. Kiptoo et al.'s (2015) survey of pedagogical methods in Kenya revealed that 70.7% of learners were opposed to the use of lecturing, explicitly because it offers no feedback mechanism through which instructors can gauge learning. Formative feedback was evident in Moalosi et al.'s (2012) study of graduate attributes in the Faculty of Design at the University of Botswana. Students presented a product design, were provided feedback by users and the entrepreneur who 'commissioned' them, improved their design, and completed a final presentation to the entrepreneur. These studies explicitly consider the link between particular teaching styles (i.e. more interactive activities and approaches) and the provision of formative feedback to help with learning. In addition to more traditional formative feedback (i.e. that provided by the lecturer), a number of studies discussed other methods of feedback, including self- and peer assessment (e.g. Gyamfi and Gyaase, 2015; Hepworth and Duvigneau, 2012; Kiptoo et al., 2015; Machera, 2017), which have been used to facilitate learning in various university contexts.

4. It is important to acknowledge that there are studies which focus exclusively on the use of ICT as a way of developing critical thinking skills (see Kiptoo et al., 2015; Moakofhi et al., 2017; NaliakaMukhale and Hong, 2017). However, these have not been explicitly highlighted in the review, as ICT is a tool, not a pedagogy in itself. ICT can also be used to support passive forms of learning that are highly unlikely to support critical thinking. We have therefore opted to focus our review on the specific approaches that are highlighted in the current literature, rather than the tools used to implement those approaches.

Student Attitudes and Motivations

Another synergy with the broader literature is a focus on student attitudes and motivations as a crucial factor in the learning process. Some of the papers from the three contexts discuss student attitudes as a static enabler of (or barrier to) student learning. In Rivers' (2013) study of higher education reform in Ghana, for example, student attitudes about employment (i.e. that it is the state's responsibility to provide jobs, rather than the student's responsibility to obtain the necessary skills for employment) are highlighted as a significant barrier to the independent learning required for the development of critical thinking skills. Arthur et al.'s (2013) study of a problem-solving intervention targeting prospective mathematics teachers in Ghana also focuses on attitudes as a barrier, by highlighting students' lack of enthusiasm about independent learning and observing that, as a result, students tended to push course tutors into more of a 'transmitter' than a 'facilitator' role. Such attitudes are cited as one of the reasons that the study found little to no improvement in students' cognitive skills following the intervention.

Other studies focus on the ways in which practices within a university might explicitly affect student motivations and attitudes towards critical thinking. The lecturers in Assuah and Ayebo's (2015) and Omingo's (2016) studies in Ghana and Kenya, respectively, indicated that students were more motivated when they could see connections between their learning and their future careers. Connections to activities with meaningful outcomes also seemed to improve student attitudes. For example, in a study of Design students in Botswana, Moalosi et al. (2012) found that students' enthusiasm and participation improved as a result of problem-based learning, as they could see the practical manifestation and consolidation of their knowledge and skills in a real project. Participants in Hepworth and Duvigneau's (2012) and Omingo's (2016) studies also suggested that a wider choice of topics could help motivate students to engage in independent work and enable them to make meaningful connections to their future, while lecturers in a number of other studies (e.g. NaliakaMukhale and Hong, 2017; Moakofhi et al., 2017; Kiptoo et al., 2015) indicated that students may be more motivated to learn with increased use of technology.

A final group of studies focuses on the ways in which the university environment may have a negative impact on student attitudes. NaliakaMukhal's (2017) study of lecturers in Kenya pointed to inadequate instructional facilities and limited individualised attention due to large class sizes as possible factors explaining the lack of motivation that they identified in the student body. Boikhutso et al.'s (2013) study of undergraduate students in Botswana focuses on incongruent expectations of supervision between lecturers and students as a source of low student motivation. Students expressed a need

for more support, while some lecturers felt students needed to be more independent and others suggested they lacked the training to provide proper supervision. This discrepancy suggests that student motivation decreases without an appropriate level of challenge, as indicated earlier.

Faculty Attitudes

Although very few of the identified studies explicitly engage with the notion of ‘teaching orientations’, many do so indirectly by highlighting the myriad ways in which faculty members have resisted or supported the introduction of pedagogical reforms. This literature can be broadly classified into three main strands: 1) Studies focused on the ways in which faculty members have misunderstood the intentions behind a particular pedagogical reform; 2) Studies focused on barriers to the implementation of pedagogical reforms, both infrastructural and motivational; and 3) Studies focused on successful pedagogical reforms.

Faculty Understanding of Pedagogical Reforms

One of the most important assumptions underpinning all of the ‘international’ literature on teaching for critical thinking is that faculty members know what critical thinking is and are able to model it for their students. However, the literature from Kenya, Ghana, and Botswana suggests that this assumption may not always hold in these contexts. Boso and Gross (2015), for example, suggest that shortages of qualified staff in Ghana may undermine the capacity to provide models of critical thinking, given that lecturers at some institutions may have the same level of education as their students. In their study of information literacy in Botswana, Hepworth and Duvigneau (2012) identify a slightly different phenomenon, in which lecturers can demonstrate critical thinking skills but ‘lack a consciousness’ (p. 6) of their own abilities, which makes it difficult for them to convey what they know to students and thereby impart these skills. Similarly, in Akyeampong’s (2017) study of teacher education programmes in Ghana, teacher practicums were meant to introduce innovative, learner-centred pedagogy but teacher educators stressed the importance of ‘mistake-free’ lessons (p. 200) and prescriptive teaching, with little room for change or reflection. Such a disconnect may arise because teacher educators understood ‘innovative teaching methods’ as teacher-centred rather than student-centred.

Faculty participants in a number of studies (Boikhutso et al., 2013; Hepworth and Duvigneau, 2012; Iloanya, 2017; Kimani, 2015; Mays, 2017) explicitly stated that they needed professional development to help them adapt their teaching to become more learner-centred. For example, academic staff in Gabatshwane and Bose’s (2013) study of Education for

Sustainable Development initiatives in Botswana supported a problem-solving approach that drew on critical thinking skills to make informed decisions, but expressed that they did not feel that they could adequately instil these skills. Problem-based learning requires faculty to develop scenarios that are commensurate with the level of the students and relevant to their future professions. However, many of the faculty in Amoako-Sakyi and Amonoo-Kuofi’s (2015) study of a medical school in Ghana had not received any training on how to do so, nor were they provided with sufficient culturally appropriate materials.

Barriers to Successful Implementation

Even where there is faculty support for critical thinking practices, the literature indicates that structural barriers may prevent them from implementing these practices. Other studies suggested that not all faculty supported critical thinking initiatives and that a lack of motivation may be a barrier.

In terms of structural barriers, inadequate resources and infrastructure were commonly cited as obstacles to active and collaborative learning (Kimani, 2015; Mays, 2017; Moakofhi et al., 2017; NaliakaMukhale and Hong, 2017; Obwogi, 2013; Rivers 2013). Large class sizes were highlighted as an impediment to teaching and to the provision of individualised feedback (Arthur et al., 2013; Mays, 2017; NaliakaMukhale and Hong, 2017; Obwogi, 2013; Omingo, 2016). One participant described the large, overcrowded classes as having students who “just sit and look at you” (NaliakaMukhale and Hong, 2017, p. 154).

Organisational issues were also cited as challenging lecturers’ ability to promote a learner-centred classroom. In Omingo’s (2016) study, for instance, lecturers at a private university in Kenya were aware of variables that may need to be considered in order to improve instruction, such as learning about students’ backgrounds in order to individualise instruction, but had difficulties gathering this information and acting on it. Similarly, limited academic freedom to teach and examine students (Kimani, 2015) was cited as a challenge. Time and a pre-existing heavy workload (Adu and Okeke, 2014; Moakofhi et al., 2017) were also important themes. Lecturers in Boikhutso et al.’s (2013) study in Botswana indicated conflicting aims, in that lecturers wanted more training in pedagogy but were also frustrated by their lack of time. While education lecturers in Ghana were provided with training, Arthur et al. (2013) found that modules were not designed to promote the use of a problem-solving approach and course tutors were not given any time to re-work the existing material. Course facilitators in this study also mentioned being unable to ‘finish’ a unit when implementing a problem-solving approach, implying that teaching staff are still being

evaluated on the amount of content they are able to ‘deliver’, rather than their students’ depth of understanding.

Faculty motivation to change their practice is another significant barrier mentioned in a number of studies. Owusu et al.’s (2014) survey found that the majority of lecturers at Cape Coast School of Business in Ghana disagreed with a proposal to infuse more cooperative learning activities, despite enthusiasm among students. Amoako-Sakyi and Amonoo-Kuofi’s (2015) study of problem-based learning in a medical school in Ghana showed similar unease around transforming traditional roles, with academics viewing a movement towards knowledge facilitation as a demotion. The lecturers expressed their frustration with and opposition to problem-based learning through apathy, absenteeism from tutorials, and the provision of additional lectures slots (as opposed to providing support for self-directed learning). Kimani (2015) and Omingo (2016) discuss a similar dynamic in the Kenyan context, with students in Kimani’s study noting that “before they [the faculty] speak, they let you know that they have four or five degrees” (p. 115). Omingo’s study (2016) also identifies lecturers’ intensive preparation to ensure they were ready for unexpected or challenging questions in class as evidence that faculty often feel the need to demonstrate expertise. Although these latter studies do not directly engage with the concept of a ‘teaching orientation’, the social distance implied is directly relevant, as faculty who view themselves as superior to students are more likely to see themselves as experts with knowledge to transmit, rather than as facilitators of mutual learning.

Successful Reforms

Despite the large body of evidence highlighting the various barriers to changing pedagogy, a small number of studies offers a more positive outlook, by focusing on factors that could increase the likelihood of successful change. Some of these focus on bolstering lecturers’ intrinsic motivations. Omingo (2016), for example, finds that emotions like curiosity, fascination, joy, and disappointment can motivate lecturers to improve their teaching to meet the needs of students with different educational and cultural backgrounds. Kebaetse et al.’s (2014) study on integrating eLearning to support medical education at the University of Botswana highlights the implementation of eLearning across clinical sites as a contributing factor, as collaborative work across sites was seen to reduce feelings of isolation and psychological distance amongst faculty and students. Also in Botswana, Hepworth and Duvigneau (2012) promote a ‘self-interest’ approach to motivating lecturers to use critical thinking pedagogies, proposing that motivating academics will motivate students in what they term ‘the virtuous circle’ (p. 32); that is, helping lecturers to gain research inquiry skills that will assist them in their

own work can also motivate them to share these skills with students. Adu and Okeke’s (2014) and Chikari et al.’s (2015) studies in Botswana similarly found that academics were more likely to support and participate in professional development if it was seen to be relevant to their self-identified needs and development plans.

Other studies examine how lecturers’ motivation to teach may be increased through extrinsic factors, such as the provision of incentives that reward excellence in teaching. Obwogi (2013) and Cobblah (2016) advocate for initiatives such as merit-based promotions to increase motivation for professional development amongst staff, especially when positions outside of academia are more lucrative. Karimi (2014) recommends that teaching staff should be sensitised to the need for enhanced teaching competencies through mandatory training and recruitment policies to change their attitudes and meet the current needs of higher education. Although many studies simply mention incentives as a possible motivating (or demotivating factor), a few demonstrate evidence of the effectiveness of particular approaches. Karimi’s (2014) study in public universities in Kenya found that lecturers who had been exposed to quality assurance requirements linked to excellence in teaching showed a higher appreciation of teaching competencies than other lecturers, suggesting that accountability mechanisms may affect lecturers’ motives to teach well. Although small in number, these accounts problematise the notion that all faculty on the continent are resistant to pedagogies that challenge their authority.

Gaps and Tensions

Other themes in the ‘international’ literature do not appear in the reviewed literature. The most obvious omission is any discussion of how the structure of the undergraduate curriculum may influence students’ critical thinking skills. This may be due to the particular nature of the curriculum review process in the three countries (which can limit the agency of individual departments to fundamentally alter their curriculum structure or content), but it may also reflect a general belief that the structure of the curriculum has little to do with the cultivation of critical thinking skills. Another possible explanation for this gap may be that critical thinking may be perceived as a threat to the status quo, as understood in critical theory. Governments may therefore be hesitant to include critical thinking as an explicit aim in curricula.

The other obvious gap is the lack of engagement with the underlying theoretical rationales for the methods and forms of pedagogy discussed in the literature. There is almost no discussion of the psychological principles that explain why it helps to challenge students while simultaneously offering sufficient support. Furthermore, limited connections are made

between assumed examples of ‘good’ practice (e.g. students being engaged with their studies or lecturers incorporating ‘real world’ examples in their teaching) and the theoretical understandings which underpin them (e.g. the notion that students might have different ‘approaches’ to learning or that faculty members may hold different ‘teaching orientations’). This absence in the reviewed literature is of fundamental importance, as it is necessary to name the theories upon which pedagogical reforms are founded in order to consider the cultural specificity of those underlying ideas. When there is limited engagement with the underlying rationales for particular approaches to pedagogy, the discussion becomes a purely technical one, rather than a more nuanced discussion of how teaching may best support student development in diverse cultural contexts.

Conclusion

Taken as a whole, two broad conclusions can be drawn from the literature identified and reviewed in this article:

- 1) The contemporary literature on critical thinking in African university contexts reflects many of the themes that are dominant in the broader ‘international’ literature and offers some evidence that these themes are, indeed, relevant to discussions of teaching and learning in African university contexts. This is an important contribution to the global literature on teaching and learning in university contexts, as it suggests that there may be some common issues that consistently affect efforts to change pedagogy within institutions around the world.
- 2) However, the analysis also highlights a crucial theoretical gap in the existing literature. The empirical work on critical thinking in African university contexts reviewed for this article includes very few references to the theoretical constructs that underpin the main themes that are investigated. At the same time, although these underlying theoretical understandings are not specifically named, the manner in which the key themes are discussed implies that the studies do, in fact, implicitly rest on theoretical notions of teaching and learning that were initially developed based on studies of Western university contexts. There is, therefore, an implicit assumption underpinning this body of literature that understandings of how students learn best at the university level – and, indeed, how faculty might best support that process – are universally applicable in all university settings, despite the fact that we know that both learning and teaching are cultural processes that operate very differently in different contexts.

In summary, the recent wave of literature considering questions of pedagogy within African university contexts is potentially useful for those seeking pedagogical reform, as it offers some insights into locally-specific

barriers to and enablers of the implementation of particular norms and ideas. However, the usefulness of this literature is potentially limited by a lack of locally-specific evaluation of how teaching and learning processes might best support student development on the continent. The region would clearly benefit from research that questions some of these fundamental assumptions. So too, would the international body of literature on this topic, as our field as a whole suffers when particular ideas, developed in specific cultural contexts, are assumed to be universally relevant and applicable.

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