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Critical Thinking among Post-Graduate Diploma in Education Students in Higher Education: Reality or Fuss?

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Abstract

Critical thinking is recognised as an influential attribute to achieve quality learning and teaching in higher education institutions world over. This interpretive research study explored the critical thinking among PGDE students at the University of Botswana. The aim of the study was to identify factors contributing to the application of critical thinking among teacher trainees. Data was collected from Cohort 2015/16 PGDE students, through one on one interview with 59 students and 2 focus group discussions comprising five students in each focus group between April to June 2016. The findings revealed that the teacher trainees had a lower description of critical thinking during interviews, but refined during focus group discussions; however, the students were wide aware of factors influencing their inabilities to think critically during their training. These finding clearly indicated that most students were not applying critical thinking during their training. Through the interviews and focus group discussion, the study also identified strategies to promote the application of critical thinking in areas of programme content, teaching and assessment methods and techniques, programme logistics and personal attributes. The findings are instrumental to various key stakeholders. Specifically, the findings inform education institutions, teacher educators and students on how to promote critical thinking during teacher training. The study was qualitative, as such the findings will not be generalised. As such a similar study is recommended among the PGDE and other students but using quantitative and or mixed methods to allow inferences and generalisations.

Keywords: critical thinking, factors, strategies, PGDE, University of Botswana

1. Introduction

Critical thinking is recognised as an influential attribute to achieve quality learning and teaching in higher education institutions world over. Out of necessity, regional and global stakeholders wait eagerly for university graduates who are well trained and competent for the job. In other words, the employers expect students to be equipped with skills that lend them competent to perform in the job by the time they leave the university gates. On the contrary, this is not always the case; some students still leave the university with limited skills to make them marketable in the global community. One such wanted attribute among university graduates is critically thinking (Bagheri & Nowrozi, 2015; Mkandawire & Walubita, 2015). There seems an overwhelming lack of critical thinking among students during their training which eventually does not only affect them but also impacts on the society as a whole.

While the concept of critical thinking seems to stand alone, literature argues that it may be related with other concepts. For instance according to Lai (2011), critical thinking is connected to commonly identified twenty-first century skills that include metacgnition, motiviation, and creativity. These connections raise a concern which educators and any other key stakeholders may have to consider when raising children as well as during their teaching and learning at any level.

2. Related Work

Critical thinking is perceived as vital, essential and needed at the workplace. Similarly, it is a needed skill for students as it can assist them to be in contact with their cognitive abilities and spiritual questions, and it can be used to evaluate people, policies, and institutions, thereby avoiding social problems (Hatcher & Spencer as cited in Duron, Limbach, & Waugh, 2006). As it is the case, a great deal of research related to critical thinking has been conducted in different countries (Duro, Elander, Maratos, Stupple, & Aubeeluck, 2013; Ennis, 1991; Facione & Facione, 1992; Mkandawire & Walubita, 2015; Rodzalan & Saat, 2015; Zhang & Sternberg, 2001). These studies noted that a critical thinking skill is inadequate among students. Contrary to these views, the study conducted in six Malaysian public universities revealed that students perceived to have had high critical thinking and problem solving skills. The study further indicated that male students perceived to have had better critical thinking skills than female students (Rodzalan & Saat, 2015). Despite these contrary opinions, critical thinking has received scholastic recognition, and it is an issue of great concern for educators (McBride, Xiang, & Wittenburg, 2002).

According to Underbakke, Borg and Peterson (1993, p. 138) "the public is becoming increasingly aware of the need for students to develop the higher order thinking abilities needed to cope with the exigencies of living in modern society". For instance, business leaders are looking for graduates who are innovative and are effective thinkers (Puteh & Hamid, 2014; Quitadamo & Kurtz, 2007). As a result, higher education institutions have a pertinent challenge to produce graduates who are well trained and who will be able to think critically, communicate effectively and even portray lifelong learning skills (Association of American Colleges Universities (AACU), 2005; Bagheri & Nowrozi, 2015). Facione and Facione (2013) found that inability to apply critical thinking skills can lead to poor communication and decision making as well as failure to learn.

Scholars have different views of what critical thinking is due to its abstract features. Therefore a universal definition of critical thinking has not been established (Banning, 2006; Brookfield, 1987; Lai, 2011; Thurmond, 2001; Yeh, 2002). However, Watson and Glaser (1980) described critical thinking as attitude, knowledge, and skills necessary to engage in rational reasoning. According to Ennis (1996) "critical thinking is reasonable reflective thinking focused on deciding what to believe or do. The emphasis is on reasonableness, reflection, and the process of making decisions" (p. 166). In Physical Education, McBride (1992) defined critical thinking "as reflective teaching that is used to make reasonable and defensible decisions about movement" (p. 115). From these definitions one can conclude that making informed decisions is very essential in critical thinking. These descriptions still and further note that until now there is lack of notable consensus regarding the definition of critical thinking.

There are a myriad and universal challenges influencing critical thinking among university and college students. For example, Ulosoy and Ozturk (2009) established a positive correlation between critical thinking and GPA. Brunt (2005) found that there is a relationship between application of critical thinking skills and academic success. Again, Jansen and Suhre (2015) found that students motivation, amount of teacher support in creative and critical thinking, and students' personal inclination to what they are learning provides a crucial role in develping critical thinking among college students.

Recommendations on promotion of critical thinking skills in different subjects have been made. Just like other concepts, critical thinking has many aspects needing numerous teaching methodologies to improve its application among students. In their study conducted in Canada Case and Wright (1997) noted that integrating of critical thinking skills in Social Studies lessons was insufficient. Therefore Case and his colleague introduced a model that used varied pedagogical skills such as background knowledge; habits of the mind and thinking strategies to assist students improve their critical thinking skills. Apart from these suggestions, problem solving has been recognised by many authors as another way of improving critical thinking skills among students (Heppner & Petersen, 1982) such as learner centred methods favoured over teacher centred methods are believed to encourage student's discovery and reflection (Quitadamo & Kurtz, 2007). Dando (2016) has noted that specifically, in teacher training institutions promotion of interactive experiences and focus on student's thinking through learner centred methods should be emphasised.

An interesting revelation by Yeh (2002) was that more emphasis in education should be to expose students to real life situations that can enable them to approach problems, take part in discussions as well as come up with solutions to the problems. No wonder Underbakke et al. (1993) stressed the need to impart educators with the knowledge of teaching critical thinking skills as a priority in education. This revelation is valid because indeed teachers need to have the ability to competently incorporate the critical thinking skills in their lessons. Thus critical thinking has been recognised as one of the most vital indicators of student learning quality. In 2005,

AACU reported that 93% of higher education faculty perceived analytical and critical thinking to be an indispensable learning result (AACU, 2005).

This study therefore strived to establish the factors that hinder the application of critical thinking skills among PGDE students at the University of Botswana. In addition, it aimed at identifying strategies to promote critical thinking skills which are very significant in teacher training. This notion was emphasised by Carnegie Council on Adolescent Development (1989) which stated that "young adolescents cannot engage in critical and higher order thinking" (p. 42).

3. Statement of the Problem

There is a regional and global need for university graduates with necessary abilities to perform on the job. While the ability for humans to think is natural, if thinking is not activated among individuals it can be vulnerable to distortion, lack of information, partial, being biased. Again thinking can gain potential if encouraged, in which individuals can excel in thinking thereby higher mental functions emerge. Thus critical thinking as a thought process should be nurtured (Huber & Kuncel, 2016. p. 431). On the other hand, educators, policy makers and employers have developed a significant goal incorporating critical thinking in teaching as a life skill to the future of the work place. Despite all these initiatives, graduates still seem to leave the university with limited and appropriate skills to make them worthy in the job market. Therefore, this study was carried out to discover the factors that hinder the application of critical thinking skills among PGDE students at the University of Botswana as well as how the skills can be promoted. Despite available research about critical thinking in different countries, no research has been conducted on the factors that hinder the application of critical thinking among PGDE students during their training at the University of Botswana. The purpose of this study was to describe the PGDEs' understanding of critical thinking, identify factors that hinder application of critical thinking during teaching and learning, and establish strategies that can be used to inculcate critical thinking among PGDE students at University of Botswana. To address this purpose, the study attempted to answer the following specific questions:

1) What is your understanding of the term critical thinking?

2) What factors hinder application of critical thinking amongst the PGDE students?

3) How can critical thinking be enhanced among the PGDE students?

4. Methodology

Since the study was based on individual experience, it adopted the qualitative approach. According to Cohen, Manion and Morrison (2011), this paradigm is characterized by concern for an individual. As opposed to other paradigms, the interpretive paradigm focuses on action or behaviour: intentional behaviour-with-meaning (Cohen, Manion, & Keith, 2011) by University of Botswana PGDE students. To be in line with the research problem the study used a qualitative approach.

The population of the study was PGDE students who were then undergoing campus modules and later going for teaching practice. The population was selected because of its proximity to the researchers as the study was conducted during term time and teaching practice in the field. In addition, the researchers assumed that, the students had acquired a first degree and now pursuing a higher degree as such, they could be aware of the critical thinking concept. The population of PGDE Cohort 2015/2016 was 298. Purposive sampling was utilised to identify participants. Both the cohort and participants were purposefully selected with assumptions that, they could best understand the research problem and questions (Creswell, 2014).

Since the data generation took a qualitative approach, one-on-one interviews were conducted among 49 students. Although, the sample size was 59 participants, 49 interviews (34 female and 25 male participants) and 2 focus groups of 5 participants (2 male and 3 female in each group) were conducted to reach the saturation level of responses.

The participant's ages ranged from 23 and 44 years old. For female participants, the age range was between 23 and 33 years while for male participants it was between 26 and 30 years. Each focus group had five members but females were the majority in all the groups. These participants obtained their undergraduate degrees at University of Botswana and Limkokwing University. They held Bachelor of Arts, Bachelor of Science, Bachelor of Accountancy, and Bachelor of Information Systems. These degrees were from disciplines like Humanities, Information Technology, International Business and Entrepreneurship. Some participants had work experience: teaching assistants (8), accounts clerk (1), research assistants (2), and the rest (38) were admitted immediately after they obtained their undergraduate degree.

Participating students were recruited during their PGDE lessons and those interested were asked to register their names and contact numbers so that they could be contacted to arrange for individual interviews and focus group discussions. The participants were allowed to choose the convenient time for the interviews. The interviews were conducted in the lecturers' offices and graduate village residences. Participants were asked to react to three open ended questions.

In the first place the participants were briefed about the purpose and were requested to voluntarily make a decision to participate. Forty nine students completed individual 7-50 minutes in-depth interviews. Similar to one-on-one interviews, the two focus group discussions conducted had a majority of female participants. Focus group discussions and in-depth interviews enabled participants to contribute their views on the factors that hinder application of critical thinking skills. The participants were given the opportunity to choose the convenient time for the focus group discussions since it was time for examinations followed by Teaching Practice (TP). However, the focus group discussions took place in two schools in Francistown where some students were doing TP.

A structured interview guide was used for the interviews and focus group discussions which lasted between 7-50 minutes. However, to ensure that the questions provided the intended responses, the guide was validated through piloting and editing by the researchers. In addition, the data was audio recorded and transcribed verbatim, then code-recoded among the researchers to identify similarities. It was noted that the codes were similar with minor differences especially in terms of language.

Thematic data analysis was utilised in order to identify the conceptual understanding, factors hindering application of critical thinking and strategies for inculcating critical thinking among the students. Three researchers transcribed the data and compared notes. Each researcher identified the codes on their own. Thereafter, codes were compared, and apart from differences in language, the issues picked by each researcher were identical (.9). The codes were grouped into themes and sub-themes. During data collection the following procedure was followed, interviews and focus groups discussions were tape-recorded, transcribed verbatim, coded and analysed (Streubert & Carpenter, 1995). The texts were read repeatedly to identify themes. Identified themes were grouped into related categories and ultimately main categories were discovered.

The study complied with ethical principles to protect the participants. Each participant signed a consent form to show that they agreed with purpose and the study. In addition, before each interview, the researchers took time to brief the participants on the purpose and research questions. The participants were also assured that their participation in the study would not in any way affect their academic work. Furthermore, the participants were informed of their voluntary participation and withdraw anytime. Finally, the participants were informed of their anonymity and confidentiality. They were also encouraged to read any reports that would finally come out the study. To comply with the system, prior to conducting the study, a permit was solicited from the University of Botswana Research and Development (ORD) office.

5. Results

The research findings are presented and guided by the research questions.

5.1 What Is Your Understanding of the Term Critical Thinking?

This question attempted to examine the PGDE students' understanding of the term critical thinking. The study found that, most of the participants had varied but fair understanding of the term critical thinking. Though, different in language, it was evident during interviews as each participant was able to provide an explanation in some instances with examples of their understanding. Putting the responses together was challenging, however, their responses lied within the following fundamental phrases: Critical thinking is about application of well thought decisions, providing justifiable reasons, thinking beyond the box, analysing a situation based on information, adopting perspective or your ground with reasons, assessing/evaluating/analysing information before accepting as fact and intellectual process of analysing information and attaching value. This understanding was evident from the participants' responses ***Excerpt 1 (IVM)***

"Hmm (clear throat) Okay …aaa… my understanding of critical thinking…aaa… is that… it's a way or let me say …aaa… it's a skill of knowing how to apply yourself …apply your knowledge… it's mainly about the cognitive or intellectual processes of an individual…"

Similar to these views, another participant had this to say: ***Excerpt 2 (IVF)***

"Uhm … I would say my understanding is that … critical thinking is about passing judgment … you pass your judgment in order to criticize it … trying to criticize the statement instead of just accepting."

Another participant observed as follows: ***Excerpt 3 (IVM)***

Is when you are able to analyse a topic in details providing views and other people's views … thinking outside the box discussing the issue in-depth putting the advantages and disadvantages and critics.

In another interview, one student asked to reschedule the interview for the next day because she was tired and her mind was not ready to respond even to the first question. She actually said that she did not have a clear understanding of the term critical thinking and as such required extra time to reflect on the questions ***Excerpt 4 (IVF)*** "Uhm… (Silence) …aaa… where can I start …waaw… do you mind if I can do come tomorrow, because my mind is not here … I can I do it between 9.30 and 10.30 … hahaha. Am from Orapa and have traveled 600km.

Comparatively, during focus group discussion, the responses were clearer. The final definition of critical thinking was well articulated. The reason could be that the discussion refined their understanding of the term critical thinking. For instance during the discussions said that ***Excerpt 5 (FG1M)*** "is thinking outside the box being able to view different situations from your own perspective and perspective that is provided by the world". While in the other discussions the students came up with this as their definition ***Excerpt 5 (FG2F)*** "Critical thinking involves a deeper analysis of an issue of concern which includes abstract reasoning and problem solving as well as research".

5.2 What Factors Hinder Application of Critical Thinking amongst the PGDE Students?

This question attempted to identify factors contributing to the lack of critical thinking among the students undergoing the PGDE programme. Interaction with the participants provided a wide spectrum of factors which they felt hindered the application of critical thinking during teaching and learning. What was amazing was that most of the participants knew and communicated factors that hinder their critical thinking as UB students. They mentioned barriers like passing time, motivation, negative attitudes, large classes, group work, and lack of understanding of what is required in the PGDE programme, work load, unsupervised online tests and others. With regard to these responses, four themes and sub-themes emerged from the data as indicated below.

5.2.1 Personal Factors

Participants were of the view that application of critical thinking among PGDE students had a bearing on personality. Specifically, the participants observed that students were not committed and therefore not serious about their studies. They attributed this personal weakness to lack of critical thinking skills, lack of interest and internal drive to be serious with their studies.

(1) Passing Time

Results indicated that the most common and major factor that hinder the application of critical thinking was to pass time. This aspect was reported strongly in all the two focus group discussions as well as during the one-on-one interviews. The participating students associated the passing out of time with acquiring certificates and receiving allowances while waiting for a job or training. In one focus group discussion, the participants had this to say: ***Excerpt 6 (FG1F)***

"We are not interested in teaching but we did it as a second thought to pass time while we are still looking for a job that is the main problem… We just do it to pass time and at the same time get an allowance. If it happens that I find a job I will just leave. For example, 'I just came to pass time as I was still looking for a job; my four year contract had come to an end so I didn't have anything to do, so I just thought of PGDE ..."

The lack of motivation was endorsed in all the focus group discussions and mentioned during individual interviews as another crucial factor hindering the application of critical thinking skills. While many participants talked about intrinsic motivation, one expressed concern about lack of motivation by parents as well as other lecturers. Another participant felt that, this really contributed to their personal learning behaviour. In the interviews, one participant had this to say: ***Excerpt 7 (IVM)***

"Let me say …motivation… at first… most people do not have that motivation to go to a deeper level of understanding or using their minds… his mind to a point his or her mind to a point where… critical thinking will be taking place…"

On motivation, another participant lamented the way he was demotivated. ***Excerpt 8 (IVM)***

"There is no motivation to for you to think beyond … outside the box … so if you are given a problem … you are not… there is no motivation in you to come up with something new… because …aaa… what you know is that you are … you have to solve the problem just to attain the three credits or two … there is nothing else somewhere…"

During the focus group discussions, the participants felt the need for parents' involvement to motivate them. A participant explained like this: ***Excerpt 9 (FG2F)***

"Parents play a role. There is nothing that the lecturers can do; students should be motivated from home … for example, …when I was doing my undergraduate my parents were anxious to know how I am performing but right now they are just relaxed they do not have any interest, last semester I am the one who just told them about my performance … but throughout my Degree programme they were fully involved even during my examinations".

On contrary one participant explained that she stopped her parent's involvement in her decision making. ***Excerpt 10 (IVF)*** "I feel that am independent, responsible and mature to know what to do. So I told my parents not to interfere with my studies and I requested them to stop being inquisitive about her performance".

(2) Negative attitude towards the programme

Again, most of the students had a negative attitude towards the PGDE programme which they repeatedly said was caused by lack of employment even after attaining qualification. They cited examples of previous PGDE graduates who were not employed until now. So their feeling was why they should bother themselves when its known that even when they complete their studies, Government would not employ them immediately just like the previous cohorts. ***Excerpt 11 (IVM)***

"Most people don't know where they are going really… because of the system that is out there … the education system in Botswana, the political stand on tackling may be issues of unemployment and what … So there is just little motivation and people are just move along…"

Still on personal, but academic, the participants noted the lack of individual reading habits and research skills and knowledge to thoroughly use the facilities the University of Botswana was providing for all students. ***Excerpt 12(IVM)***

"…we are not readers… we don't read much as students. Eee … because for you to have critical thoughts you must read … you have got to have more information so that you make good decisions… I think its nowadays because of unemployment most of students mostly the PGDE are just doing it just to come out with a qualification…"

On the same, one other participant felt strongly that the PGDE was not as good a qualification compared with their first degree. She said ***Excerpt 13 (IVF)*** "…you feel that you have achieved your first Degree so PGDE is irrelevant…." Some participants associated the lack of motivation with the lecturers. In elaborating about this issue, one participant indicated that lecturers also had a role to play and noted that: ***Excerpt 14 (IVF)***

"The lecturers need to be motivated as well so that we can also be motivated, if a lecturer is not motivated it kills the momentum of the students hence we will just come to class just to get the notes so that we can pass".

5.2.2 Teaching Methods and Delivery Techniques

(1) Lecture method

The major factor that impeded application of critical thinking among the PGDE students was the teaching methods used during lectures. This aspect was endorsed by majority of individuals and agreed by all participants during the focus group discussions. Among the teaching methods, they cited lecture as major contributor to their lack of critical thinking skills. One participant had this say: ***Excerpt 15 (IVM)***

"…the methods of instruction that are employed in teaching … The lecture method particularly doesn't allow students to think outside the box…, … even the group works sometimes learners will be dependent overly on some other learners … so they will be accomplishing their tasks through other people…"

Further, the participants lamented at the way, lecturers managed their delivery of lessons. Due to large classes, the students noticed that, their lecturers dominantly used the lecture method for their lesson. To make it worse, the lecturers seemed not well organised. The participants complained in the way the teaching/learning activities were being managed as well and commented: ***Excerpt 16 (IVF*)** "We are given too much theory and no practical's and when we are outside we are unable to deliver effectively". Similarly another student had this to say: ***Excerpt 17 (IVF*)** "I think we are just taught to pass and get our certificates and go even if you can ask whether I know what I was taught I do not remember a single thing … there is no practicality".

(2) Presentation method

The participants made an observation that may be because of limited time, even other recommended delivery methods like presentations were given limited time. Such that, the main thrust of a given task to present would

be lost and students will prepare to present just to be awarded marks in an assignment. ***Excerpt 18 (IVM)*** "…doing too much theory and no practical… we are unable to deliver when we go out into the outside world…, when we leave the University we do not have experience…." A further comment about presentation method another participant said ***Excerpt 19 (IVM)*** "we are from a set-up where we were recipients than producers of information, School setting from primary up to tertiary level where we were never given the opportunity to make information ourselves rather than receive it". An elaboration on the same point another female participant alleged that ***Excerpt 20 (IVF)*** "our national educational set-up is very rigid it doesn't allow flexibility for students to express themselves, question the things that they are being taught, so much is theorised hence doesn't allow critical thinking".

(3) Group work method

The students were aware that group work was an effective strategy for delivery at their level, however the way the groups were formulated and supervised made the whole method a task for only hard working individuals or those students who were not happy to fail because they did not input in the work. ***Excerpt 22(IVF)***

"Ehee … group works!!!… (laughs) … I will see … uhm … in group works as per…because when you are given an assignment individually… you are going to do more research…but if it is a group work you are going to rely on other people… some of the members of the group they are going to be inactive…"

(4) Assessment methods

The participants made interesting observations about some online assessments. They pointed out that, some of the assignments were repeated. The students mentioned that, they could get exact questions from colleagues who did those assignments in the previous semester. So copying and thinking along already available responses did not require any deeper thinking at all. ***Excerpt 23 (IVM)*** "what usually happens is that the questions are the same, but they are mixed up … but it doesn't matter". It was also revealed that, some online assignments very easy. Specifically, they noted that most multiple choice questions did not need any critical thinking even guess work would likely provide a right answer. ***Excerpt 24 (IVF)*** "Again most questions are multiple choice questions and during the tests we are told to write the tests on our own … which means some may…some may just depend on others to write the test for them … ee eee".

An observation of online assessment practice provided evidence that some students were encouraged to cheat. Some online assessments were conducted without supervision. In this regard, students were left to work on their own, at their own time and allowed to work from home without supervision. To this, the students lamented was not inculcating critical thinking because the online assignments were loose such that they could even work in groups or letting others do the assessments for them. ***Excerpt 25 (IVM)***

"When you are told that the online test will be open from 7pm … no from 7am to 7pm… you can actually write it up in groups … the other one does it … you assist to write … after they finish … you know that's what they got wrong and you change".

5.2.3 Institutional and Curriculum Factors

(1) Large classes

One serious factor contributing to their application of critical thinking in their teaching and learning was the fact that the classes were too large for one lecturer to manage the class effectively. The students felt that, since the classes were large, it did not provide adequate time for the lecturer to deepen the teaching and learning. They cited that it felt challenging for the lecturers to concentrate on individual abilities hence the dominant use of lecture method and its advantages to the teacher whilst disregarding the cost of unlearning for the students. ***Excerpt 26(IVF)***

"And again the classes… the number it's just too large to cater for individual presentations or individual research …yaa… it's too large… because let's say if … ahm like for example in some of the classes… we are just too many… sometimes more than 200 and we are supposed to be lectured by one lecturer…"

While the PGDE programme went through rigorous processes to adopt it, the students wondered the duration, citing that it was too short for the content. The participants felt that it was as if the lecturers were rushing through to complete the course outline to provide assessments and grades. This practice appeared teacher centred and did not provide the students to reflect on the content learnt. ***Excerpt 27 (IVM)***

"The other one is that the time for PGDE… the duration of the course is just too short …yes… because you remember last semester when we started PGDE… we just started from the end of the semester …yes… then there was much work … then there was no order … the lecturers just rushed to get marks awarded".

It was also observed that, in some cases the content of modules was of lower level compared to what the students covered in their undergraduate programmes. This scenario did not give the students the appetite to think critically. Worse still, some content was out dated. In this regard students found that, some content in the PDGE was outdated compared with the content at Secondary School level.

On another note though not concerned with University of Botswana, the students felt that recruitment of students did not identify interested and qualified candidates to attend the programme. The participants felt that some students were not even interested in the programme and yet they were recruited. Asking their colleagues, others said they were waiting for another opportunity, such that if given a job or training they would quit PGDE and go the greener pasture. ***Excerpt 28 (IVF)***

On a lighter note, but important in the environment, some participants felt that, the programme content was coherent. They felt that lack of specific induction of the programme created confusion and stress among students especially that some students are not a direct product of UB and also from other disciplines.

5.2.4 Cultural Diversity/Background

(1) Cultural diversity

Interestingly, only one participant reported that culture could be another factor that can hinder the application of critical thinking skills. Elaborations of this item included descriptions of how they had been socialised. The participants expressed how socialisation and up-bringing makes it impossible to implement critical thinking skills because they were taught to listen and do what is being said by elders. ***Excerpt 29 (IVF)***

"Usually because of fear … what people will say … and lack of confidence hinders critical thinking… but I think one thing may be the pressure from the family… I for one when I finished my undergraduate I didn't want to come to UB … one day mom just came with an admission letter from UB and I believed what she said without questioning".

On the other hand some participants observed that critical thinking is supposed to start at lower levels of the education system. That way, it was felt would easily be enhanced at higher levels like in the university teaching and learning environment.

5.3 How Can Critical Thinking Be Promoted among the PGDE Students?

This question attempted to identify what strategies could be applied to ensure that the PGDE students developed and or applied critical thinking in their teaching and learning environment. The study identified several strategies and they are presented as four themes and several sub-themes.

5.3.1 Personal Strategies

(1) Motivation and interest

Students should be motivated to change their attitude and bring interest in the PGDE programme. Motivation from parents and lecturers was viewed as a contributory factor to student's motivation. Specifically, it was mentioned that some lecturers just came to class to teach and go, they do not seem to care about student's performance, and the enthusiasm is not there at all. Intrinsically, the students themselves should develop the habit to attend classes regularly. In addition, it was suggested that students should be encouraged to read and conduct research individually.

5.3.2 Teaching Methods and Delivery Techniques

(1) Learner centred approaches

A majority of the participants felt that varying the teaching and learning methods and techniques could promote critical thinking skills. While the group work was utilised because of large classes, the techniques used to identify groups and supervise tasks were ineffective, as such most students became passive learners. Elaborating on this point the participants proposed the use of methods and techniques that would allow individual learning. Despite the large classes, it was observed that this way would also bring in the dimension of lecturer and student collaboration.

(2) Varied assessment techniques

The assessments should be varied in format, techniques, location, and time. This will reduce cheating while promoting high level thinking. They also suggested the use of individual research and more individual assignments. Specific to online assessment, it was proposed that all assessments should be taken at the same time and venue to allow for compliance to standards and quality of assessments. Again this would reduce likely hood

of cheating. There was a mention that whatever method and technique of assessment, the questions should assess the range of Blooms taxonomy and avoid obvious repetitions.

5.3.3 Institutional and Faculty of Education Strategies

(1) Curriculum Review

The participants proposed a quick review of the PGDE the programme content. They felt some modules were redundant and should be removed, the content in certain courses deepened, new modules be introduced. Clarifying this point, some participants felt that a compulsory Critical Thinking Module could be introduced or infused in other PGDE modules. Actually the students revealed that it was very difficult if not impossible to practice something that they were never trained for.

(2) Review TP Model

Further on the curriculum, the participating students emphasised the need to review the TP model. Their argument was that the current model did not provide adequate time practice. Some participants even complained that, they were still not competent and confident to stand before the students and teach. Therefore, they suggested an immediate extension of the teaching practice duration. They suggested that one semester should be for the content while the other one for practice.

(3) Reduce the class size

Linked with curriculum review, the participants suggested a reduced lecture student ratio. In other words, they felt the need for an increase of lecturers teaching the PGDE modules. This could assist in ensuring smaller and therefore manageable classes/groups. The institution should have a set of lecturers specific to teach the PGDE students.

(4) Programmes recruitment

Since the current recruitment system did not discriminate and identify those students interested and motivated to get into the teaching profession, there was a suggestion to revise the recruitment criteria. This only those students serious about teaching would likely be recruited leaving the not passersby.

(5) Outdoor forum and industrial visits

Organise outdoor fora and industrial visits during training since not all students have the same educational background. Students mentioned that being exposed to activities such as debates, workshops and seminars would be ideal to help them sharpen their critical thinking and presentation skills. For example, the workshops, debates and seminars were suggested as useful strategies in training, promoting and instilling critical thinking skills upon the students. Based on the participants descriptions, if the events can be instigated it would bridge a gap that exist now.

(6) Proper induction

The participants felt the need for a PGDE programme orientation, where the students would to be told what to do and why as some of the participants come from other tertiary institutions apart from UB and other disciplines. They cited that disorientation and lack of clues to find their way out brought stress resulting affecting their learning behaviour.

(7) Check unemployment

Though not local at Faculty level, the students suggested that the Government should address the lack of employment especially after students have attained the PGDE and other qualifications. They also noted the late starts of PGDE programmes and felt Government and University of Botswana needed to ensure that the semester start on time to avoid loss of weeks and months like in other programmes.

5.3.4 Cultural and Educational Background Checks

(1) Partial home parental involvement

The participants still felt that active and positive parental participation in decision making would in one way promote critical thinking. While traditionally children are expected to listen and act, somehow the parents should allow their children to cultivate critical thinking right in the home.

(2) Check the educational background

The participants also noted that critical thinking skills were to do with previous educational background. They wondered if the University of Botswana entry level qualifications and programmes provided for critical thinking

abilities. As such and although ambitious, they proposed programme review for the secondary school curricula as it played a part in preparing the students for university education.

6. Discussion of Findings

The main purpose of this study was to establish the factors that hinder the application of critical thinking skills among PGDE students at the University of Botswana. Again, to establish the ways in which the critical thinking skills can be promoted at the institution. Since the focus group discussions were conducted during the semester (on campus) and field (TP), the study made a lot of sense to them; hence they were able to narrate their experiences well.

The students agreed that critical thinking was a complicated thought process requiring analysis, evaluation and judgements. Through one-on-one interviews the students struggled to describe critical thinking in their own understanding. However, their description was more refined during focus group discussions. The students felt that critical thinking was provision of well thought decisions based on justifiable reasons, especially after analysing a situation. They cited that critical thinking required assessing/evaluating/analysing information before accepting as fact. These descriptions are supported by findings from a studies and literature (Bagheri & Nowrozi, 2015; Duro, Elander, Maratos, Stupple, & Aubeeluck, 2013; Lai, 2011). In their study, they found the students had vague understanding of the concept.

Regarding hindrances, the most frequently mentioned factor was personal attributes of individual students. This finding is consistent with Ali, Tatlah and Saeed (2011). These authors found that, the students' attitude and behaviour towards their education as well as towards those with whom they interact is hugely dependent on whether they have been motivated or demotivated by their superiors (p. 29). Further to attitudes, personally the students lacked of both intrinsic and extrinsic motivation from both the lecturers and parents was found to be the other challenge. This was associated with lack of home support by parents and collaboration with lecturers reducing one's motivation for learning immensely. These results are consistent with findings from studies conducted by Chau-Klu, Rudowicz, Graeme, Xiao Dong, and Kwan (2001); Jansen and Suhre (2015); Lederer, (2007). The studies confirmed that, personal motivation, family background and social class sometimes hindered the development of critical thinking of students during their training and at work.

The second prominent factor hindering critical thinking involved teaching methods, delivery and assessment techniques. The highlight was on really how the programme modules were taught and handled in the classroom. In these studies Gardner (2004), Lederer (2007) and Purvis (2009), the researchers found that teaching methods delivery and assessment techniques played a significant contribution to critical thinking. Typically Purvis and Lederer found that, critical thinking skills was influenced by pedagogical factors like curriculum design, personal factors such as curiosity as well as other factors such as faculty support; participants did not mention curiosity as a hindrance.

The other area which came out clear from the discussion was the course/programme design. The students felt that the need for review considering the content was too much and did not allow reflective learning and application of concepts too. The discussions clearly indicated that the way the courses/programme was designed hindered the application of critical thinking skills. This finding is confirmed by McKlin, Harmon, Evans, and Jones (2002) who argue that course design has an effect in the application of critical skills. However, issues of course/programme design have a bearing on the institution and its culture while also depending on the entry capabilities of the students. In his study (DeWaelsche, 2015), found that, apart from students capabilities in language, cultural and institutional factors influenced the development of critical thinking among students in a Korean university.

7. Conclusion and Recommendations and Implications of Study

In conclusion, the study revealed that PGDE students showed that they were aware of the term "Critical thinking" but when it came to the definition of the students displayed a lower description, some during the interviewed express that it was a difficult term to describe. Very few students could clearly give a detailed definition. In comparison with focus group discussion responses, their description of critical thinking was more refined than during interviews. However they were aware of factors that limited their application of critical thinking skills during their training. Critical thinking can be promoted by personal motivation, change of and varying of teaching methods, varying assessment methods, programme review, and improving programme logistics, and parental/lecturer involvement in nurturing the application of critical thinking among the PGDE students throughout their training.

The researchers make the following recommendations:

- There should be an immediate programme review to allow for changes and modifications to the content and programme duration to give TP adequate time.
- Practice of lecturers in the use teaching strategies that allow learner centred methods should be improved and adopted.
- New selection criteria for admission of students into the PGDE should be devised so that students who do not qualify for the teaching profession should not enter the programme and waste resources.
- Engage in research using other methods like quantitative longitudinal survey and mixed methods designs.

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