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DOES DOCTORAL TRAINING TEACH STUDENTS TO BE CREATIVE? A LITERATURE REVIEW

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ABSTRACT

Doctoral training is supposed to equip a student with the highest skills and knowledge to make the student have a full grasp or an in-depth understanding of the discipline and research process (e.g., literature review, methodology, theoretical knowledge, writing, and reporting, among others). For a doctoral student to be equipped with such skills and knowledge, creativity is paramount. This is because creativity is an enabling factor that helps one to understand their own world and be prepared to change it for the better, and is a required key competence for a graduate in the 21st century era which is dynamic, complex, and uncertain. A creative doctoral student refuses to get stuck to reproductive education and aspires to independently act and contribute to new knowledge and innovations. Several reviews and studies (past and current) have argued that doctoral training enhances creativity in the student, while others are skeptical about the same. Therefore, in this literature review paper, we attempt to explain the concept and importance of creativity and show how doctoral students can demonstrate creativity. We also try to describe the stages of creativity that doctoral training has to prepare students to go through, and how creativity can be enhanced in doctoral students.

KEYWORDS: Creativity. Doctoral Training. Literature review. Reproductive Education

1. INTRODUCTION

A doctoral degree is the highest academic degree that a university can award to a student (Park, 2007). Such a doctoral degree is supposed to equip a student with the highest skills and knowledge in a given discipline to allow the student to be independent and creative, capable of creating novel ideas or coming up with new results. According to Quality Assurance Agency for Higher Education (QAA, 2015), a doctorate is earned on the basis of successful completion of a doctoral program. An earned doctorate requires the student to be creative so as to make an original contribution to one's field. According to Montuori and Donnelly (2013), one of the ways a student is acknowledged for having made an original contribution to one's field is by producing a dissertation/thesis. The production of such a dissertation by the student is an indicator that one has the ability to become an independent researcher. Montuori and Donnelly thus take the dissertation to be a creative output of the student which only comes about through the creative process.

Scholars (e.g., Georgiou, Turney, Matruglio, Jones, Gardiner & Edwards-Groves, 2022; Montuori & Donnelly, 2013) observe that creativity is a required key competence for a doctoral student or graduate in the 21st century era which is dynamic, complex and uncertain. Unfortunately, Montuori and Donnelly (2013) argue that doctoral training does not necessarily make students creative. Montuori and Donnelly observe that “doctoral studies show signs of a move away from creativity and toward ‘reproductive education’” (p. 1). Reproductive education according to Montuori and Donnelly is that kind of education that emphasizes examinations at the expense of creativity. Montuori (2005; 2008) adds by noting that such reproductive education makes the learner memorize and regurgitate the given knowledge from the teacher and existing approaches to problems.

Montuori (2008) and Montuori and Donnelly (2013), argue that at the doctoral level students are expected to be transformed to be creative. However, like traditional schools, doctoral training has not prepared doctoral students to be creative. Instead, doctoral training is instilling reproductive education which does not make a student creative but makes one a good course taker. They go on to note that such students for example fail to appropriately engage in research by not having clear and researchable problems; being unable to work independently; being inflexible, and being unable to deal with ambiguous problems. Montuori (2008), Montuori and Donnelly (2013) equate such reproductive education to a machine that when fed with inputs; its outputs can easily be predicted.

From the literature, Montuori (2008) and Montuori and Donnelly (2013) call for doctoral training institutions to make creativity a central focus in their training so as to lead to the production of creative outputs. Therefore, in this paper, we argue that doctoral training should be structured as a creative process where a student is encouraged to work creatively to become an independent researcher so as to make original contributions to the body of knowledge in one's field. Our paper has sections, the first one being this introduction which has attempted to show how doctoral training is expected to lead to original research but is being undermined by reproductive education. The other sections respectively will address the concept and importance of creativity; how doctoral students can demonstrate creativity; stages of creativity among doctoral students; how creativity for doctoral students can be enhanced; and the conclusion.

2. The Concept and Importance of Creativity

Scholars (e.g., Anders, 2009; Georgiou et al. 2022) state that while many people associate creativity with arts, creativity is inherent in all disciplines. Khayala and Klara (2022) posit that creativity is an elusive and complex concept where there has been no accepted definition. While Drazena and Mirela (2015) observe that, creativity has its origin in the Latin word “creare” which means producing something that is both novel and appropriate. Other scholars (e.g., Anders, 2009; Georgiou et al. 2022; Khayala & Klara; 2022) define creativity as the ability to come up with new ideas. Drazena and Mirela in particular define creativity as the ability to think outside the box.

The definition of creativity being associated with useful ideas is similar to what other scholars have put forward. For example, Amabile (1988) defines creativity as the production of novel and useful ideas by an individual or group of individuals jointly working together. Clinton and Hokanson (2011), postulate that creativity is the generation of ideas that are both novel and useful, usually in response to a problem that needs to be solved. Montuori (2008) refers to the concept of creativity to be that ability aimed at bringing something new into existence. He adds that creativity is the capacity of an individual to challenge, explore, connect and create. Thus, from all these authors, we observe that creativity is associated with both the newness and usefulness of ideas or approaches to work in one's field or society.

Creativity is important in society. Clinton and Hokanson (2011) contend that creativity is the engine that drives civilization forward. In particular, they contend that “most of the things which are interesting, important and human [made] are the result of creativity. Human creativity is the ultimate economic resource” (p. 2). Clinton and Hokanson observe that creativity is one of the things which raises productivity and the living standards of a nation. They go on to give the example of the American workforce whose creativity skills were highly valued because such skills were of great national importance. Scholars (Drazena & Mirela, 2015; Montuori & Donnelly; 2013) posit that creativity is crucial in bringing new changes, especially in a world that is complex and grows very fast and is full of ambiguity.

Specifically, creativity is needed among doctoral students. Montuori (2008) argues that creativity exhibited in a doctoral student is important because a student becomes an independent researcher who can contribute new or original knowledge which can address societal problems. Montuori and Donnelly (2013) also note that inquiry that is creative makes a learner, which learner may include a doctoral student to explore a range of possibilities to a problem by being ready to unlearn what has been planted by reproductive education. That is, a creative student unlearns the unchallenged, static reproductive education. Drazena and Mirela (2015) observe that the complex questions in the modern knowledge society can only be solved with creative, forward-looking individuals who question established norms and withstand insecurity and uncertainty.

Montuori and Donnelly further note that creative inquiry contextualizes and challenges learning by situating inquiry in a broad cultural context. Inquiry-based on context allows a learner to have a broad and not static approach to inquiry by not stopping at the one correct answer but instead pushing the inquiry further. Due to the crucial role of creativity, Montuori (2008) suggests that creativity should permeate all stages of doctoral research which include: the literature review, methodologies, analysis, and report writing, among others.

3. How Doctoral Students Can Demonstrate Creativity

From many arguments by different scholars, doctoral students are expected to display creativity in their research work and doctoral training programs should foster this element of creativity. Some of

the evidence which may depict that a student is creative are discussed and may include: developing the skill of exploration and improvisation; active participation in the doctoral process/project; viewing the unknowns and mysteries as opportunities; tolerating constraints, and understanding cultural relativity.

3.1 Displaying the Skill of Exploration and Improvisation. Some scholars have pointed out that creativity in a doctoral student can be exhibited if a student develops the skill of exploration and improvisation. Exploration is the ability of a student to search and acquire knowledge or develop specific skills, and improvisation is the ability of an individual to go beyond mere exploration to be able to utilize that knowledge and skills acquired to create something new or solve a problem (Georgiou et al, 2022; Khayala & Klara, 2022; Montuori 2008; Montuori & Donnelly, 2013). Montuori (2008) and Montuori and Donnelly (2013), attempt to explain this state of improvisation using the metaphor of a jazz artist who develops music competence. This artist does not only learn the skills and technique of music to go on stage to display the technique acquired and stops at that level. However, the artist learns the skills and techniques of music to be able to join others and dialogue or participate in the jazz community (community of fellow musicians).

Equated to this jazz artist, creativity in doctoral students is not only for a student to master specific skills, regurgitate them when required, and then later forget them as emphasized by reproductive education. However, creativity requires a student to master the skills and competencies and to use them to create their own ideas which they should be willing to share with the community of fellow academicians (discourse community). A doctoral student should acquire the skills and competencies and use them as a basis for the development of the student's voice and participation within the world. From Montuori (2008) and Montuori and Donnelly (2013), as authors of this paper, we note that creativity has elements of exploration to acquire a skill, improvisation to create something new, and participation in a wide community. Therefore, doctoral training should help a doctoral student to reach the level of going beyond mere acquisition of knowledge and competence. The student should be guided to able to explore and improvise to come up with novel ideas which can enable them to participate in a broad community of academicians in their disciplines.

3.2 Active Participation in the Doctoral Process/Project. To some scholars, creativity can be evident in doctoral training if students actively participate in their research projects to bring about new changes. Montuori and Donnelly (2013) observe that active involvement in a creative approach brings about new change. Montuori and Donnelly add that creative ideas are not only novel but also appropriate to one's context and field. So, a student can actively bring about new change by first appreciating original scholarship; being selective by choosing what is relevant/appropriate in scholarship; and bringing out what is new. Therefore, doctoral training should aim at producing a student who is willing to actively be engaged so as to make original contributions to knowledge in his/her discipline. Such a student should shift from being a consumer to a creator of knowledge and from being a spectator to a participant in the knowledge community.

To be original will require a student to be actively immersed in a community of like-minded people (Montuori, 2008; Montuori & Donnelly, 2013). Montuori (2005) also admits that immersion of a student into a community of like-minded people results in one developing original idea and one's voice in academia. Immersion in the community of like-minded people to us provides a basis for active involvement in appreciating existing or original scholarship from which a doctoral student can identify where to make useful contributions.

3.3 Viewing the Unknowns and Mysteries as Opportunities. According to Montuori and Donnelly (2013), creativity can be demonstrated if doctoral training prepares a student to engage with the unknown. Engaging with the unknown starts when the student develops an attitude of not knowing, and recognizes the limitations of his/her own knowledge. Engaging with the unknown is the process in which a student becomes prepared to unlearn to allow learning to take place. That is, one is ready to challenge the status quo by refusing to settle for the already known. Montuori and Donnelly note that such learning is opposed to reproduction education where a learner is taken to be an empty vessel to be filled by their teacher. In engaging with the unknown, a doctoral student gets attracted to the unknown; desires to navigate the uncharted territories, and to see the unknowns as an opportunity to gain a greater understanding of the world and oneself. Creativity is an inquiry where such a student questions the unknown and creates his/her own meaning. This kind of creativity is what Georgiou et al (2022) liken to viewing things in different ways or from a different perspective outside of known possibilities.

3.4 Tolerating Constraints. The unknowns may be so complex and so creativity in doctoral training can be demonstrated when a student gets prepared to deal with these complex issues and problems and works within constraints (Georgiou et al, 2022). Montuori and Donnelly (2013) posit that creativity requires the mind of openness to the possibilities and realities of change where the learner pushes the limits and prefers to address fundamental issues rather than trivial and easy problems. Montuori (2008), notes that a creative student should be ready to “eat bitter”, that is to tolerate the discomfort encountered with creativity. Though the student may “eat bitter”, Montuori assures such a student that after enduring the discomfort, in the end, he/she will experience joy. According to him, this joy will not be simplistic but rather complex joy, the real joy where a student experiences the paradoxes of complex phenomena. Therefore, creative inquiry requires hard work, rigour, an enormous amount of craft, critical thinking, and imagination but also involves risks, pain, discomfort, anxiety, and ups and downs. Therefore, a doctoral student should be prepared to tolerate any constraint within creativity which Montuori (2008) refers to as “tolerating the shadow side of creativity” (p. 20).

A doctoral student should be prepared to handle the paradoxes he/she encounters in research; endure challenges, to sacrifice his/her life to come up with novel ideas by refusing to settle for the small and simple ideas which simple ideas will never bring joy to them. Clinton and Hokanson (2011) add that a student who desires to be creative should get ready to bear with constraints and see problems in

need of solving as opportunities for creative work. However, Clinton and Hokanson argue that not every problem solved is a result of the creative process. Drazena and Mirela (2015) to posit that complex questions can be solved when one refuses to get scared to question existing ideas and develops the ability to cope with insecurity and uncertainty one encounters. Montuori and Donnelly (2013) encourage a doctoral student to be ready to look beyond constraints by being ready to push the limits. Montuori (2008) equates this experience of creativity within constraints to childbirth where a mother has a painful labour experience but after birth, she gets the joy of a new baby.

3.5 Understanding Cultural Relativity. Montuori (2008), states that knowledge is reinforced by culture and that culture constitutes different realities. The world in which people live as already hinted in this paper is full of mysteries and unknowns which lead to inquiry to find out what is happening. People identify themselves with their cultures and approach their cultures differently which leads to cultural relativity. These cultures are at times in conflict with other cultures. Cultures shape the way people inquire (Montuori, 2008). Cultural relativity drives one into inquiry to explore uniqueness in cultures. Therefore, creativity in doctoral training is depicted when a student appreciates and embraces these complexities since the context, he/she lives in is not fixed. Scholars (e.g. Montuori, 2008; Montuori & Donnelly, 2013) note that creativity is the willingness to embrace multiple cultures while voicing one's ideas. Montuori (2008) observes that inquiry opens up worlds whereby according to him a world may be: objective (deterministic) where things are determined or fixed. Alternatively, a world may be stochastic meaning that it is subjective and hence has to be explored. Therefore, to depict creativity, a doctoral student needs to go deeper into contexts than being fixed in his/her own context and avoid biases by going beyond the stereotypes, racism, and prejudice that limit inquiry.

Montuori (2008) argues that inquiry into the world should not be defined on grounds of the "given" (the fixed or already known answer). So, a doctoral student can be creative by refusing to jump to a solution when faced with a problem but be willing to study the problem by going beyond their culture to think and explore the array of possibilities because creativity occurs in social contexts (Clinton & Hokanson, 2011; Montuori, 2005). Montuori and Donnelly (2013) remark that to understand the world, one needs to be open to the possibility and reality of change by having self- transformation than having a static sense of self and world. Montuori (2008) equates openness to experience to the image of a spiritual seeker who aspires to gain a deeper understanding of whom he/she is, after realising his/her limitations. Montuori further looks at this creative inquiry into the world as being characterised by joy, wonder, passion, hope, and conviviality. The researcher gets joy through engaging and participating in the world, which joy raises the desire to understand people in the world and oneself. Such inquiry leads to wonder on the side of the research of the differences among people and their behaviour. Inquiry is manifested by having the passion of the desire to understand and be understood. The researcher also becomes hopeful that understanding such differences will make a better life, deeper connections, and participation. Finally, this inquiry occurs in conviviality (with others who have approached a similar subject of the researcher's interest who may agree or disagree with his/hers).

4. Stages of Creativity among Doctoral Students

Some scholars (e.g. Clinton & Hokanson, 2011; Montuori, 2008; Montuori & Donnelly, 2013) point to the fact that creativity is a process and goes through a number of stages which as authors we may order as follows: problem identification; preparation; incubation; illumination; and elaboration/verification stages. Though the everyday experiences of individual creativity may not manifest these stages, doctoral training should emphasise these stages to their students.

4.1 Problem Identification/Area of Interest. Clinton and Hokanson (2011) and Montuori (2008) acknowledges that creativity begins with raising a problem or question. We note that this is the question of the student's interest, which one needs to explore. It is expected that every student engages in research to add to new knowledge and such a contribution result from either a problem or question that one's research needs to address. Such a question or problem forms a basis for engaging in research. This problem is a broad area of one's interest which draws one into the literature review first, to familiarise with the problem and then narrow it down to a researchable topic as indicated in the next stage under preparation. Since doctoral students are to contribute to original knowledge in their disciplines, the problem identification stage should be the initial stage if a student is to progress well and make novel ideas in a research project.

4.2 Preparation. In the case of doctoral research, preparation is the stage where a student is immersed in the review of the literature (conceptual papers, seminal papers, theoretical papers, systematic papers, etc) to become familiar with the area of interest in the existing discourse. Preparation is an immersion in the ecology of ideas, theories, and paradigms (Montuori, 2008; Montuori & Donnelly, 2013). During this stage especially at the beginning, the student has wide views on what he/she wants to do but does not have a refined problem of what to concentrate on or research. However, at the end of this stage of preparation, the search for the problem or question is narrowed down to a researchable area or topic of interest. Montuori (2008) equates this stage of preparation to the investigative work of a detective. When a detective is faced with a question or puzzle to solve where little is known, the detective will engage in a deep search and observation to try to understand by putting small pieces of the puzzle together and then finally coming up with a solution. Montuori observes that creativity is mysterious and so to get to the level of having a researchable idea, a doctoral student needs to prepare by deeply being immersed in the field, to explore, think and investigate where he/she can make useful contributions.

4.3 Incubation. During the incubation stage, a student has to amplify his/her creative ideas and explore the identified problem or topic broadly (Montuori, 2008). There is a need to carry out extensive literature on the identified research problem/question. To explore the question extensively, a student should tolerate the discomfort of creativity and should refuse to be simplistic in his/her approach to inquiry. During this stage, a student should develop a great desire to go deeper into an inquiry about the identified problem. We can equate this stage to the images of passion and lover which Montuori used to explain creativity. Montuori states that “our passion for the subject drives us

to obsession with deep desire to understand the beloved to be with him or her, to explore every nook and cranny of body and soul” (p. 23). Montuori goes on to note that people in love want to know the deepest feelings of their lovers and what makes them happy, they write more and more about themselves than those not in love.

Scholars (e.g. Clinton & Hokanson, 2011; Montuori, 2008) note that this stage is crucial in enhancing a student's creativity. They observe that while some researchers ignore other stages of creativity, prominent researchers cannot disregard this incubation stage. However, Montuori (2008) notes that though this incubation stage is crucial, it can at the same time be uncomfortable, irritating, and confusing. Montuori shares his experience of how he spent a long time at the incubation stage than report writing when he was writing his article on “the joy of inquiry” (Montuori, 2008). He reported that it took him a long time to put a finger on the keyboard but when he began writing, he wrote the bulk of the work in one evening.

4.4 Illumination. During the illumination stage, it should be clear in a student's mind what he/she wants to do. Such a student should put together pieces of data collected into a framework that acts as a guide for his/her research project. Clinton and Hokanson (2011) call this stage “the eureka moment” (p. 4). This is because during this stage the student discovers what is to be done. As authors of this paper, we would equate this stage to coming up with a proposal or conceptual framework which acts as a reference guide for any doctoral research. The proposal outlines the topic of study, study objectives, study context, conceptual framework, theories, paradigms, methodologies, and how data is to be analysed and interpreted, among others. Specifically, we equate this framework to a conceptual framework which is linked to theories. Such a framework forms the basis of study objectives, determines the instruments to use and how questions are to be asked, and how findings are to be reported and discussed.

4.5 Verification/Elaboration. The verification stage is at times called elaboration by some authors (e.g. Clinton & Hokanson, 2011), a stage where a student works out details, develops results, and comes up with his/her own new ideas. Montuori (2008) states that it is during the verification stage that a student's brilliant ideas become worth a damn. Ideas becoming worth a damn is what Phillips and Pugh (2010) note to be, a doctoral holder having something to say which peers want to listen to. In this paper, we as authors equate this stage to the collection of empirical data, analysis, and interpretation of findings. At the end of this stage, a doctoral student is expected to state their contribution to new knowledge by elaborating the contribution of their research project to already existing knowledge.

5. How Creativity can be Enhanced in Doctoral Students

Some scholars (e.g. Montuori, 2008; Montuori & Donnelly, 2013) demystify the belief that creativity is limited to only geniuses. They observe that associating creativity with geniuses was a belief of the 19th century period. These authors argue that creativity is not limited, it is only inhibited but available

to everyone if enhanced. Clinton and Hokanson (2011) also contend that “Creativity is not a special ‘faculty’, nor psychological property confined to a tiny elite. Rather, it is a feature of human intelligence in general. It is grounded in everyday capabilities such as an association of ideas, reminding, perception, and analogical thinking It involves not only a cognitive dimension (the generation of new ideas) but also motivation and emotion, and is closely linked to cultural context and personality factors” (p. 3).

Such statements demystifying that creativity is limited to geniuses imply that creativity can be triggered and enhanced in all doctoral students. Therefore, doctoral training should endeavour to enhance creativity in students. In the following sub-sections, we highlight some elements that training institutions, trainers, and supervisors of doctoral students should encourage in their students, or which trainers have to demonstrate so as to enhance creativity in their students. These elements include encouraging students to review literature first; having a positive attitude to creativity; embracing the idea of conviviality; build on their experiences. In addition, a supervisor should be creative; and also, set up learning environments for students that promote creativity.

5.1 Encouraging Students to Review Literature First. Montuori (2005), notes that a literature review can be an opportunity for creative inquiry where a reviewer is exposed to a variety of ideas from which to build and come up with new ideas. He states, “The process of a literature review is framed as participation in a community, a dialogue with those who are part of the community now and with one's ancestors. Through literature review one can explore the underlying assumptions of a larger community or communities of inquiry one is joining and one's own beliefs, assumptions, and attachments” (p. 1). However, Montuori decries the fact that many students do not approach literature as exciting but approach it as reproductive inquiry full of memorization and regurgitation. He continues to observe that literature review can be a creative process if the reviewer is, “an active participant constructing an interpretation of the community and its discourse, rather than a mere bystander who attempts to reproduce, as best as he/she can, the relevant authors and works without leaving the reviewer's imprint on that project” (p. 2). In fact, Alencarm, Fleith and Pereira (2017) observe that one of the factors limiting creativity is the student having a culture of conformity and of knowledge reproduction for fear of making mistakes.

Therefore, a doctoral student's creativity can be enhanced if such a student is helped to approach literature as a creative process where a student can make an interpretation of what he/she has reviewed to suit one's research (Montuori, 2005). Montuori (2005) equates literature review to surveying the land one has to travel to acknowledge major landmarks or key players. The literature review forms an entry point for the reviewer in his/her research where the reviewer actively selects which authors and theories to review or leave out. A reviewer of the literature has questions like who are the authors who share the same views as those that I have? What motivates them? Why does the subject under investigation matter? Why should I join them and how? Where is the point of agreements and disagreements? And so on. Therefore, a literature review helps a doctoral student to

go deeper into the discipline and paradigm; explore theories; to dialogue and bring out one's voice. The literature review can also fit the image of what Montuori (2008) uses as a lover who is driven by desire or passion to explore which we have already explained under section 4.3 on stages of creativity (incubation stage).

5.2 Encouraging Students to have a Positive Attitude to Creativity. According to Montuori (2008) and Montuori and Donnelly (2013), creativity is developed by the individual student's willingness to be creative. These authors argue that the student should have a positive attitude toward creative inquiry. Such creative inquiry is characterized by: intrinsic motivation to be moved to do a task; passion for the subject or desire to understand and be understood; joy to engage and participate in the world; a wonder of the differences among people and their behaviour; and the hope that understanding such differences will make a better life, deeper connections, and participation. In addition, this creative inquiry has conviviality, that occurs with others who have approached a similar subject which is already hinted on in this paper under cultural relativity in section 3.5 on how doctoral students can demonstrate creativity. Amabile (1988) stresses the persistence of a student, as another individual trait to enable one to be creative. Therefore, a doctoral student should be made aware in their training that he/she is a determining factor to enhance own creativity. A student should be encouraged to have the desire to be creative by having: intrinsic motivation and passion for his/her research. A student who desires to be creative should be encouraged not to be swayed away from the tasks because of the challenges he/she encounters but rather be determined to push the limits and complete the research project.

5.3 Encouraging Students to Embrace the Idea of Conviviality. Conviviality deals with the reviewer developing relationships and collaborations with others in one's own field (Amabile, 1988; Montuori, 2008; Montuori & Donnelly, 2013). According to these scholars, creative inquiry develops through team building and having relationships with others who have approached the subject of the reviewer's interest. Such relationships include: the student reading and being immersed in the literature of what others have written in terms of theories, paradigms, methodologies, and findings; and the willingness to participate in a discourse community. Therefore, doctoral training should encourage students to develop relationships and collaborations with others who could be their peers. Such students should be encouraged to read the literature of what others have written to be acquainted with the subject of their interest, participate in conferences, and write journal articles where they have the opportunity to meet and dialogue with others, some of whom may be experts in the student's area of discipline for a student to learn. The idea of conviviality is not only crucial among students but also among their teachers. Khayala and Klara (2022) in their study discovered that the academic community also influences the level of creative teaching among teachers. In their study, they found out that the university teachers had reported that interaction, collaboration, and exchange of ideas with colleagues had been essential in building their creative teaching practices.

5.4 Encouraging Students to Build on their Experience. The beliefs a student holds influence his/her philosophical stances which in turn also influences the way such a student approaches and engages in a creative process (Montuori, 2008; Montuori & Donnelly, 2013). The philosophical stances may include ontology, epistemology, and axiology stances. Ontology means a belief about nature; epistemology is a belief about knowledge, and axiology means the value a student attaches to ontology and epistemology beliefs. The philosophical stances influence how a student can engage with people and ideas which can enhance or limit his/her creative abilities. Montuori (2005) posits that literature review is sparked by a student's experiences, and creative inquiry begins with epistemological assumptions of a belief that knowledge is actively constructed and not just listening to what is said. Therefore, doctoral training should encourage the student to build on their stances and at the same time guide them to go beyond their beliefs and explore their research. A student should be guided to express his/her beliefs, and bring out his/her identity and voice in the dialogue they engage in.

5.5 A Supervisor Demonstrating Creativity. The supervisor determines the level of creativity of his/her student (Anders, 2009; Montuori, 2008; Wisker & Robinson, 2016). For example, Wisker and Robinson (2016) argue that a student can become creative if his/her supervisor is also creative. Wisker and Robinson describe how this creative supervisor ought to be in their study. One participant in their study stated that “a creative-minded supervisor is one who is constantly exploring outside the hegemony about research and also research supervision. They are in themselves creative about their approach to research and can thus nurture and support a research student who expresses the desire or agenda to do things differently from established discipline traditions” (p. 343). Therefore supervisors/trainers of doctoral students should be creative by constantly thinking and changing their approaches to research so as to guide their doctoral students to think and act creatively in the process of their research. Khayala and Klara (2022) in their study reported that teachers perceived creative teaching as the ability to think and deliver their teaching in a way that engages their students in learning. They observed that such creative teaching makes a teacher interact with their students and gives them the opportunity to learn and act upon what they have learned. Such teachers employ creative approaches to solve problems in challenging teaching situations and introduce innovation or novelty into their teaching.

However, they lamented that many university teachers have limited knowledge about the diversity of strategies that they could employ to stimulate creative teaching in their disciplines. Scholars (e.g., Alencarm et al, 2017; Rae, 2022) supplement by noting that creativity is important for higher education yet it has often been neglected in educational systems. In particular, Alencarm et al, (2017) argue that, although students are often expected to be creative, creativity is rarely included in the syllabi of higher education courses. Alencarm et al, (2017) reported professors' lack of knowledge on creativity and how to nurture it in the students, makes them tend to reproduce in the classroom the pedagogical practices they experienced while as students. With such limited knowledge of creative

strategies in teaching, there is a need to have creative supervisors who can effectively achieve creative pedagogy for their students.

5.6 Setting up Environments that Promote Creativity. Some scholars have argued that creativity occurs in an environment that promotes creativity. The environment can be a physical environment that favours creativity, offers incentives for creative ideas, and facilitates group interactions for creativity (Amabile, 1988; Anders, 2009; Clinton & Hokanson, 2011; Wisker & Robinson, 2016). Anders (2009) for example observes that to be creative, a student may start by failing many times after which he/she figures out why this is so and labours to improve. Such a situation of failing many times has to happen in an environment where one is confident and does not feel ashamed of failing among peers. The environment should be safe; structured in such a way that they give adequate time for students to think, collaborate and constructively critique each other. Such environments should provide students with adequate resources and support their activities to foster creativity. Wisker and Robinson (2016) add by noting that even creative supervisors who support doctoral students to be creative need a nurturing environment where they are encouraged and appreciated in their creative work; and offered opportunities for creativity.

According to the study by Khayala and Klara (2022), university teachers had considered an environment to be a department, or teaching context, among other environments. They particularly reported that the majority of university teachers had stated that creative teaching was context-specific and that teachers were to consider many factors such as; the level of their students, the discipline they taught, and class responsiveness among others in promoting creativity. Alencarm et al, (2017) observe that to facilitate creativity in higher education, it is important to promote a culture that attaches great value to creativity. They advise that institutions need to establish conditions that nurture creativity in higher education classrooms by having a curriculum that allows students to develop their creativity, exposure to a variety of working environments, giving students challenging tasks, and designing assessments that allow for outcomes that are not narrowly pre-determined. Rae (2022) too, advises higher education institutions wanting to pursue creativity to refocus and lay strategies such as having open communication, which many groups can benefit from.

6. CONCLUSION

The purpose of this paper was to show how doctoral training can be structured as a creative process. The paper has indicated that it is crucial to train doctoral students to be creative because creativity is vital in all aspects of life. Such doctoral training leads to the production of knowledge geared at transforming societies. From the literature, authors have observed that doctoral training has limited the creativity of doctoral students as many doctoral trainers have taken the earlier trend where training emphasizes reproductive education. In this paper we have therefore attempted to show how creativity is important in general and in particular to doctoral students; how creativity can be demonstrated in doctoral students; the stages of creativity; and how creativity can be enhanced in doctoral students. Our paper has limitations in that we relied mainly on secondary data with few primary data. However,

we hope that the content and the structure it has been presented make a useful contribution. Content is presented in a style that we hope may provide an accessible and clear structure easy to enhance understanding of the subject of creativity among doctoral students and their teachers. Further empirical studies can be conducted in the area of creativity by employing some of the themes presented in our paper.

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