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Pedagogical Science Practices in Public Higher Education Institutions of Ethiopia: Progress Made but Challenges Remain

By Robsan M. Egne[*]

The contribution of education to the overall development of a nation becomes evident especially through higher education. This is because higher education is considered a key to delivering the knowledge required for ensuring sustainable development. Studies reveal a strong positive correlation between higher education participation rates and levels of development, as high levels of education are essential for designing and producing new technologies, and enhancing innovative capacities for the development of a society. While the reforms of higher education in high-income countries have received much attention, relatively little is known about the change dynamics in higher education system in developing countries. Therefore, with this research I want to contribute to a better understanding of higher education system in Africa, from the perspective of the type of pedagogy being practiced frequently and its consequences in producing competent graduates for the world of work by taking Ethiopian public higher education system as a case. To this end, data were collected from selected higher education institutions' officials and instructors using questionnaire and interviews. The collected data were analyzed using mixed method. Findings of the study revealed that despite the offering of on-job pedagogical science trainings in the sample universities, little progress has been made in terms of applying student-centered pedagogy. Most of the instructors in the institutions still predominantly use traditional teaching methods. It is recommended that instructors in higher learning institutions should use critical pedagogy.

Keywords: higher education, pedagogical science practice, progressive pedagogy, traditional pedagogy, transformative pedagogy

Introduction

In many countries, concerns have been raised about the quality and relevance of higher education. In the policy debates emerging as a consequence of these concerns, a lot of attention has been paid to the applicability and relevance of higher learning institutions in terms of addressing the pressing needs of the country under consideration. In many countries, concerns have been raised about the quality and relevance of higher education. In the policy debates emerging as a consequence of these concerns, a lot of attention has been paid to the applicability and relevance of higher learning institutions in terms of addressing the felt needs of the country under consideration. The contribution of education to the overall development of a nation becomes evident, especially through higher education.

[*]Associate Professor, Arsi University, Ethiopia.

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This is because higher education is considered a key to delivering the knowledge required for development (Egne, 2016). Besides, higher education is the level at which students are pursuing professional learning in their respective areas of specialization before they enter the world of work. In support of this claim, Nagda, Gurin, and Lopez (2003, p. 165) assert that "Universities and colleges serve as a pipeline, in socializing and training prospective workers to fulfill economic interests." Studies reveal a strong positive correlation between higher education participation rates and levels of development, and that high levels of education are essential for the design and production of new technologies, for enhancing innovative capacities, and for the development of civil society (Cloete, Bailey, & Maassen, 2011).

While the reforms of higher education in advanced economies have received much attention, relatively little is known about the change dynamics in higher education systems in developing countries. Therefore, through this paper I want to contribute to a better understanding of higher education system from the perspective of the type of pedagogy being practiced frequently and its consequences in producing competent graduates for the world of work in low-income countries by presenting the results of a study on higher education system in Ethiopia, Africa as a case.

Higher education is relatively a recent phenomenon in Ethiopia (Saint, 2004; Wagaw, 1990). This is because it is not more than 70 years since modern secular higher education had been introduced to the country. It can be argued that since the inception of university education in Ethiopia in the early 1950s, traditional pedagogy has predominantly been used in the higher education teaching and learning process of the country. However, with the coming to power of the Ethiopian People's Revolutionary Democratic Front in 1991, a new education and training policy, which gives much attention to issues of educational access, relevance, quality, and equity was developed (Federal Democratic Republic Government of Ethiopia, 1994).

Furthermore, reforms such as education and training policy implementation strategy, education sector development programs, continuous professional development programs, new school curricula, continuous assessment, decentralization of the educational administration, and the use of the vernacular languages of the different ethnic groups as media of instruction until the end of grade eight and the likes have been introduced to the education system of the country (Egne, 2020; Egne, 2017; Mebratu, 2011). Besides, the Ethiopian government has been aggressively working hard to improve the quality of education, amongst other things, in order to assist the civil servant of the country to bring real change in personal life as well as in work places. In addition, many public higher education institutions of Ethiopia have been aspiring to emphasize the production, transfer, and consumption of innovative knowledge via introducing pedagogical science training that intends to introduce concepts such as reflection, active learning, continuous assessment, research methodology, and school-industry linkage to instructors since 2003.

One could argue that quality education is ensured mainly through teachers' application of activity-oriented pedagogy, students' keen readiness for learning,

and the provision of adequate instructional resources (Al Shabibi & Silvennoinen, 2018; Ambusaidi, Badiali, & Alkharousi, 2021; Biku et al., 2018; Egne, 2020). In this regard, the type of pedagogy being used by instructors of the Ethiopian higher education institutions should enhance the implementation of the above reform programs. In other words, the programs' implementation requires the application of pedagogical science practice that fosters active engagement of teachers and students, in the teaching and learning processes.

However, although I served as a trainer as well as a coordinator of the program called pedagogical skills improvement and support for teachers program or higher diploma program in Ethiopian public universities for more than five years, to the best of my knowledge, there is no rigorous study which looked into the degree to which Ethiopian public university instructors improved their pedagogical science practices in order to enhance the learning outcomes of their respective students. Therefore, this is a curiosity driven study, which investigated the kind of pedagogy frequently used in the current Ethiopian public higher education institutions. In addition, the study aimed at scrutinizing the perils (if any) that hinder the effective implementation of transformative pedagogy in the Ethiopian public higher learning institutions. To this end, the following basic questions were raised:

- Which type of pedagogy is frequently practiced in the Ethiopian public higher education institutions?
- How much progress is made in the Ethiopian public higher education institutions in terms of changing the traditional or teacher-centered mode of lesson delivery into a more interactive mode of lesson delivery?
- What are the core challenges that hinder the effective implementation of the activity-oriented pedagogy in the Ethiopian public higher learning institutions?

Literature Review

Pedagogy

According to Knowles (1973), the term pedagogy was derived from the Greek words paid that means "child" and agogus meaning "leading". Therefore, pedagogy means, literally, the art and science of leading children. Similarly, as stated by Lenz (1982), pedagogy is made up of two Greek terms: paid which means "child" and agogus, meaning "teacher of," the literal translation being "teacher of children." Furthermore, as claimed by Manen (1990, p. 2), "pedagogy is the activity of teaching, parenting, educating, or generally living with children, that requires constant practical acting in concrete situations and relations". In a nutshell, whereas pedagogy deals with the education of children, andragogy dwells on the education of adults (Lenz, 1982).

Here, it should be noted that although pedagogy is rooted in the teaching of children, it is also applicable in the teaching of learners even at tertiary education

level. As a result, nowadays, pedagogy is generally conceptualized as the art and science of teaching. In addition, pedagogy is a cross-cutting issue which is applicable in every discipline as well as at every education level.

Pedagogy has a long history as its origin goes back even to the time of early Greek civilizations. As such, even the great Greek philosophers such as Socrates, Plato, and Aristotle dealt with "how people effectively learn something" in their seminal thoughts and deeds. For instance, during the time of Socrates, the "question and answer method" was used as a method of teaching (Bennaars, Otiende, & Boisoert, 1994). His method was called the Socratic Method and through this method Socrates was used to have conversation with those whose goal was to define inaccurate ideas such as virtue, beauty, justice, courage, and the likes by discussing their ambiguities and complexities with his students. The ultimate goal of Socrates' conversation was to help each student to become a master of his own mind and being.

In addition, the sophists, who were kinds of teachers in ancient Greece in the fifth and fourth centuries BC, used to teach subjects such as music, athletics, and mathematics using philosophy and rhetoric as basic tools. Those teachers claimed to teach excellence or virtue predominantly to young statesmen and nobility. To sum up, although not in its strict sense, the sophists attempted to apply certain pedagogical science principles and practices.

It can be argued that since the time of early Greek civilizations, in this way or another, pedagogy has been used as a strategy to enhance students' learning outcomes. However, because of the extremely growing condition of pedagogical science practices especially in the advent of digital learning, traditional pedagogical science practices no longer support effective students' learning outcomes. Therefore, there is a need for applying a more interactive and activity-oriented pedagogical science practices in our current teaching and learning processes in order to produce students who are creative, innovative, and critical thinkers (Al Shabibi & Silvennoinen, 2018; Ambusaidi, Badiali, & Alkharousi, 2021; Nind, 2020; Vaughn & Kuby, 2019). To get a clear picture of the difference between the teacher-centered and the student-centered teaching methods, the comparative analysis of the two teaching approaches is presented in Table 1.

Table 1. Comparison of Teacher-Centered Teaching Methods and Student-Centered Teaching Methods

Teacher-Centered Teaching Methods	**Student-Centered Teaching Methods**
Content-oriented	Process-oriented
Lecture	Discussion, presentation, reflection, etc.
Unidirectional	Bidirectional
Teacher occupies the central position	Students occupy the central position
Students are passive recipient of information	Students construct their own knowledge
Learning starts from outside	Learning starts from within

Table 1 shows the fact that in the teacher-centered teaching methods; great attention is given to the teacher and the contents to be learned whereas in the case of the student-centered teaching methods, great emphasize is given to the students

and the process of learning (Ambusaidi, Badiali, & Alkharousi, 2021). Furthermore, it is important to realize that this study is assumed to have a significant didactic impact in terms of improving teachers' pedagogical knowledge, skills, and values.

Conceptual Framework for the Study

This section focuses on the discussions of the main types of pedagogy and their inherent characteristics. Besides, the section sheds light on the kind of pedagogical science model or schemata that is used as analytical framework in this study.

Pedagogy may be classified into different types by different scholars based on different criteria at different times (Fedotova & Nikolaeva, 2014). Nonetheless, in this study, the pedagogical science typologies presented by Cummins (2000) are used as core analytical frameworks. According to Cummins (2000), there are three types of pedagogies: traditional, progressive, and transformative pedagogies. These types of pedagogies are time-tested and are the most widely used domains in analyzing the kind of pedagogy teachers frequently apply in their teaching duties and responsibilities. In the next section, thorough discussions are made on each of the three types of pedagogy in turn.

Traditional Pedagogy. The basic premise of this pedagogy is that the teacher's task is to impart knowledge and/or skills to students through structured lecturing. Students are passive recipient of knowledge (Cummins, 2000; Freire, 1993). Many scholars (Callahan & Clark, 1988; Cummins, 2000; Perrott, 1982; Yost, 2008) imply that traditional pedagogy emphasizes established canons, paradigms, theories, explanations, and perspectives. This means, knowledge is something which is "out there" in the world, fixed and made up of discrete and irrefutable facts. This, in turn, means it does not have room for creating and recreating new knowledge through reflections and interpretations.

The contents to be learned are the focus of the teaching and learning process and these contents are expected to be transferred by means of highly structured lectures and drills (Cummins, 2000). Knowledge is viewed as static as well as out there to be internalized and reproduced by students when required (Toro, 2017). This implies the banking education - that refers to the metaphor of students as empty containers that teachers must deposit knowledge into (Freire, 1993). Education, thus, becomes an act of depositing, in which the students are the depositories and the teacher is the depositor. This, in turn, implies the absence of creativity and reconstruction of knowledge by students through reflection and critical thinking.

The social assumption underlying this type of pedagogy is producing students who can easily comply with the expectations of the societal power structure (Apple, 2004; Chin, 2013; Cummins, 2000). It applies coercive power relationship between the teacher and the students (Freire, 1993; Cummins, 2000). Dependency, linear thinking, passive involvement, and hands-off learning are emphasized. In short, it applies a "one-size-fits-all" approach in the teaching and learning process (Egne, 2010; Tessema, 2007). As a result, particularly culturally and linguistically

diverse students have no opportunities to express and share their experiences with their teachers and classmates as they are made to be silent (Chin, 2013; Cummins, 2000). In addition, particularly disadvantaged students are expected to accept the societal status quo as well as their own inferior status therein (Apple, 2004; Egne, 2014).

In general, the central intention of applying the traditional pedagogy in the teaching and learning process is to produce dependent, head down, docile, and easygoing citizens. In other words, the objective of the teaching and learning process is to produce citizens who easily accept the existing socio-cultural status quo.

Progressive Pedagogy. The roots of this pedagogy go back to the pioneering work of John Dewey and Maria Montessori (Cummins, 2000). It is guided by core principles such as students' active involvement in the teaching and learning process, that learning should be through practical experience rather than having to absorb facts, and the process of learning is more important than the content to be learned (Egne, 2015; Zirkel, 2008). Unlike traditional pedagogy that promotes memorization of facts; progressive pedagogy encourages the construction of knowledge through the collaboration of students and teachers (Banks, 2006; Cummins, 2000).

In this case, the world is not seen as being made up primarily of fixed knowledge or facts. Rather, knowledge is seen as being unstable and dependent on the interpretation of the learner (Tessema, 2007). Therefore, although some facts are seen as being relatively fixed or stable, the teaching and learning process emphasis on using those facts in a creative, analytical or critical way instead of just absorbing them without question.

In addition, unlike traditional pedagogy that emphasizes the use of teaching materials that reflect only the values and priorities of the dominant group as a strategy to effectively suppressing the perspectives of culturally diverse students (Apple, 2004; Egne, 2014; Yishak & Gumbo, 2014); progressive pedagogy emphasizes collaborative inquiry and the construction of meaning as a core principle in students' academic development (Cummins, 2000). Any focus on issues of societal problems is limited to helping the learners to understand the realities without doing any attempt to challenge and thereby change the situation.

According to Cummins (2000), progressive pedagogy mainly focuses on the teaching and learning relationships and fails to articulate a coherent vision of the broader social implications of the instruction process. In general, critical reflection on students' own experience and critique of social realities are not emphasized in the teaching and learning process (Egne, 2014; Nieto & Bode, 2010).

To sum up, the fundamental intention of using progressive pedagogy is to produce citizens who recognize the social realities around them. However, there is no intention of extending the learners' reactions to the level of bringing changes and transformations in their nearby society and beyond.

Transformative Pedagogy. The teaching and learning assumptions of transformative pedagogy are similar to that of progressive pedagogy. Nevertheless,

they differ with respect to social assumptions (Cummins, 2000; Egne, 2014; Zirkel, 2008). Transformative pedagogy uses collaborative critical inquiry to enable students to analyze, interpret, and understand the social realities of their own lives and that of their communities in order to bring useful lasting changes (Apple, 2004; Egne, 2015; McLaren, 1995; Nagda, Gurin, & Lopez, 2003; Nieto & Bode, 2010).

Students think, discuss, understand, interpret, and frequently act on ways in which these realities might be transformed through different forms of social action (Banks, 2006; Egne, 2017; McLaren, 1998). Besides, unlike progressive pedagogy that emphasizes the collaborative construction of knowledge, transformative pedagogy links knowledge, social commitment, and action and thereby opts to bring changes (Egne, 2015). This means, instruction aims to go beyond the sanitized (clean) curriculum which is still the norm in most schools thereby helps the students to develop a critical literacy (Cummins, 2000; McLaren, 1998) that involves the development of students' analytic abilities that go beneath surface meaning (Nieto & Bode, 2010; Shor, 1992).

Critical literacy is similar to Banks' (1995) concept of "transformative academic knowledge" which he defines as "the facts, concepts, paradigms, themes, and explanations that challenge mainstream academic knowledge and expand and substantially revise established canons, paradigms, theories, explanations and research methods" (Cummins, 2000; Egne, 2015). It aims at creating society which is based on the principles of social justice – and classroom instruction is oriented towards building students' awareness of democratic ideals and giving them the academic and critical literacy tools, they will need for full participation (Cummins, 2000; Nagda, Gurin, & Lopez, 2003).

Drawing on Nieto and Bode (2010), critical pedagogy assists students to focus on knowledge, reflection, and action as the basis for social change through the promotion of democratic principles of social justice. In applying transformative pedagogy, instead of making students learn facts, attention is given to engaging the learners in deep learning through enhancing critical thinking and reflection. The classroom is considered a community of learning where knowledge is generated by the teacher and the students collaboratively (Cummins, 2000).

Generally, the basic intention of using transformative pedagogy is to produce citizens who recognize the social realities around them thereby attempt to change as well as transform the existing socio-cultural status quo to the better. In other words, there is an intention of extending the learners' level of understanding and reactions to be spearheading changes and transformations in their nearby society and beyond.

I argue that it is important to apply at least progressive and at most transformative pedagogy in the current Ethiopian higher education institutions (see Figure 1) in order to make the higher education institutions to effectively facilitate the learning outcomes of students.

Figure 1. Diagrammatical Presentation of the Analytical Framework

Source: Adapted from Cummins (2000).

Methodology

Research Method

The core intention of the study was to explore the degree to which activity-oriented pedagogical science practices are employed by Ethiopian public higher education institutions' instructors as a result of pursuing on-job pedagogical science trainings organized by their respective institutions. To this end, descriptive survey research method was used in the study. This is because descriptive survey research method enables a researcher to gather huge data within a limited period of time. Drawing on Best and Khan (2001) and Leedy and Ormrod (2005), one of the merits of using descriptive survey research method is to analyze the practices that prevail, beliefs and attitudes held, and processes that are going on. This is because it describes what actually exists such as current conditions, practices, situations or any phenomena.

Subjects of the Study

In this study, instructors and educational officials of the sample universities were considered as sources of data. The basic objective of gathering data from these groups was to cross-check the responses obtained from different angles through triangulation.

Samples and Sampling Techniques

In this research, three public universities i.e., Arsi University, Adama Science and Technology University, and Addis Ababa University were selected as samples purposely. The core reason underlying the selection of these three universities is to get diverse perspectives from the public universities established at different times. Furthermore, the reason underlying the selection of these three universities is the convenience that I got to conduct the study. In other words, since I decided to use the advantage of proximity, I thought that I could easily get collaboration from the respondents of the three universities. In line with this claim, Williams (2008) suggests that when the research site is convenient for the researcher, it has its own positive effect on the assurance of the quality of the final research findings.

When it comes to the actual sampling technique employed for taking samples, simple random sampling and purposive sampling techniques were used concurrently to select the subjects of the study. As such, simple random sampling was used to select the sample instructors whereas purposive sampling was employed to select the educational officials as well as the instructors who were interviewed.

Accordingly, a total of 240 instructors (80 instructors from each university) were taken as samples. In addition, six educational officials (two from each university) were selected as samples. Similarly, six instructors (two from each university) were selected for interviews using purposive sampling technique.

Instruments of Data Collection

In this study, questionnaire and interviews were used as tools for data collection. The items of the questionnaire and interviews were prepared based on Cummins' (2000) three types of pedagogy. As such, in the closed-ended items of the questionnaire, each of the three types of pedagogy was systematically repeated five times to check the consistency of the respondents' responses. Accordingly, the first, fourth, seventh, tenth, and thirteenth items were framed based on traditional pedagogy, the second, fifth, eighth, eleventh, and fourteenth items were set based on progressive pedagogy, and the third, sixth, ninth, twelfth, and fifteenth items were prepared in line with transformative pedagogy (see Table 2).

In addition, the items of the questionnaire were both closed-ended and open-ended. The former were prepared in a Likert-scale with five options (strongly disagree, disagree, undecided, agree, strongly agree) with the intention of obtaining objective responses through ensuring relatively better flexibility in the checking of each item, whereas the latter assumed to give the respondents full freedom to express their feelings.

After preparing the questionnaire, pilot study was undertaken at Ethio-China Technical and Vocational Institute, Addis Ababa. In this regard, the questionnaire was administered to a sample consisting of 20 instructors, randomly selected from the institute. The appropriateness of the items of the questionnaire, i.e., whether they solicit the intended data and the intelligibility of the wording, was judged based on the responses of the respondents and then slight improvements were made accordingly.

The reliability of the items of the questionnaire was calculated using internal consistency method (Cronback, 1951, as cited in Ferguson & Takane, 1989). Accordingly, the reliabilities of the items dealing with the sub-scales traditional pedagogy, progressive pedagogy, and transformative pedagogy were found to be alpha (α) = 0.77, 0.81, and 0.74 respectively. As suggested by Gay (1980), if reliability coefficient is ≥ 0.50, it can be accepted as reliable instrument. Based on this criterion, the items of the questionnaire were found to have good grounds to be used for collecting the relevant main data for the study. Furthermore, the validity of the items of the questionnaire was improved by gathering comments from the experts in the area of study under consideration.

In general, after checking the reliability and validity of the tools of data collection, the questionnaire was administered to (n=240) sample instructors that were selected from the three-sample public higher learning institutions under consideration. However, out of the total instructors, 180 filled out the questionnaire correctly and returned it, i.e., with the response rate of 75%. All of the respondents filled out paper questionnaire. To obtain additional information to the data which were provided by the respondents on the questionnaire, semi-

structured interviews were used as tools of data collection with six educational officials and six instructors from the same higher education institutions.

To sum up, the items of the questionnaire and interviews were designed in a way in which they complement each other. In other words, the content of the interviews followed that of the questionnaire, and thus were cross-checked with the questionnaire responses. In general, the contents and focuses of the tools of data collection emphasized the basic research questions raised in the research project.

Methods of Data Analysis

Both quantitative and qualitative approaches were used to analyze the data (Creswell, 2014; Creswell & Plano Clark, 2011). This is because these approaches provide the opportunity to gather, analyse and interpret both quantitative and qualitative data and thereby help the researcher to have an in-depth understanding of the research problem under consideration (Creswell, 2014; Teddlie & Tashakkori, 2009; Yin, 2014). This means that using a combination of qualitative and quantitative research methods enables a researcher to strengthen one method by offsetting the drawbacks of the other (Creswell and Plano Clark, 2011). This, in turn, is assumed to increase the validity, reliability and generalizability of the results of the study (Tashakkori & Teddlie, 2009). On the other hand, according to Johnson and Onwuegbuzie (2004), mixed methods research has drawbacks such as difficulty in mixing qualitative and quantitative data in a logical way, its expensive and time-consuming nature, and difficulty in reconciling conflicting results.

Although there are different types of mixed methods (Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori, 2009), in this study, a concurrent triangulation design, which enables a researcher to collect and analyse both quantitative and qualitative data simultaneously (Rauscher & Greenfield, 2009), was employed as a main design. This design is used in this research as it enables a researcher to give equal weight to both the qualitative and quantitative data within a single study as a strategy to cross-check or verify the results of the study (Johnson & Onwuegbuzie, 2004).

The data that were collected using the close-ended items of the questionnaire were analyzed quantitatively. On the other hand, the data that were collected using the open-ended items of the questionnaire and semi-structured interviews were analyzed using qualitative approach.

Results and Discussion

This section of the study dwells on presentation, analysis, and interpretations of the results of the study obtained via the tools of data collection. To this end, the data collected using close-ended items of the questionnaire were presented and analysed quantitatively whereas the data collected through open-ended items of

the questionnaire and semi-structured interviews were analysed using qualitative approach.

The data collected using the closed-ended items of the questionnaire were analysed quantitatively. To this end, the five-point scale was reduced to a three-point scale to make the data tabulation process more intelligible in terms of presenting the results in a concise manner. Hence, the values of the alternatives "fully disagree" and "disagree" were combined. Similarly, the values of the alternatives "agree" and "fully agree" were merged whereas the values of the alternative "undecided" were treated separately. Therefore, the tabulation, analyses, discussions, and interpretations were made based on the three-point scale table. On the contrary, the data gathered using the open-ended items of the questionnaire and interviews were analysed qualitatively.

The data gathered via the semi-structured interviews were analysed using thematic approach. In other words, the data analysis process involved transcribing which included constructions from an oral conversation to a written text, coding, and sorting out the frequent issues that emanated from the collected data. In this regard, to maintain anonymity particularly in direct quotations, the informants were substituted by related acronyms and then followed by subsequent numbers. Hence, the six educational officials were represented as EO1, EO2…EO6. Similarly, the instructor informants were substituted by I1, I2…I6.

Table 2. Instructors' Opinions on the Practices of Pedagogy in their Universities

Sl. No	**Questionnaire items**	**Proportion of instructors in each category**					
		Disagree		**Undecided**		**Agree**	
		N	%	N	%	N	%
1.	I usually use much of the time for presenting the contents of the daily lesson(s) in my teaching practice.	20	11.11	10	5.56	150	83.33
2.	I usually encourage my students to construct their own knowledge in collaboration with me.	120	66.67	14	7.78	46	25.56
3.	I very often encourage my students to analyze and understand the social realities of their own lives and of their communities.	114	63.33	6	3.33	60	33.33
4.	In my lessons, I give great attention to the contents to be learned rather than the teaching and learning process.	16	8.89	8	4.44	156	86.67
5.	I usually think that the process of learning is more important than the contents to be learned.	146	81.11	12	6.67	22	12.22
6.	I often encourage my students to discuss on ways in which their social realities might be transformed through different forms of social action.	160	88.89	4	2.22	16	8.89
7.	The core intention in my teaching is to enable students to master the subject matter(s) through memorization.	30	16.67	12	6.67	138	76.67
8.	I usually try to apply collaborative inquiry and the construction of meaning as a core principle in students' academic development.	120	66.67	18	10	42	23.33
9.	I usually encourage my students to create linkage between knowledge, social commitment, and action.	158	87.78	13	7.22	9	5
10.	I often encourage students to easily comply with the expectations of the societal power structure.	40	22.22	14	7.78	126	70
11.	I very often encourage my students to understand the notion that learning should be through practical experience rather than having to absorb facts.	152	84.44	8	4.44	20	11.11
12.	I very often make students to understand the fact that the ultimate goal of instruction should be realizing social change through the promotion of the principles of social justice.	144	80	5	2.78	31	17.22
13.	I often consider teaching as a practice of giving time-tested knowledge to students.	28	15.56	12	6.67	140	77.78
14.	I usually apply cooperative learning in my lessons in order to develop mutual understanding among my students.	162	90	6	3.33	12	6.67
15.	I often encourage my students to learn 'how to learn' so as to make them independent learners.	138	76.67	14	7.78	28	15.56

Note: N = number of respondents.

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As suggested by Cummins (2000), the basic characteristics of traditional pedagogy is that the teacher's task is to impart subject matter contents to students through formal and structured teaching. Likewise, the majority of the respondents (83.33%) agreed the fact that they usually use much of the teaching time for presenting the contents of the daily lesson(s) in their teaching practice. In addition, the majority of the respondents (86.67%) confirmed that in their lessons, they give great attention to the contents to be learned rather than the teaching and learning process.

Similarly, most of the respondents (76.67%) indicated the fact that the core intention in their teaching is to enable students to master the subject matter(s) through memorization. Besides, (70%) of the respondents confirmed that they often encourage students to easily comply with the expectations of the societal power structure rather than producing students who are agents of social changes. Moreover, (77.78%) of the respondents reported that they often consider teaching as a practice of giving time-tested and important knowledge to students. On the basis of these responses, it could be argued that the majority of the instructors are applying traditional pedagogy in their day-to-day instructional practices.

As suggested by Cummins (2000) and Zirkel (2008), progressive pedagogy encourages the construction of knowledge through the collaboration of students and teachers. Nevertheless, the majority of the respondents (66.67%) indicated that they do not usually encourage students to construct their own knowledge in collaboration with their teachers. By the same token, most of the respondents (81.11%) said that they do not usually think that the process of learning is more important than the contents to be learned.

Furthermore, the majority of the respondents (66.67%) reported that they do not often try to apply collaborative inquiry and the construction of meaning as a core principle in students' academic development. Most of the respondents (84.44%) also asserted that they do not very often encourage their students to understand the notion that learning should be through practical experience rather than having to absorb facts. Moreover, the majority of the respondents (90%) suggested that they usually do not apply cooperative learning in their lessons in order to develop mutual understanding among the students. From the above responses, one can deduce that the majority of the instructors of the three sample universities do not apply progressive pedagogy in their day-to-day instructional practices.

As pinpointed by McLaren (1995) as well as Nieto and Bode (2010), transformative pedagogy uses collaborative critical inquiry to enable students to analyze and understand the social realities of their own lives and of their communities. Nonetheless, the majority of the respondents (63.33%) claimed that they do not very often encourage the students to analyze and understand the social realities of their own lives and of their communities. Similarly, most of the respondents (88.89%) said that they do not often initiate students to discuss on ways in which their social realities might be transformed through different forms of social action.

In addition, most of the respondents (87.78%) reported the fact that they do not usually pledge their students to create linkage between knowledge, social

commitment, and action. Furthermore, (80%) of the respondents held the opinion that they do not very often make students to understand the fact that the ultimate goal of instruction should be realizing social change through the promotion of the principles of social justice. Lastly, the majority of the respondents (76.67%) assured that they do not often encourage their students to learn "how to learn" so as to make them independent learners. The above responses are indicative of the fact that the majority of the respondents do not use transformative pedagogy in their day-to-day teaching and learning processes.

Moreover, one of the key questions raised through the open-ended items of the questionnaire was "Do you think that Ethiopian university instructors significantly changed the way they deliver their lessons following the on-job trainings such as pedagogical science skills improvement and support for teachers program, Business Score Card, Business Process Re-engineering, and/or Kaizen? If your answer to the above question is "No," could you please describe the major factors that hinder instructors to bring significant changes following their participations in those on-job trainings?" In response to this question, some of the core points noted by the respondents are:

- Ethiopian teachers usually give due attention to the benefits they get from participating on the on-job trainings rather than focusing on the payoffs they get from participating on those professional trainings.
- Most instructors think that there is no merit-based system in the country. As a result, they do not give great attention to professionalism and the training programs that update their professional competences.
- There is a general problem of attitude towards pursuing on-job trainings in the country.
- There is no well-organized and user-friendly pedagogical science handbook for Ethiopian university instructors.
- Except giving sporadic on-job trainings, there is a general lack of organizing and offering well-organized continuous professional development programs in Ethiopian higher education institutions.
- The components of the training packages are usually not designed based on Ethiopian realities. So, what the trainees learn in the packages, in most cases, have no direct relevance to their day-to-day professional practices.
- There is a general lack of attention given to issues related to life-long learning or continuous professional development in Ethiopian higher education institutions. As a result, there is little improvement in this regard.

These responses may show the fact that the Ethiopian higher education institutions do not have a well-organized system through which their academic staffs get relevant and sustainable need-based trainings. Under such circumstances, it is very difficult to expect quality from the education rendered by those institutions. This, in turn, suggests the fact that there are compelling conditions that force public higher education institutions of Ethiopia to offer need-based and well-organized continuous professional development program for their academic staffs.

In addition, in response to the question "What do you suggest to help Ethiopian higher education institutions" instructors frequently apply activity-oriented pedagogy in order to effectively facilitate the learning outcomes of students?' most respondents indicated that:

- The leaders of public higher education institutions must get adequate awareness and must be convinced about the relevance of life-long learning or continuous professional development program.
- The Ethiopian government must press the leaders of public higher education institutions to show real commitments and determinations to implement staff development programs.
- There is a need for strengthening partnership between public and private higher education institutions in order to help them share best experiences and research findings that can improve the existing trend of staff development programs.
- Well-organized and context-based sustainable pedagogical science trainings should be given to public higher education instructors.
- Issues of staff development programs must be given due attention by the Ethiopian Higher Education Relevance and Quality Agency.

These responses imply the fact that a lot of works are needed in order to organize need-based sustainable staff development trainings in the public higher education sector so as to improve the quality of education offered by those institutions. This means that there is a need for giving due attention to both updating and upgrading programs in the public higher education sectors of the country.

Results of Interviews

As noted earlier, in addition to survey, semi-structured interviews were used as tools of data collection. In this regard, data were gathered from both educational officials and instructors. In this respect, in response to the interview question "Is there a well-organized pedagogical science updating program for teachers to effectively teach their respective course(s) at your university?" one of the interviewees said:

> Yes, we have a program called PSIST/HDP training at our university. The program is intended to improve the pedagogical science knowledge and skills of the instructors (EO4).

Similarly, another official who took part in the interview asserted:

> Yes, we have HDP at our university. The training is offered to all instructors as a mandatory program in order to help teachers to get an in-depth understanding about the essence of teaching and learning processes (EO1).

From the above responses, one can realize that there is pedagogical science training at the sample higher education institutions. Nevertheless, from the responses of the informants, it is not clear whether or not the training is a regular and well-organized one.

Instructors may need support from the entire community of higher education institutions, and especially from educational administrators, to effectively produce citizens who are independent learners and critical thinkers. To do so, in the first place, apart from subject matter knowledge (Nind, 2020; Stevenson, 2020; Uner & Akkus, 2019), they must get adequate inputs concerning pedagogical science trainings. In this regard, in response to the interview question "To what extent do you think that continuous professional development has been materialized in your university's context through pedagogical science and other trainings?" one of the official informants responded:

> Although it is difficult to know the degree to which change is brought in a continuous manner, I think the pedagogical science trainings we offer via PSIST/HDP program can serve as a good input in terms of improving the teaching competences of our instructors (EO3).

By the same token, another official asserted:

> We usually deliver pedagogical science trainings for our instructors for limited months in a one-time fashion. In such context, I think it is difficult to ensure continuous professional development (EO2).

The above responses reveal the fact that the current pedagogical science trainings given in the public higher education institutions of the country are a one-time training. As a result, there is no tradition of arranging and offering continuous professional development programs. Under such condition, it is less likely that the instructors produce students who have inquisitive minds and critical thinkers.

To effectively produce students who have high-order thinking as well as problem-solving skills, there is a need for engaging them in activities that develop their analytic powers. To do so, in the first place, the challenges that hinder the instructors from getting adequate and sustainable life-long learning techniques should be alleviated. Based on this premise, the following interview question was posed to an official: "What are the challenges that hinder the effective implementation of the activity-oriented pedagogy at your university?" In response to the question, the informant noted that:

> Most instructors give great attention to upgrading programs because of the benefits they get in relation to improving their level of qualifications. However, when it comes to continuous professional development programs, people give little attention to them because of problems related to attitude (EO5).

In response to the same question, another instructor commented that:

> Although it is extremely important for instructors to use the activity-oriented pedagogy, due to challenges such as lack of meritocracy, concern and commitment,

> poor reading habits, lack of reflection, and research cultures, most Ethiopian university instructors mainly use the traditional method of teaching i.e., the lecture method (EO6).

To cross-check the responses of the educational officials, similar interview questions were posed to some selected instructors of the sample universities. In this regard, in response to the interview question "Which teaching method do you use most of the time? Lecture method or active learning? Would you please explain why you use the method so often?" One interviewee asserted:

> I usually use the lecture method in order to cover the contents of the courses I teach. To apply activity-oriented pedagogy preconditions such as minimising the contents of the courses, changing the attitudes of students, changing the attitudes of educational officials, and the general public are needed (IN3).

In answering the same question, an instructor illustrated:

> I think, the core challenge that hinders instructors from frequently using an interactive pedagogy is negative attitude towards the teaching profession. Most instructors often engage in moon light works to subsidize the salary they earn through regular bases (IN1).

The above responses indicate the fact that unless the core problems raised above are solved, it is difficult to apply the activity-oriented pedagogy in the day-to-day classroom instructional duties. This, in turn, has a far-reaching implication for the quality of education provided by the higher education institutions.

In general, the above results revealed that although the sample instructors were assumed to apply the student-centered pedagogy frequently, most of them were found to still rely on the chalk and talk method i.e., the lecture method. In addition, results of the study showed that, in a relative term, young instructors show a tendency of applying instructional technologies such as smart classes to some extent, old instructors are found to be entangled in techno-phobia problems.

Conclusions

The central intention of this study was to investigate the degree to which improvements are made in the pedagogical science practices applied by Ethiopian public higher education institutions' instructors as a result of pursuing on-job pedagogical science trainings organized by their respective universities. To this end, a research design involving descriptive survey research method was used. In the study, data were collected using questionnaire and interviews. Mixed methods were used to analyze the data.

The findings of the study revealed that most instructors of Ethiopian public universities still use traditional pedagogy despite all the efforts made to assist them to apply active learning methods. In other words, although the instructors are expected to apply the activity-oriented pedagogy, they are found to frequently use

the teacher-centered teaching method. In addition, challenges such as undesirable attitude towards their profession, in adequate salary, lack of meritocracy, absence of concern and commitment, lack of continuous professional development programs, absence of conducive teaching and learning context, poor reading habits and absence of reflection are found to negatively impact teachers' use of the activity-oriented pedagogy most of the time.

On the basis of the above findings, although the Ethiopian government more than ever stresses programs that support the improvement of education quality via the application of hands-on pedagogy, it can be concluded that the type of pedagogy very often applied in the public universities is the lecture method. In other words, it can be concluded that there is little progress in terms of improving the type of teaching method that is employed in the higher learning institutions of the country.

Therefore, to assist the instructors to apply the intended pedagogical science practice, it is important to deliver a well-organized and sustainable continuous professional development programs that focus on transformative pedagogy in the public higher learning institutions of the country. Besides, the trainings should be offered by high caliber pedagogical science specialists.

In addition, there is a need for preparing a need-based as well as user-friendly pedagogical science handbook for instructors that may serve as a quick reference in order to maintain uniformity among the various higher learning institutions of the country and/or to simplify the training process. Moreover, in order to measure the changes brought about as a result of offering the intended pedagogical science trainings, it is important to set nationally agreed upon indicators/parameters against which the success or failure of the program could be evaluated.

Furthermore, for the effective implementation of continuous professional development programs that emphasize pedagogical science trainings in the public higher education institutions of the country, there is a need for raising the awareness as well as the commitments of the leaders of the institutions. This is because these leaders can either accelerate or deter those professional development programs depending on their level of awareness and commitments.

To ensure the sustainability and effectiveness of the student-centered pedagogical science trainings given across the higher education institutions of the country, there is a need for establishing a fully-fledged as well as well-furnished pedagogical science training centers in the respective higher education institutions. These centers, amongst other things, should offer induction training for novice teachers but on-job trainings for the experienced ones. As part of these efforts, there is also a need for creating relevant and sustainable partnership between private and public higher education institutions in order to significantly improve the type of pedagogy they apply frequently through experience sharing programs.

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