

Training of Geography Teachers for Secondary Schools at University in Uganda: An Analysis of Gulu University Teacher Trainees' Teaching Practice

Expedito Nuwategeka

Lecturer, Gulu University, Faculty of Education and Humanities,
Department of Geography, Gulu, Uganda.

Stephen Odama

Lecturer, Gulu University, Faculty of Education and Humanities,
Department of Foundations of Education, Gulu, Uganda.

ABSTRACT

The changes in learner characteristics and the learning environment in the twenty first century calls for adjustments in teacher training to meet the needs of the contemporary learners. This study analyses training of geography teachers at Gulu University with the view of assessing the application of contemporary geography teaching methodologies for the twenty first century learners. Time- series data were collected from teacher trainees' lesson plans used during school practice running for three consecutive years of 2016, 2017, and 2018. Teaching methods as well as types of instructional materials were extracted from eighty one lessons taught by teacher trainees in thirty six schools in both rural and urban Uganda. Using SPSS 16.0 software, data was analysed to generate frequencies, counts and cross-tabulations. Findings reveal that question and answer method was the most used while guided discovery was the least used, followed by demonstration. Fieldwork and project methods were not used at all. It was also found out that in 12% of all the lessons, there was no use of instructional materials in the teaching/learning process. The study recommends that the curriculum structure of future geography teacher trainees be improved to factor in contemporary teaching styles which use modern teaching equipment relevant to the current generation of technology and learners, and the training of lecturers who mentor geography teacher trainees at universities be institutionalized.

Key words: teaching methods; geography; teacher trainees; instructional materials.

INTRODUCTION

Teacher training practices require constant revision in order to produce teachers who are abreast with current trends in pedagogy. As such, teacher training should always incorporate new and emerging pedagogical techniques so that the newly trained teachers are able to apply the techniques in actual teaching and learning environments. Contemporary teaching approaches focus

on fostering students to construct new scientific knowledge as a process of inquiry rather than having them act as passive learners memorizing stated scientific facts [1]. Teachers therefore have to be informed of the changes in the methodology of delivering content to the learners in order to achieve effective learning. Teacher training for secondary schools produces subject-specific teachers; and one of the subjects which span secondary schools as well as university curricular is geography.

Geography as defined by Kagoda [2] is a discipline which seeks to explain the character of places and the distribution of features and events as they occur and change the surface of the Earth. This means geography is a dynamic, not a static subject; and therefore, its teaching methodologies keep changing as well. By its nature, geography can be categorized among both the natural as well as the social sciences. This view is reinforced by [2] that geography is an interdisciplinary subject which is practical in nature and requires use of strategies that give the learner hands-on experiences. This unique classification of the subject ensures that the teaching methods for the subject draw from the sciences and the arts methodologies.

The quality of the teacher and his/her work with students in teaching geography does not only depend on a good knowledge of the mere profession, but also on the quality use of the best achievements of modern pedagogical science [3]. Good knowledge of the psychological aspects of working with students, in addition to qualifications of a geography teacher, most certainly implies his/her methodological competence.

Methodological competence of geography teachers are rooted in their training in the teacher training colleges and universities. To this end, inculcating the contemporary methodologies among the teacher trainees is an end in ensuring the learners at secondary school levels acquire geographical knowledge to solve contemporary environmental and development problems.

Teaching methods in geography may not be necessarily new as pointed out by [4], instead, the use of technology in the classroom has simply given education a new lease of life allowing us to approach old ideas in new ways. Such technology may include, for example, use of computers in teaching, social media, and blogs. Audio-visual aids are some of the instructional devices which are used in the classroom to encourage learning and make it easier and motivating. Other material like models, charts, film strips, projectors, radio, television, maps, artifacts or props are as well cited as examples that may aid the teaching/learning process [5]. Relatedly, modern techniques recommended for geography teachers are problem-solving, small group discussion, project participation and cooperative learning like field work, role plays, game, and music [6]. This therefore calls for new approaches in teaching and learning; like blended learning, problem-based learning, which a twenty first century geography teacher must be equipped with.

In Uganda, since there is little or no additional training to teachers after leaving universities and other teacher training colleges [6], it is imperative that teacher trainees get exposed to all the pedagogical skills while still under instruction in teacher training institutions. As such, geography teaching methods used by teacher trainees may be a proxy for evaluating the application of new teaching methods at secondary schools. Gulu University is one of the several teacher-training institutions in Uganda. This study focuses on the training of geography teachers for the secondary schools. The training at the University is a three years programme involving training students in

geography pedagogical skills. At the end of the second and third years during the training, trainees are placed in secondary schools to practice the acquired skills under the supervision of different mentors. The practicum is, among other things, aimed at ensuring the new and emerging teaching techniques are implemented in the real classroom situation; and ultimately on the job when they complete the training. The objective of the study was to analyse the teaching methods and instructional materials employed by teacher trainees, and assess how the methods compare with the current global trends in geography teaching at secondary schools.

MATERIALS AND METHODS

Secondary data sources, particularly review of documents was the primary method of data collection. Teacher trainees' lesson preparation books for geography used while on placement in secondary schools were reviewed. This method was chosen because during the school practice activity, students always summon all the teaching methods they have been trained in due to the fact that they are always expecting a mentor to supervise their classes. The supervision is always scored; and therefore, the student teachers naturally use a variety of teaching methods with different learning environments so that they increase their chances of scoring highly. Secondly, the teacher trainees' lesson preparation books can be used as a proxy to evaluate the lecturers on the variety of teaching methods they expose their trainees to since the school practice environment is the one that facilitates the observation of these methods.

Consequently, 81 geography lessons spread over a training period of three years starting 2016 to 2018 were reviewed. Statistical methods to determine the frequencies of the teaching methods in each of the year were computed using SPSS 16.0 software. This was aimed at identifying the types of teaching methods used, and the frequency with which it was used. A time series analysis of the methods was done to determine if there were changes in the methods over the period of three training years (as a proxy of exposing students to new emerging methodologies, and dropping the old irrelevant methodologies).

Apart from the teaching methods, the study also documented the types and frequency of instructional materials used in all the 81 lessons. This was because for effective learning to happen, teaching/learning aids must be used to enhance the methods.

There was a mix in the category of secondary schools sampled where the students conducted their practice to include both rural and urban schools, government-aided versus private schools. This was aimed at controlling the issue of resources (material and financial) to fund the implementation of the different teaching methods.

RESULTS AND DISCUSSION

Teaching methods used by teacher trainees

Results from the study indicate that on average, teacher trainees used very few methods for teaching geography. Across all the three years of 2016, 2017, and 2018, eight methods were used to teach geography. In each of the years, all eight were used; meaning there is a constant re-application of the methods without applying any new ones or discarding the irrelevant ones. A geography teacher is supposed to use a variety of teaching strategies to make geography fun, interesting, motivating, leading to effective learning [2]. Figure 1 summarizes the teaching methods that were used by teacher trainees.

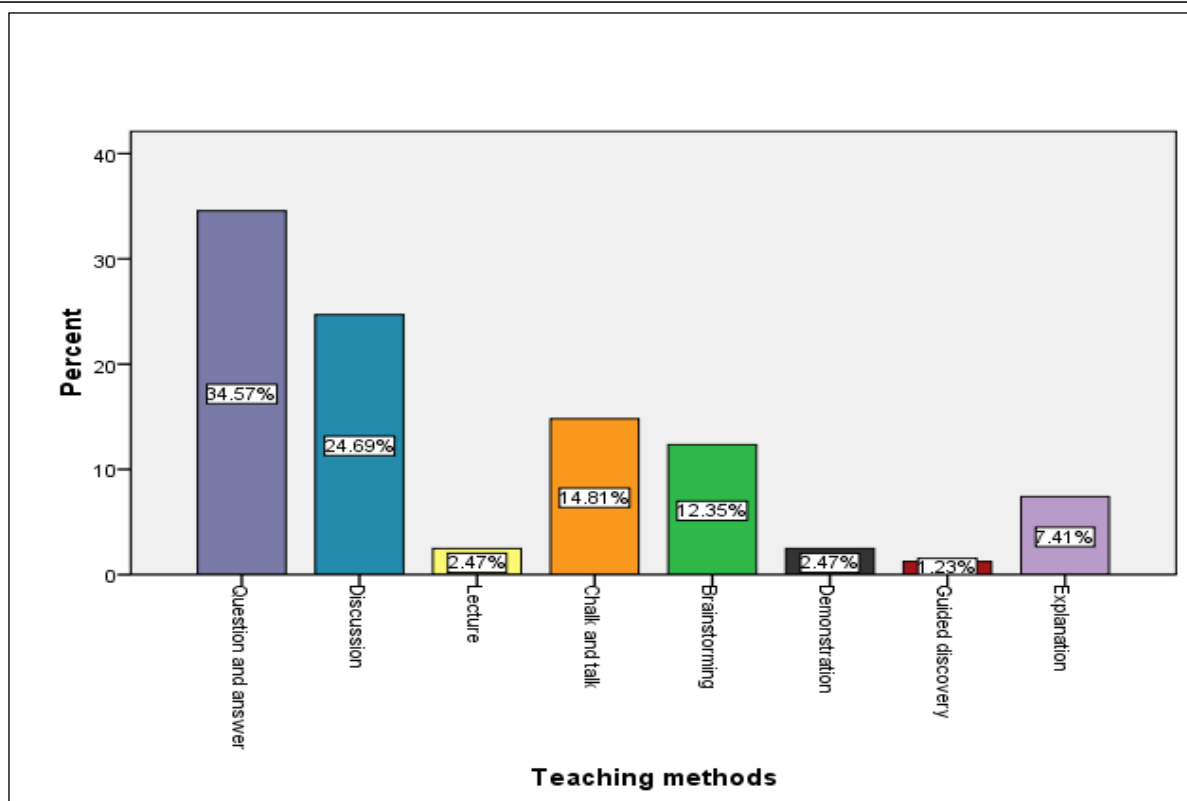


Figure 1. Teaching methods used by teacher trainees.

In most of the literature, teaching methods, teaching strategies, teaching techniques have been used inter-changeably to mean a set of instructional ways of fostering teaching and learning. There are a multitude of methods of teaching geography as identified which include lecture, discussion, demonstration, fieldwork, project, questioning, observation, experimentation, presentation, dramatization, gamification, flipped classroom, textbook assignments, and laboratory [2, 4, and 7]. Demonstration method was among the least used teaching methods, accounting for only 2% of all the methods yet geography, being a practice-oriented subject needs a lot of demonstration. Demonstration involves observing first. Learning by observation is followed by doing; hence, drill and practice exercises are required to enable the students to eventually perform the activity on their own as individuals or as a group; for example topics in Geography like weather measurement and map work can be effectively taught if demonstration is used [7].

In most of the geography teaching, demonstrations require the knowledge and application of Geography Information Technologies [8]. Technology in education is a cross-cutting issue in facilitating effective teaching and learning. Thus, [9] emphasize that educational technology tools such as computers, probe ware, data collection and analysis software, digital microscopes, hypermedia/multimedia, student response systems, and interactive white boards can help students actively engage in the acquisition of scientific knowledge and development of the nature of science and inquiry. However, due to a lack of funds to afford such technologies, teachers, and for that matter geography teacher trainees may not implement teaching methods that require the use of modern technology in the classroom. This could explain why the project method was not used by

the teacher trainees at all, and demonstration used by a negligible number yet they are some of the most effective methods in teaching geography.

Question and answer method was the most used method by teacher trainees, accounting for about 35%. Whereas this method has been traditionally used in facilitating critical reflection in geography teaching, it shouldn't dominate since geography, being both an arts and science requires a balance between methods that facilitate learning in both fields. In a study about geography teaching methods in Kenya, it was found that whereas the use of question and answer method by teachers stood at 83.5% its preference by students was at only 48% [7]. Preference of a teaching method by students arouses interest in the subject, and may facilitate quick and permanent learning. Quite often, teachers would want to deploy teaching methods they are comfortable with, ignoring learners' preferences. Whereas this will facilitate teaching, learning may not take place.

Given the results from the study, out of eight, the three mostly used teaching methods, i.e. question and answer, discussion, and chalk and talk which are traditionally social sciences-based methods of teaching accounted for about 74%. This is an indication that practical and hands-on methods like field work, demonstration, laboratory and project methods were not often used in geography teaching. The knowledge-based methods were used most and the skills-based ones used less yet geography should equip students with both knowledge and skills in environmental management. Results indicate that in all the three years, fieldwork method was not used at all. The importance of fieldwork method in teaching geography cannot be over-emphasized. the involvement of the students in the learning process provided by field work as a teaching method provides the learner with sound and concrete basis for conceptualization, first-hand information, makes learning more meaningful and gives the learner long lasting memory and opportunity for improving social relationships among students and between students and the teachers [10].

Fieldwork method promotes the constructivism approach in teaching, where the constructivist teacher helps the students through problem-solving and inquiry-based learning activities with which students formulate and test their ideas, draw conclusions and inferences, and pool and convey their knowledge in a collaborative learning environment [11]. Constructivism transforms the student from a passive recipient of information to an active participant in the learning process. According to the requirements of the National Council for Higher Education (NCHE), a regulator for the universities and other tertiary institutions in Uganda, academic programmes and curricular at Bachelor degree level must be revised every after five years of implementation. This in part is to ensure that current changes in the profession are factored in the revised programmes to remain relevant to the training and needs of the industry. To this end, geography teaching being an evolving field, new changes in the teaching styles and the requisite teaching materials need to be communicated to the teacher trainees to match the trends in the subject. In this study, it was observed that for all the three years, the teacher trainees were using the same methods of teaching (without bringing on board a single new method) yet the curriculum for the Bachelor of both Science and Arts Education programmes had been revised in 2017. The above observation points to the fact that teacher trainees are not being exposed to the new and emerging methods of teaching geography at the University.

Despite the regulation of university training by the National Council for Higher Education, there are no specific guidelines relating to the professional qualifications required for teacher trainers in

Ugandan universities. The risk of not having a professional regulator for teacher trainers in universities exposes the trainees to the risk of depending on the personal initiative of the university lecturers in as far as mentoring and providing training resources and knowledge of geography teaching is concerned.

How the teaching methods used by trainees compare with the current trends in geography teaching at secondary schools.

Literature on the current best-practices in teaching geography at secondary schools points out a variety of teaching methods and strategies, which include use of student-centered teaching methods in Geography education like project-based learning, cooperative learning, and problem-based learning; use of model, active learning practices, test method, computer-aided instruction in geography lessons; and drill and practice exercises where students perform the activity on their own as individuals or as a group [12]. These strategies will ensure learning by doing, by sharing and by participating. Table 1 presents the list of very critical and contemporary geography teaching methods which were not used at all by the trainees in the three years of the study.

Table 1. Contemporary geography teaching methods not used by teacher trainees.

Number	Teaching method
1	Fieldwork/excursion
2	Project
3	Experimentation
4	Dramatization
5	Gamification
6	Laboratory
7	Flipped classroom
8	Observation
9	Role play
10	Presentation

Source: Omoro & Wakhungu (2014); Kagoda (2016); and Santos (2018)

A general observation is that student teachers use few methods of teaching geography relative to the number available. This may be partly attributed to the professional development of geography lecturers who are mentoring teacher trainees. Unlike teacher trainers for lower levels of education, university lecturers training secondary school teacher do not undergo a deliberate, targeted, and regulated training programme to prepare them to train graduate geography teachers. In Uganda, the department of Teacher/Instructor Education and Training (TIET) is responsible for the training of tutors of primary teachers' colleges & health training institutions, instructors of technical training institutions, and lectures for specialized training institutions including national teachers' colleges, colleges of commerce and technical colleges among others [13]. University lecturers who train secondary school teachers are not trained by TIET. This could partly explain why university teacher trainees of geography are exposed to a few methods of teaching the subject despite the existence of numerous methods available.

Apart from the lack of deliberate and targeted training programme for teacher trainers of Geography teachers, lecturers involved in teaching and mentoring geography teacher trainees do not have specific Continuous Professional Development (CPD) programmes, any activities aimed at enhancing the knowledge and skills of teachers by means of orientation, training and support [14]. The implication of this is that the mentors transmit the very knowledge they were trained into during their school days to the trainees who are expected to practice in the times very different from that of their mentors.

Instructional materials used by teacher trainees

Just like teaching methods used by the teacher trainees, there were a limited number of teaching/learning aids used. The reasons for this may stem from a general lack of creativity to a lack of the relevant aids in the schools. The aids used are categorized and presented in Figure 2.

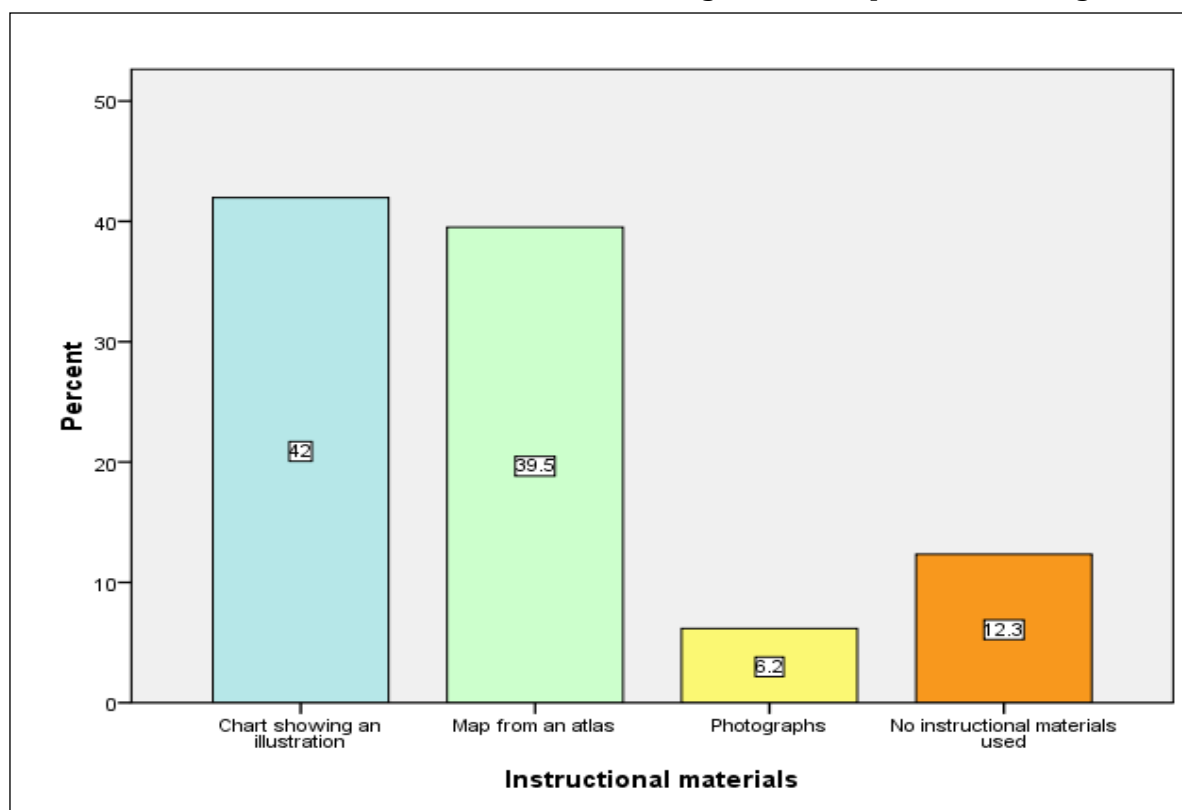


Figure 2. Instructional materials used by teacher trainees.

The most-used instructional materials were charts at 42%, and the least used were photographs, accounting for only 6%. Charts were mostly illustrations drawn on manila cards showing mainly graphs, pictures and maps. It should be noted that in 12% of all the lessons analysed, there was no single use of a learning aid. Ideally, every lesson of geography should have instructional resources for the students. For this to happen, teachers themselves must have mastery of the skills in using such learning aids to boost their confidence to use them.

In a study conducted in the Philippines, it was found out that there were limitations on teachers' knowhow on the usage of map, globe, and charts in teaching geography [12]. This implies that teacher training should deliberately target skills acquisition by trainees in the use of various

teaching aids for geography. Related to the above, teachers, in the same study agreed that one of the most unpopular aspects of geography teaching was the need to utilize teaching resources/materials every time lessons are presented. This may partly explain the observed no-usage of any instructional materials in some lessons in our study although this aspect was not investigated.

Sometimes teacher trainees or professional teachers in practice may not deploy the use of learning aids. It should be noted that mere acquisition of knowledge and skills during teacher training does not guarantee their (teachers') implementation of the same. This is observed by [9] that contextual factors and teachers' pedagogical reasoning affected teachers' ability to enact in their classrooms what they learned in the program. One of the most mentioned challenges to implementing appropriate pedagogies for geography is the lack of teaching materials; both reference and audio-visual. This challenge has been highlighted in the Philippines, Kenya, USA, and most parts of the World [7, 12, 15, 16, and 17]. In the current study, it was not investigated if non-use or limited use of audio-visual aids was due to the trainees' lack of skills or the absence of the aids in the schools of practice.

The general observation was that there is limited creativity in sourcing for instructional materials. Real objects like plants, rocks, and soil samples, models, and audio-visual aids like television, radio, and videos may be some of the instructional materials that come in handy to compliment the teaching/learning process. None of the mentioned materials were used by teacher trainees. It is believed that in 12% of the cases where no instructional materials were used, any of the above categories would have been deployed.

CONCLUSION

Teacher trainees used relatively few geography teaching methods as well as instructional materials during their practicum. Whereas there was no single use of instructional materials in some lessons, even in those lessons where the materials were used, there was limited variety. The dominance of charts generated by teacher trainees and the complete non-usage of real objects and audio-visual aids points to limited creativity in sourcing and using instructional materials. It has been observed that the trainees may be exposed to a limited number of teaching methods by university lecturers who themselves do not undergo neither a deliberate training programme to prepare them to train teachers nor continuous professional development. There should be an institutionalized arrangement for training university teacher trainers so that the shortfalls in pedagogical preparation of teacher trainees may be addressed from the root.

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