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Pedagogic Creativity and Teaching Performance in relation to Content Competency of Student Teachers at Secondary Level

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Abstract

Now-a-days the school curriculum transaction in Kerala follows Constructivist teaching learning process and is handled by trained teachers with creative thinking skills. They will facilitate the students' creative thinking, critical thinking, logical thinking, etc. We need more content competency and creative thinking among prospective teachers. Those who can think creatively be able to do the pedagogic analysis of the content to be transacted. Pedagogic creativity among prospective teachers needs to be nurtured during inservice training to address the new generation creative learners. Therefore, the pre-service teacher education programme should address these elements in the curriculum. In the present study the investigators made an attempt to find out the level of pedagogic creativity, teaching performance and content competency of student teachers at secondary school level by taking a sample of 68 physical science student teachers studying in two years degree course in different teacher education institutions in Kerala. The study also attempted to find out the relationship between these variables taken in pairs. Majority of the student teachers are having high pedagogic creativity, teaching performance and content competency. There exists a significant correlation between pairs of all these variables. It may be concluded that enhancing creative thinking skills through proper interventions can enhance teaching performance of student teachers. Strategies to develop creative pedagogic skills are to be incorporated in teacher education programmes as this in turn will affect the creative thinking ability of students at the secondary school level.

Index Terms: Pedagogic Creativity and Teaching Performance, Content Competency, Student Teachers

Introduction

The rapid changes of the world are influencing education in many ways and so we need to think about changes in the teaching-learning process, and to aim at recognizing the needs of individual with the new needs of the society. From time to time the methodology, philosophy and sociology of education change from time to time. This needs creative thinkers in every field of life. This can be achieved only through teaching for creativity through creative teaching in adopting new ways and means in curricular transaction. Creativity is not a new term in the field of education. Creativity in education and society are inevitable because the changing society always needs creative thinkers. Educating the common people for creativity was the major aim of education at the ancient time. But only few people could get the opportunity to be trained for creative thinking.

In the present century secondary school teaching mainly based on social constructivism. Co-operative and collaborative learning strategies are widely used in the field of education. National and state level curriculum frame works give stress to construction of knowledge by students through proper scaffolding and the teachers are trying to make students reach at the extreme level of Zone of Proximal Development. The individual difference also addressed. Integrated classrooms are giving challenges to secondary school teachers.

In the technological era the students are in the midst of knowledge and information as they have great access to internet sources. The teachers are expected to possess content competency to a very high level in order to meet the challenges proposed by the new generation learners. The students may not be able to process the information by using their higher order thinking abilities. Then the teacher should have the ability to analyse the content more critically, logically and creatively so that the students shall become creative and constructive in their thinking. This will lead to the generation of new knowledge and also innovative applications of the concepts they have generated. Innovative teaching-learning strategies can be adopted by the teacher to enhance the cognitive abilities like creative thinking, logical reasoning and critical thinking etc among students. By these we can make creative learners. So, we need pedagogic creative teachers.

Pedagogic creativity can be considered as the ability of a teacher to plan the lesson, transact the lesson and evaluate the students in a divergent way. No two teachers teach identically. So, we can identify different elements of creativity in teaching. A teacher with pedagogic creativity will think divergently when analysing the content for preparing the lesson plan. During the process of content analysis in science the teacher needs to understand specifically the facts to be presented before children. In this phase of finding out facts for developing a sub-concept or concept a creative teacher can identify novel daily life situations and experiences which are not mentioned in the text books or teacher's hand books. And also, fact where more than one sub-concept or concept can be derived. It will help the student to think abundantly about the facts around them. It will lead to develop fluency; one of the major components of creativity among children. If the children belonging to different regions are to be addressed by the same teacher, teacher need to possess pedagogic creativity to satisfy the needs of these children. For example, when a teacher is expected to teach about waves, students coming from coastal area will be satisfied with the example of waves, but the teacher needs to find more examples from daily life to those coming from hilly area or the teacher needs to create artificial life situations to make them think about waves.

While introducing a lesson the teacher needs to develop interest, curiosity, motivation for further enquiry etc among children. A pedagogically creative teacher will present the lesson by taking either life examples or analogies or experiments or cinema clippings etc. While teaching about inertia the very old traditional text books and teacher hand books are providing with the example of a person travelling in a bus or car, cleaning a carpet, wearing seat belts etc. But students who are very much interested in viewing cinema can be made curious by showing a clipping of a film where we can see the application of inertia. Maintaining this motivation throughout the classroom teaching is expected from a creative teacher. Teacher with pedagogic creativity will use variety of entertaining and at the same time intellectual activities such as bits of music, sports, game, extra-curricular activities to make them think about the concepts and develop the concept very clearly.

In evaluation also a teacher can use creative elements. Varying modes of evaluation integrated with elements of attitudes and values can be used for evaluation. Making students to ask question to the teacher and teacher is expected to answer the question. If the teacher is answering wrongly the students will try to correct them. This will be an innovative strategy to be adopted by a creative teacher. Assignment for preparing question paper by each and every student in a class, asking them to conduct a unit test for one of their peer students, creating web tool-based quiz programmes in quizizz or hot potatoe etc can be practiced by a creative teacher.

All these creative practices done by a teacher will surely enhance the creativity among the students. Creative learners can be produced only through creative pedagogic approach in teaching learning process. Creative pedagogy needs to be reflected in the course and curriculum. The educational institution should also be conducive for the teacher to implement the creative pedagogic practices in the classroom. The teacher should get ample freedom to use the curricular objectives and also in the classroom interaction strategies to implement the creative pedagogy. This can be merge into teaching process that would produce creative learners (life learners) – much more efficient learners than those produced by traditional teaching-learning process. This transformation of the traditional class into creative classrooms in the modern world will help to produce new generation learners with creative thinking in their life situations.

According to Aleinikov (1989) creative pedagogy is the influence of educational environment on the learner while acquiring knowledge in a subject through certain study material which is differing from the higher achievement in subject area. He also mentioned that creative pedagogy will help the learner to rise from the object of influence to the rank of a person with creative thinking instead the transformation of traditional study material to describe and demonstrate the facts. Creative pedagogy has some creative goal.

In an increasingly unpredictable and swiftly changing world, human creativity has popularly been recognized as a catalyst for innovation, survival, persistence and adaptability. Creativity can be viewed as a process of interaction between the personality (or the person's inner world) and the reality than as the process of creating something new (Levko, 2004). If pedagogy in general is defined as the study of the process of teaching, then creative pedagogy is defined as the science and art of teaching creatively (Aleinikov, 1989). According to the views of Ismuratova (2016) categories of pedagogical activity optimization is a purposeful selection of the best teaching and learning option by the teacher, which provides most efficient solutions of education and training challenges and during relevant time. Pedagogical creativity leads to self-fulfillment of the individual, psychological, intellectual forces and abilities of each teacher. (Ibragimkyzy, Slambekova, Saylaubay and Albytova, 2016). As per the framework suggested by Abramo and Reynolds (2014) creative pedagogues (a) are responsive, flexible, and improvisatory; (b) are comfortable with ambiguity; (c) think metaphorically and juxtapose seemingly incongruent and novel ideas in new and interesting ways; and (d) acknowledge and use fluid and flexible identities. The concept of pedagogic creativity is of great significance in the present educational scenario. Its importance is noticeable from the point of view of a pedagogue and also the one who is benefitting from the pedagogue. It is a vital element in any successful educational system. Though we consider the concept of pedagogy as something which centre around the process of teaching, it also directly affects the growth and progress of learners. From a different perspective, this concept can be also be considered significant to the professional development of teachers as a reagent for professional motivation.

OBJECTIVES

1. To assess the level of Content Competency, Pedagogical Creativity and Teaching Performance of student teachers at secondary level.
2. To find out the relationship between Content Competency and Pedagogical Creativity of student teachers at secondary level.
3. To find out the relationship between Teaching Performance and Content Competency of student teachers at secondary level.
4. To find out the relationship between Teaching Performance and Pedagogical Creativity of student teachers at secondary level.

METHODOLOGY

Survey method was used in the present study.

Population and sample

The population consists of physical science student teachers studying in various teacher education institutions in Kerala. Sample of the study consists of 68 secondary school Physical science student teachers selected through cluster sampling technique. The sample belong to government and aided colleges of teacher education from two different Universities in Kerala.

Variables

Content Competency, Pedagogic Creativity and Teaching Performance

Tools used

Assessment Rubrics for pedagogic creativity and teaching performance observation Schedule are the tools developed by the investigators and were used for data collection in this study. In the assessment rubrics used for assessing the pedagogic creativity the investigators used 6x4x5 matrix for giving score to student teachers which include the dimensions of Lesson planning, Presentation of Content to Encourage Diverse Perspectives, Activates Prior Knowledge and Experiences, Utilization of resources, Techniques used for Student Participation and assessment in introduction, transaction, evaluation and overall performance of the

student teacher. Each of these dimensions are divided into five-point scales. The reliability coefficient calculated using test-retest method for was 0.87 and the alpha coefficient was 0.89. Construct validity, face validity and content validity were established for the two scales by expert opinion. The content competency was expressed in terms of standard scores obtained by the student teachers in their graduation and is considered as valid. Teaching performance score is also based on the observation done by the teacher educator using an observation schedule giving due weightage to the performance indicators expected out of student teachers during their teaching practice. The score given by the teacher educator is validated by an external expert. Hence, this score is also considered as valid.

Statistical techniques used

In this study, descriptive statistics like Mean and Standard Deviation and the inferential statistics of Pearson's Product Moment Correlation were used to analyze the data.

ANALYSIS AND INTERPRATIONS

The data collected were tabulated and analyzed by using EXCEL. Pearson's product moment correlation was used to analyse the objectives set for the present study.

Descriptive statistics

The sample size, Minimum score, Maximum score, Mean and Standard Deviation of the variables under study namely; Pedagogic creativity, Teaching Performance and Content Competency of secondary school student teachers are shown in Table 1.

Table 1
Sample size, mean and standard deviation of pedagogic creativity, teaching performance and content competency of student teachers

Variables	Sample	Min. Score	Max. Score	Mean	Std. Deviation
Pedagogic creativity	68	50	90	74.72	10.17
Teaching Performance	68	201	282	248.88	23.95
Content Competency	68	65	96	83.57	7.75

From table 1, it can be seen that the Mean of Pedagogic creativity of student teachers is 74.72 with a Standard Deviation of 10.17. The mean of Teaching Performance of student teachers is 248.88 with a Standard Deviation of 23.95. The Mean of content competency of student teachers is 83.57 with a Standard Deviation of 7.75.

The correlation coefficient between Pedagogic creativity and Teaching Performance was calculated using Pearson's Product moment correlation. The value of 'r' between the above variables under study is 0.582 which is significant at 0.01 level of significance. The correlation coefficient between Pedagogic creativity and content competency was calculated using Pearson's Product moment correlation. The value of 'r' between the above pedagogic creativity and content competency is 0.641 which is significant at 0.01 level of significance. The correlation coefficient between Content Competency and Teaching Performance was calculated using Pearson's Product moment correlation. The value of 'r' between the above variables under study is 0.500 which is significant at 0.01 level of significance.

Discussion and Conclusion

The present study reveals that secondary school student teachers possess higher level of pedagogic creativity, teaching performance and content competency. A significant relationship between Pedagogic creativity and Teaching Performance of student teachers has been identified in the present study. Loogma, Kruusvall and Umarik (2012) have found relationship between techno pedagogical competencies and individual innovation. The obtained high positive correlation in the present study indicates that student teachers with high pedagogic creativity can be emphasized to have high teaching performance. This may be due to the fact that more emphasis has been practiced now than in the past in providing training to student teachers on techno pedagogical skills and developing creative thinking skills.

A significant positive relationship has been found between Pedagogic creativity and content competency of student teachers in Physical science. This may be due to the fact that the student teachers who are having high content competency are able use their divergent thinking in planning of the lesson and its transaction. In this technological era, they are very much familiar with internet resources such as web sites, you tube and blogs where they are getting opportunities to observe more creative classroom transactions. Because of this familiarity they are mainly depending on internet sources for enhancing their content knowledge. Being teacher educators, the investigators have understood that the student teachers are searching the internet for planning their lessons also. Student teachers are viewing many virtual classes in the web, using

virtual labs and web-based tools for planning, transaction and evaluation. All these experiences may enhance the pedagogic skills and content competency. Thus, the three variables under the present study are related to each other. Enhancement in any one of the variables can enhance the other two variables. This may also be due to the fact that student teachers who frequently use creative pedagogy will not have difficulty in integrating thinking processes into active use and their creative thinking level and content competency will develop as well.

A significant positive relationship has been found between content competency and teaching performance of student teachers in Physical science. This can be interpreted that teaching a concept clearly to a group of students come under performance only if the concept is very clear to the teacher. So, whenever we search for a teacher, we need to search a 'candidate' with high content competency along with creativity and teaching performance.

The following suggestions have been derived from the findings of the present study: The curriculum of pre-service teacher training programme needs to be promptly reviewed and modernized giving more emphasis on improving student teachers' creative thinking skills on pedagogical content knowledge analysis. Opportunity should be created and provided to student teachers, guided by the faculty members for enhancing content depth in Physical Science and also for effective implementation of technology integration during classroom teaching learning process, during practice teaching and internship through critical analysis of the curricular objectives. Varying models of teaching need to be practiced by the student teachers during their pre-service training period. The curriculum should give flexibility for the institution and teachers to use different ways and means of practicing varying models of teaching.

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