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THE IMPACT OF "ROLE PLAY" AS A TEACHING APPROACH IN CIVIL TECHNOLOGY: A CASE STUDY

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Abstract

Civil Technology is one of the subjects in Technical and Technology that requires lecturers and student teachers to take full responsibility for class and workshop. The aim of the study was to assess the impact of role play as a teaching approach in Civil Technology safety as the topic. While the objective was to examine the impact of role play as a teaching approach that imparts sustainable knowledge and application in subject content. Participants in the study were thirty-two (32) third-year Civil Technology students from the University of Technology in the Free State province in South Africa. The Mix method, consisting of quantitative and qualitative components, was used to collect data. The findings of the study indicated that students have better construal and mastery of the content application when they are granted free role play to determine their own knowledge and application style.

Keywords: *Civil technology, safety, role play.*

1. Introduction

Safety is regarded as one of the most important chapters in Civil Technology curriculum, escalating from first year to third year of studies additional safety encompasses theory and practical aspects. A qualified Civil Technology teacher should be competent to manage safety in a classroom, workshop and on a site. While Civil Technology aims to prepare a teacher that is confident enough to maintain and implement a safety role in a filed, to safe life of others involved in the process of teaching and learning. Hence, Curriculum Assessment Policy statement (CAPS) on Specialisation (2012:13) emphasises that the requirements of the Occupational Health and Safety (OHS) Act 85 of 1993 need to be complied with at all the times.

2. The Conceptualisation of the study

2.1. Role play

Role playing methods in professional engineering education includes a variety of different approaches, such as simulated or consistent mini project methodology, mannequin-based methodologies, role-playing, games and virtual reality (Bearman, Palermo, Allen, NutrDiet and Williams, 2015). Therefore, role play is one of the methods that afford students opportunity of independency while learning.

2.2. Safety

Safety in this study describes the chapter in Civil Technology curriculum that covers general safety roles in the workshop, personal protective equipment, hand tool, portable power tools and machine safety and maintainers. Furthermore, CAPS on specialisation (2014: 13) pronounce that the teachers should service the workshop through execution of precautionary maintenance, upgrading, service and repair of devices.

2.3. Civil Technology

Civil Technology in this study refers to one of the subjects in technical education incorporating all subjects in building environment. Civil Technology equip students with theory and practical work. Hence, the subject is categorised in to three specialisations which are: Civil Services (water work and plumbing), Construction and Woodworking. Mokhothu (2019: 118) defines Civil Technology as the subject that is developing the skills level of learners from grade 10-12 and student teachers from fist year to third year level to embrace effective integration of theory and practical work (DoE, 2014:11).

3. The aim of the study

The aim of the study was to assess the impact of role play as a teaching approach in Civil Technology safety as the topic.

4. The objective of the study

The objective was to examine the impact of role play as a teaching approach that imparts sustainable knowledge and application in subject content.

5. Proposition

Role play promotes student confidence and competence of Civil Technology theory and practical in safety as a topic.

6. Methodology

6.1. Context of the study

The formal classes of Civil Technology were conducted under safety as a subject topic. The safety topic was covered from the first, second and third year with the same group of students. The research was conducted in the first term of the second semester of their studies in Bachelor of Education Senior Phase and Further Education and Training. The oral presentation and practical were used to measure the impact of role play as a teaching approach or method.

6.2. Participants

The participants of the study were all Civil Technology third year registered at one of the University of Technologies in South Africa. Participants were N=34 in total, comprising of females n=15 (44%) and males n=19 (56%), and all were from various ethnical groups (Africans, coloured and whites).

6.3. Measures

During the first year the topic of general safety at a workplace, hand tool safety and personal protective equipment were addressed. In the second year, the following topics were covered: Safety in a workshop, power tools safety and machine safety. During the third-year level the following topics were addressed: the Acts and regulations from all regulatory bodied involved in building environment field such as: Occupational Health and Safety (OHS), South African Bureau of Standards (SABS), South African National Standards (SANS), National Building Regulator (NBR) and National Home Builders Registration Council (NBHRC). Therefore, the researcher presented students with the task where they were asked to develop a safety booklet which will orientate grade 11-12 learners in safety. Then individual students should develop a booklet and in groups students should develop a present Power Point presentation to present in class.

7. The results and discussion

Table 1. Safety booklet.

Stage	Individual	Frequency	Percentage (%)	Average
Stage 1	34	5	70	90
		5	82	
		11	75	
		13	80	

Table 2. Group presentation.

Stage	Groups	Frequency	Average
Stage 2	1	70	72
	2	70	
	3	78	
	4	70	

The two tables (1 and 2) above, indicated findings of the study from the booklet stage to presentation stage. Table (1) highlights that students managed to score an average of 90, revealing that role play has a significant impact on the teaching and learning process in Civil Technology. Table (2) illustrates the findings on group presentations where students scored an average of 72, indicating the competence and confidence of student in theory and practical work. All the results above coincide with the statement of Bearman, Palermo, Allen, NutrDiet and Williams, (2015) which characterised role playing methods in professional engineering education that included a variety of different approaches, such as simulated or consistent mini project methodology, mannequin-based methodologies, role-playing, games and virtual reality.

8. Conclusion

In conclusion, role play promotes student confidence and competence of Civil Technology theory and practical in safety as a topic. Role play also encourages group work as an intervention to clarify other missed content.

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