

# AN ONTOLOGICAL REPRESENTATION OF TEACHERS' ROLES AND COMPETENCIES REQUIRED FOR DEVELOPING STUDENTS' PERSONAL LEARNING ENVIRONMENTS

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## ABSTRACT

This paper discusses the theoretically created ontological representation of teachers' roles and competencies required to develop students' Personal Learning Environments (PLEs) in an efficient and effective way. An ontology model is developed that shows the relationship of teachers' roles with various stakeholders such as teachers' required competencies, students, educational institutes, learning spaces, constructivist learning model, and PLE. This is based on an in-depth review of the literature on teachers' socially situated competencies and roles with regard to the tasks and guidance they provide to students shape their PLEs. The review process provides an insight of PLE research studies, constructivist learning theories, and teacher changing roles. The results of this study outline the roles that portray the importance of teacher competencies as role in Planning and Design, Instruction and Learning, Communication and Interaction, Management and Administration, and Use of Technology.

## KEYWORDS

Personal learning environment, PLE ontology, Teacher roles, Teacher competencies, Collaborative learning

## INTRODUCTION

Competencies of teacher are challenged [1-6]. There is a growing realization [1-3] that traditional teaching competencies will not work in PLE settings. Emphasis on delivery of content in a lecture-based format is not as effective when communication is mediated through technology. Teachers involved in teaching using face to face, distance, or online methods need assistance in identifying the new roles they assume to be successful [4]. Besides this, it is also expected from 21st century teacher to collaborate with all sectors of the educational community in planning, managing, implementing, and evaluating programs [5, 6].

Minocha [2] found that by choice and demand, technology is restructuring education, and changing teaching and learning in ways that impact on everyone. Teacher roles are changing, new competencies are required, and new skills must be learned all at a faster pace than ever before. Selvi [6] and Drexler [7] suggest that free and easy availability of emerging learning technologies and social software have resulted complex and multifaceted challenges for teachers, including the provision of personalized learning experiences using suitable technologies that cultivate student independent learning skills while also scaffolding learner reflection and the development of generic competencies. Väljataga & Laanpere [8] found that the required pedagogical change involves not only the adoption of appropriate teaching approaches, awareness of the learner experience, importance of acknowledging learner's existing skills and capitalizing on them, as well as exploring and integrating social media in ways that pave the way for participation, community connections,

social interaction and global networking. Although, a teacher may not be the only expert in one's learning process, yet he plays key role to help students navigate the breadth of content, apply the tools properly, and offer support in the form of digital literacy skills and subject matter expertise [7-9].

Many research studies have established teachers' critical role in PLE design and implementation, but only some of them have focused on investigating teacher roles and competencies. Hence, we argue that future PLE research should place greater emphasis on this dimension.

## **CURRENT REVIEW OF TEACHERS' ROLE IN PERSONAL LEARNING ENVIRONMENT**

Our review of research studies and online resources with regard to teacher roles and competencies in PLE viewpoint is divided into three areas, which are:

- (a) A review of PLE studies;
- (b) Ontologies overview; and
- (c) An examination of teachers' changing roles.

### ***Personal Learning Environments***

PLE represents a paradigm change [10]. It is based on the idea that learning is a continuous process and hence, seeks to provide tools to support that learning which takes place in different contexts and situations and is not provided by a single learning provider [9]. A PLE is seen as either a single technological application (iGoogle, Flock, etc.) hosted and partially controlled by institutions, or a collection of them chosen by each individual student (Facebook, etc.) rather than an institution [8]. It is a place where learner constructs knowledge socially with the help of knowledgeable peers, mentors, or teachers [7]. Hence, the role of teacher in this changing scenario is to assist this learner in taking control of his learning and help him realize his goals [5]. A clear focus, shared goals, support, and mediation seem crucial to the success of PLE [11]. A number of researchers, viz. Väljataga & Laanpere [8], Attwell [9], and Wilson [11] argue that an effective PLE must address deeper educational issues, provide ways of controlling the technological infrastructure, recognize teachers and learners inhabit the same system, and maintain the technological shift in the locus of control from institutional centralized delivery to learner-driven inquiry.

### ***Promise of a Personal Learning Environment***

PLE is an environment where people, communities, tools, and resources interact in a very loose kind of way. It promises students' an important learning outcome and an independent pursuit of learning that incorporates a greater range of tools largely under the control of an individual [11, 12]. Elliott [10] found that PLE promises new pedagogical possibilities for successful learning to occur; where teachers need to rethink their approaches, realign their methodologies, and move beyond restrictive, teacher-controlled environments to learner-controlled spaces.