

Modelling Roles and Qualities of Effective Teachers for the Design of Information and Communication Technologies Supported Teaching Tools

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Abstract: *It is important to identify classroom setting specific roles of the teachers while designing information and communication (ICT) technologies supported classroom tools. This paper reviews the studies about qualities of effective teachers and provides a model to serve as a basic guideline for identifying roles and tasks of the teachers for ICT supported tool designs for teaching. According to model, an effective teacher has four basic roles in classroom which she/he plays a role model, facilitates positive learning motivates students and maintains the discipline.*

Key words: *Qualities of Effective Teachers, Teacher Roles, Information and Communication Technologies (ICT) Design.*

INTRODUCTION

Information system analysis requires an effective identification of roles of actors who will be using the system [34-35]. Before identifying any design specifications for information and communication (ICT) technologies supported classroom tools, it is important to consider roles of the main actors to shape the design. Teachers are one of the most significant actors that are using ICT based classroom tools [36]. Therefore, we should identify related roles of teachers in a classroom setting to lead the design of ICT tools for teaching. For this purpose, just listing roles of teachers is not sufficient to give direction to the design; we should also indicate the qualities of the teachers that help them to play these roles in a classroom setting [37].

While investigating the roles and qualities, we should also consider effective teachers so we can have the best case scenarios that may be leading our design. For the design of ICT based teaching tools, a model integrating effective teacher roles and qualities may serve as a basic guideline for identification of design specifications. For that purpose, the qualities of effective teachers have been reviewed, roles of effective teachers have been presented and a related model has been provided in this paper.

One should note that, this paper doesn't aim to create a measurement or an instrument for the evaluation of teacher effectiveness. Rather it aims to investigate related literature about the effective teacher qualities and to model them to guide the design of ICT tools for teaching.

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ICT tools for teaching.

Roles and Qualities of Effective Teachers

For decades, roles of teachers in the classroom have been shaped by the society [1]. One should note that roles of teachers can be different according to needs, directions and culture of different societies.

For example around 70's, Adams [41] described teaching roles associating with 14 behaviors of teachers in general. According to this categorization, teacher roles can be listed as enhancing classroom management, learning and discipline. Similarly around 70s, Marshall defined teacher roles as being a prophet and a parent (a role model), a mediator of learning (a facilitator), a judge and a policeman (a maintainer of discipline) [40]. Later around 2000s, as well as keeping the previously defined roles [42-45], teachers also undertake another additional role which is being a motivator [43], [46], [47]. In order to give a general overview, roles of a teacher can be categorized under four main themes as summarized in Table 1.

Table 1. Roles of effective teachers

<p>A. Plays a Role Model A.1. Show social, cultural, intellectual and emotional role model [40][42][43] [45] A.2 Shows professionalism[42][44]</p>
<p>B. Facilitates Positive Learning B.1. Analyzes learners' requirements, goals and objectives B.2. Designs and develops learning materials B.3. Implements positive learning B.4. Evaluates learning and assesses students' performance B.5. Provides Feedback [40][41][42][43][44]</p>
<p>C. Motivates Students [43][46][47]</p>
<p>D. Maintains Discipline [40][41][42][43][44]</p>

The work that teachers perform is significantly related to other people in the society; especially their students. While carrying out their role in the society, teachers are assumed to have impacts on students' achievements. Therefore "What is the impact of teachers on students' achievements?" becomes an important question. Studies show that teachers help students to improve their achievement [2-5]. However, the degree of impact is different with the effectiveness of the teacher; effective teachers have more positive impact in terms of improving students' achievement [6-8].

On the other hand, in the literature, there is no well defined definition to answer the question of "Who is an effective teacher?" [9-11]. Definition of the "effective teacher" varies according to different parties' needs and interests. For example, some people think that the effective teachers' qualities are related to daily classroom practices, some others see the qualities are related to tested abilities and some others see the qualities related to the credentials [9].

Besides being not very well defined concept, it is difficult and expensive to measure the factors for complex teacher behaviors [12]. As long as there is no validity and reliability study, the available commercial instruments are not very secure to measure teacher effectiveness [13]. For example, Zhang [14] conceptualized the attributes of effective teachers in his "Effective Teacher Inventory", but these attributes were tested rarely.

After all, there are many research studies that investigate qualities of effective teacher. Since it is ill defined and difficult to measure, it would be easier to sort and categorize the findings of existing studies in order to partially understand qualities of effective teachers.

In his meta-analysis study, Hattie[8] classified effective teachers qualities as identifying essential representations of the subject, guiding learning with interactions,

monitoring learning and giving feedback, attending to affective attributes, and influencing student outcomes. Gay [39] adds teachers' cultural background to the same list.

Similarly, Stronge [10] defines the qualities as prerequisites, personality, management, planning, instruction, and assessment. Furthermore, other studies describe effective teacher attributes as monitoring learning, being clear, being supportive, being equitable, being challenging and engaging students[15-17].

Additionally, Rice [18] indicates that attributes helping to develop qualities of effective teachers are becoming experienced, preparation programs and degrees, type of certification, professional coursework attained and test scores. According to Gotman [19], effective teachers should be caring about to be successful in classroom management, maintaining discipline, problem solving and setting expectations, limits and rewards. Dick & Bruce [20] also suggest that good teachers push their students, maintain order, want to help anytime needed, explain clearly until every student understands the concepts, vary classroom activities and try to understand her students.

In another study, it has been defined that effective teachers believe they have a meaningful role; they define high expectations for students' achievement, they take responsibility, they monitor and match students' needs, they show confidence in their teaching, they think themselves as students' learning partners and they help students to achieve in long term learning [21].

Kennedy [9] described that qualities of effective teacher to asses are beliefs, attitudes and personal values, personality traits, knowledge expertise, credentials, practices outside of classroom, classroom lessons, students' activities, effect on students' learning and effect on students' motivation.

Another study [22] indicated that variations of good teacher are being ideal, analytic, effective, dutiful component, expert, reflective, satisfying, diversity- responsive and respected.

According to results of Aleamoni & Spencer's study [23], which implemented the "Illinois Course Evaluation Questionnaire", effective teachers are warm, friendly, humorous and well organized. Similarly, Cruickshank, Jenkins & Metcalf [24] indicated that qualities of effective teachers are being enthusiastic, warm, and possessing a sense of humor.

In Zhang's inventory (2003) [14], qualities of effective teaching are defined as having academic qualification and publication, preparedness and subject knowledge, personality trait and personal style, connectedness with students, motivation and enthusiasm, and classroom operation.

Another study [25] proposed that effective teachers should be fair, positive, creative, forgiving, prepared, and respectful and they should have humor, compassion, sense of belonging and willingness to admit mistakes as well as having personal touch in their communications with students. Also Goldhaber [26] proposed that teacher degree and experience level, subject matter knowledge and pedagogical knowledge is the most important factors for effective teaching.

Similarly Danielson [27] described the qualities of effective teachers as teacher experience, educational level, subject preparation, certification, time-on-task, and test scores. Moreover, Lewthwaite and B. McMillan [28] indicated that effective teachers consider students success, identify positive learning environments, communicate clearly with their students, care about students, allow students to use their first language, use multiple instructional strategies, provide individual support, provide reciprocal learning opportunities, monitor learning and change teaching methods according to students' needs.

As it seen, there are some common overlapping aspects of qualities of effective teachers which are defined in the studies mentioned above. Eventually, according to reviewed literature, qualities of effective teachers are summarized at Table 2.

Table 2. Qualities of effective teachers

1. Personal Values and Believes
1.1. Respectful [25][29][30][10]. 1.2. Fairness (equitable) [25][10][31][16]. 1.3. Creative [25]. 1.4. Believe they have a meaningful role [21]. 1.5. Take responsibility and show confidence in their teaching [25]. 1.6. Analytic [22]. 1.7. Forgiving [25]. 1.8. Enthusiastic [24][31]. 1.9. Personal styles [14]. 1.10. Cultural Background [75].
2. Positive Learning Environment & Caring about students
2.1. Supportive [17]. 2.2. Willing to help [20]. 2.3. Think themselves as students' learning partners [32]. 2.4. Warm , Friendly and Humorous [23][24][29]. 2.5. Attending to affective attributes of students [8]. 2.6. Consider student success and help students to achieve in long term learning [28][32] 2.7. Personal touch and connectedness with students [25][14].
3. Good communicator
3.1. Guiding learning with interactions [8][31]. 3.2. Explain clearly until every student understands the concepts. [20]. 3.3. Allow students to use their first language [28].
4. Encouraging and Motivating Students
4.1. Challenging [17][20]. 4.2. Motivate Students [9][14]. 4.3. Define high expectations for students' achievement [32][33].
5. Monitor Learning , students needs and Provide Feedback
5.1. Assessments [10]. 5.2. Give Feedbacks when needed [17] [8][32].
6. Classroom management
6.1. Maintain discipline [10], [19]. 6.2. Setting expectations, limits and rewards [19][20].
7. Preparing and Mastering Instructional Methods
7.1. Using methods to influencing positive student outcomes [8]. 7.2. Vary classroom activities [20][28]. 7.3. Expert at instructional methods and prepared to use them [10][26][30][14].
8. Credentials
8.1. Academic qualification and publication [14]. 8.2. Experience, Certification, test scores [9][18][22][26][12].

THE MODEL OF EFFECTIVE TEACHER'S ROLES AND QUALITIES

Studies attempted many ways of accomplishing to measure teacher effectiveness using a wide variety of methods [48]. In order to measure and evaluate teacher effectiveness, one may apply these measurements. This paper doesn't aim to create a measurement or instrument for evaluation of teacher effectiveness. Rather it aims to investigate literature about effective teacher qualities and to provide a practical model for ICT tool design for teaching.

Using qualitative analysis methods in Nvivo software, the teachers' roles, which have been identified in related literature, were categorized in four general themes as in Table 1. Similarly, the effective teacher qualities were categorized in Table 2. After building Table 1 and Table 2, using qualitative theme building method, the roles are matched and connected to effective qualities as in Figure 1. This presents the model for effective teachers' roles and qualities. Accordingly, an effective teacher has four basic roles in classroom which she/he plays a role model, facilitates positive learning motivates students and maintains the discipline. There are also sub roles that are extending the main roles; and there are the characteristics that teachers use to achieve these sub roles. Roles are represented in blue boxes, sub-roles are in orange boxes, and the matching qualities are represented in yellow boxes. The labels for yellow boxes, which are effective teacher qualities, are given in the legend with related references.

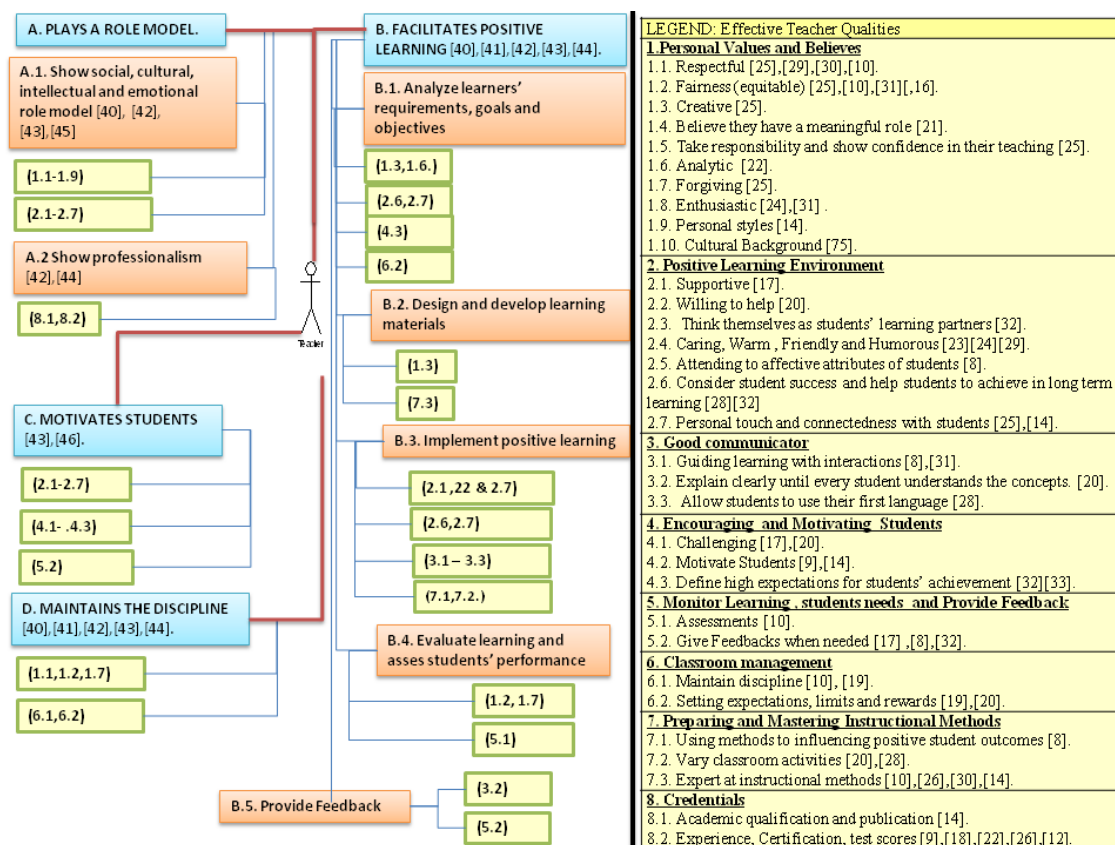


Fig. 1. The Model of Effective Teacher's Roles and Qualities

In the model, it is agreed with the notion that “the essence of education is a close relationship between a knowledgeable, caring adult and a secure, motivated child.” [38]. Therefore the role of teacher becomes to support students by facilitating positive learning environment, motivating, maintaining discipline and becoming a role model.

CONCLUSIONS AND FUTURE WORK

This paper reviews the studies about qualities of effective teachers and models them to serve as a basic guideline for identifying roles of the teaching actors for the design of ICT based teaching tools. Accordingly, an effective teacher has four basic roles in classroom which she/he plays a role model, facilitates positive learning motivates students and maintains the discipline. The sub roles that are extending these roles and the characteristics that teachers uses to achieve these sub roles are also modeled.

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The paper has been reviewed.