Research paper

Examining Teachers' Roles in Online Learning

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Abstract

Online learning has been used in the literature to cover diverse learning contexts ranging from blended learning, distance learning, virtual learning and web-enhanced learning. Many aspects of online learning have become the focuses of research and teacher roles are one of them. The present study, therefore, intends to examine how 153 university students perceived the roles of their teachers in online learning of a blended English course by using a 27-item and 5-Likert-scale questionnaire (the STRI). Results of statistical analyses showed that the Cronbach's Alpha value of the entire questionnaire was *.955 an*d those of the three sub-roles were all above *.891,* indicating that both the questionnaire and the three factors of sub-roles were reliable and valid. Further analyses revealed that the three sub-roles of teachers, i.e., the cognitive role, the affective role and the managerial role, were significantly different from each other. Among them, the means of the managerial role was significantly higher than that of the cognitive role while the means of the affective role was the lowest. Results of descriptive statistics also revealed that keeping a record of students' learning in the managerial role was quite notable for students. The findings suggest that the roles of teachers in online learning as a whole were reduced. However, the managerial role was more notable than the other two roles and the affective role was the least impactful in the online learning context in this study. The researcher believes that these findings may offer some insights to classroom implications and provide the basis for future studies of comparing teacher roles across different educational contexts.

Keywords: Teacher roles, online learning, cognitive role, affective role, managerial role.

1. Introduction

The extensive incorporation of Information and Communication Technology (ICT) into various educational contexts has brought about great changes in teaching and learning. Researchers hold that the growth of online programs and course offerings are changing the roles of teachers and the nature of teaching. Explaining teachers' roles poses a great challenge to researchers and practitioners (Bennett & Lockyer, 2004), thus the need to clarify and scrutinize teacher roles in various instructional contexts cannot be ignored. Even though a multitude of publications and practices have proposed various theoretical conceptions and categorizations of teacher roles in different teaching contexts, few quantitative data have been collected to specify and examine teacher roles as well as any possible changes that may occur in online learning environments. (Baran, Correia & Thompson, 2011). Therefore, the present study aims to quantitatively measure through a 27-item questionnaire how university students perceive the roles of their teachers in online learning of a blended English course.

Online learning here is used interchangeably with other similar terms such as computer-assisted language learning, online language learning, virtual learning, blended learning,

hybrid learning and distance learning. Researchers hold that these terms often overlap with each other with the differences having more to do with the percentage of content that is delivered online (Blake, 2011).

2. Literature review

Prior to examining teachers' roles in online learning contexts, it is necessary to probe into the definitions of roles first. Many attempts have been made by researchers to define roles and teacher roles. For example, according to Wright (1987, p. 5), a role refers to what one does or is expected to do in a given environment and it incorporates three principal elements: the work done and job-related activities, the relationships and communications one has with others, and beliefs and attitudes.

As to teacher roles, there are actually more categorizations than definitions. For instance, Alvarez et al. (2009) categorized five roles of teachers: designer/planning role, social role, cognitive role, technological domain and managerial domain. Other generalizations include: pedagogical, social, managerial, and technical by Berge (1995); instructional design, organization, facilitating discourse and direct instruction by Anderson et al (2001); cognitive, affective, and managerial roles by Coppola et al (2002); administrative, personal, technological, instructional design, pedagogical, assessment and social roles by Varel (2007); online teacher roles of managing social interaction, instructional design, guiding the use of technology, learning assessment and learning support by Badia, Garcia & Meneses (2017). In fact, these roles overlap with each other and the overlapping theoretical classification becomes an obstacle for classroom teachers to understand their roles and examine precise functions and tasks related to teacher roles (Baran et al, 2011). Besides, relevant teaching behaviors under different terms of teacher roles generalized also vary from one to another, which makes it rather challenging to draw analogies across similar instructional contexts. Furthermore, most of the research is dominated by qualitative studies ranging from case studies, collaborative action research and grounded theory (Izadinia, 2015; Li & Ni, 2011; Subramaniam, 2010; Scott, 2013; Tran & Nguyen, 2015; Donnelly, 2013). In contrast, quantitative studies that examine teacher roles and relevant teaching behaviors in online learning contexts are scarce (Alvarez, Guasch & Espasa, 2009; Lee, 2011; Badia et al, 2017).

Some studies in the field of teacher roles are worth researchers' attention. For instance, Lam & Lawrence (2002) studied changes of the roles of teacher and students in a computer-based project in a university-level Spanish foreign language class. Through classroom observation, open-ended questionnaire and interview, the researchers found that the teacher retained his roles of expert and authority in class and role shifts were not as significant as expected. Classroom observation revealed that the main role of the teacher in the computer lab was to answer questions, both technical questions and language questions. The fact that the teacher was very much in demand was quite contrary to what he had originally expected. Such reliance on the teacher suggested that students still regarded him as the main source of answers. In addition, the students also considered the teacher to be the "language police" and saw him as an authority figure. Although the researchers concluded that the teacher's role as expert and manager seem to be largely maintained in the computer lab, a few changes were still observed in the manager role of the teacher. To be more exact, the teacher no longer needed to initiate the project nor did he need to motivate the students. Thus, "the manager role of the teacher was reduced, with some of the responsibilities of creating the learning conditions being passed on to the learners" (Lam & Lawrence, 2002).

In a similar case study by Donnelly (2013), the researcher looked into the complex roles of PBL tutors in blended problem-based learning (PBL). Based on the observation, interview and self-reflective papers of the participants, Donnelly identified a few "distinct" roles for the PBL tutor within a blended learning tutorial experience: the role of being present as tutor authority and the role of tutor to help overcome ambiguity and misunderstanding. In spite of Donnelly's claim that these roles for the PBL tutor were distinct from traditional ones, these roles are also observed in face-to-face learning.

In another study of collaborative action research, Subramaniam (2010) investigated the changing roles of five secondary science teachers when they taught with computer

technology. Analysis of qualitative data of interview, observation and discussion revealed that the changes of teaching role mainly fell into two actions: planning and managing computer technology as well as controlling students' learning activities. Subramaniam (2010) found that planning and managing computer technology was expanded and diversified to more roles of supporters, developers, and visualizers. The supporter role was specified as "construction of scientific knowledge by posing questions, comprehending and readdressing students' explanations and connecting the concept or topic to previous concepts or topics". The developer role was clarified as "the action of helping students to connect, link, construct, make and break-down the concepts presented through the attributes of animation, simulation and interactivity provided by the computer technology". The visualize role referred to the action of "channeling the powerful imageries that computer technology afforded to focus and capture students' attention onto the concept taught".

Subramaniam's study differs from the previous two studies in two ways. First, teacher roles were not defined or categorized according to commonly used terms in other studies such as "technical", "managerial", "pedagogical", and "social" roles (Baran et al, 2011). Instead Subramaniam attempted to break down the concepts of teacher roles into "actions" that teachers are likely to conduct in instructional contexts, bringing teacher roles from more general concepts to more tangible teaching-related behaviors. However, these behaviors or "actions" related to teacher roles failed to be scrutinized quantitatively due to the nature of qualitative research. Neither is the number of the specified behaviors adequate to provide a more comprehensive understanding of teacher roles in online learning and teaching contexts. Consequently, a quantitative study of teacher roles along with teaching-related behaviors under each role is necessary to reveal the new characteristics, if there are any, or the possible changes of teacher roles in online learning contexts.

Based on the literature review above, the present study intends to address the following research questions:

- What are the roles of teachers in the online learning context studied?
- How do learners perceive the roles of teachers in the online learning context?
- What are the differences, if there are any, in teacher roles in the online learning context?

3. Conceptual framework of the instrument used in the study

The present study used a 27-item questionnaire to explore teacher roles along with the behaviors that teachers are likely to perform in online learning. The questionnaire was designed and constructed by Huang (2017) according to the conceptual framework of Coppola's definitions of the roles of online teachers (Coppola et al, 2002, p. 176). In their studies, Coppola et al highlighted three main roles of online teachers: a cognitive role, an affective role and a managerial role. In particular, cognitive role relates to the processes pertaining to learning, information storage, memory, thinking, and problem solving etc. The affective role includes instructor behaviors of influencing a student's relationship with the instructor and with other students and the online classroom atmosphere. Finally, managerial role refers to instructor behaviors related to course planning, organizing, leading, and controlling etc. The theoretical concepts of these three roles of online teachers constitute the conceptual framework of those items in the questionnaire of the study. It is hoped that such quantitative measurement will help to pinpoint more specific features of teacher roles in online learning contexts.

There are several reasons for Coppola's classification of online teacher roles to be used as the conceptual framework for this study. First of all, it is the term of "online learning". Although the term is used in its narrower sense in the present study, online learning has been a rather broad concept that encompasses a wide range of learning modes (Blake, 2011, p. 19). Since it covers both blended or hybrid courses of the present study and the online or virtual courses of Coppola's study, online learning is thus regarded as the common area where the present study and Coppola's study are related. In other words, both studies fall into the broad field of online learning.

Furthermore, there are similarities between the contexts of the two studies. On the one hand, Coppola's study aims at the pedagogical roles of virtual professors in an

asynchronous learning network (ALN). ALN is a form of "e-learning" that also belongs to the field of online learning. The learning network is quite complicated in that it includes several variants of courses. Some of the courses had the matched sections instructed by the same teacher in a traditional classroom and using the Virtual Classroom (Coppola et al, 2002, p. 173). Likewise, the blended English course in the present study also consisted of two main parts: one setting of the traditional face-to-face classroom instruction and another setting of online language exercises. For the same class of students in this study, there was the same teacher in the two settings. Both studies began from one particular learning context but are not expected to be constrained to this one single context. They both seek to generalize common features instead of identifying mere individual differences from their own findings so that these findings (whether theoretical or practical) can be applied to other similar learning contexts.

The third reason lies with the roles of online teachers. Although different terms were used to refer to the teachers in the two studies, the teachers actually shouldered similar responsibilities. In Coppola's study, "virtual instructor or professor" was used while "online teacher" was used in the present study. In spite of the different terms, the roles of the teachers in both studies did have something in common: they both gave face-to-face instructions in the classrooms; they both played a role in the online parts even though the online parts were designed differently in the two studies. In fact, such phenomenon is quite common in the literature. "Various terms are used in online learning to describe online teacher roles, for example, online teacher, e-moderator, online tutor, facilitator, or online instructor." (Baran et al, 2011, p. 422). Considering the similar responsibilities, the roles of the online teachers in this study are thus examined in the same framework outlined by the conceptual categories of online teacher roles in Coppola's study.

Finally, the results of Coppola's study (2002) suggested that "the roles enacted by instructors in traditional settings are also enacted in ALN environments." (Coppola et al, 2002, p. 186). In other words, the three main roles of online teachers, i.e., cognitive roles, affective roles and managing roles are also part of the roles of traditional instructors and are actually shared by both traditional teachers and online teachers. Therefore, the definitions of the three roles of online teachers, i.e., cognitive roles, affective roles and managerial roles, constitute the conceptual framework of the present study, which was conducted in a blended English course that consists of both the traditional instructions and the online learning of language exercises.

Researchers have created taxonomies and models specifying the roles that online teachers need to perform while teaching online. Although the studies addressing these roles show variety in both the contexts and the definitions of online teachers, commonalities do exist. Indeed, it is these commonalities that justify the conceptual framework for the present study and relate this study to the whole body of relevant literature in the field.

4. Method

4.1. Background of the study

The study was conducted at a university in Southern China where a blended English course has been adopted for all non-English majors. The blended English course consists of traditional face-to-face (f2f) instruction and online learning and lasts 36 weeks in total over one academic year. F2f instruction occupies four periods a week in physical classrooms and online learning takes up two periods a week on the Internet. Students can continue learning online beyond the designated time either on campus or off campus if they wish to do more exercises.

In f2f instruction, teachers use English textbooks and give instruction to students face to face. In contrast, students in online learning complete online exercises on their own. The online learning provides students with various learning resources and different language exercises such as listening, speaking, reading and writing online. In addition, learner-learner interaction, learner-instructor communication and feedback from teachers are also made possible in virtual chat room of the online learning program.

The design of the blended English program shows that teachers are present either physically in classrooms on campus or online off campus. Thus, teachers might have

played different roles in the two learning contexts due to different delivery modes. It is probable that such changes of delivery format are likely to bring about new characteristics and possible changes of teacher roles especially in online learning.

4.2. Participants

First of all, the sample subjects in the present study were all voluntary participants from the same university. After the researcher introduced the nature and purpose of the academic research, a total of 153 students from four classes agreed to join in and completed the questionnaires. Consequently, these students, along with their teachers, were all random sample subjects as a result of voluntary participation in the research.

All the students came from four classes in their first year at a university in Southern China. They all studied the blended English course and their majors ranged from accounting, advertising, IT, to journalism. As they all came from the same university, these students were of similar ages and had similar English proficiency due to the same enrolment criteria of the university. Furthermore, four English teachers who taught the four classes also shared similar academic backgrounds. They were colleagues aged between 30-40. They taught different classes but the same English course offered by the same English school at the same university. As the recruitment criteria for qualified teachers of the same discipline at the university is the same, these teachers had similar educations and professional backgrounds: all are English majors with Master's Degrees.

4.3. Instrument

The instrument (A Scale of Teacher Role Inventory - STRI) adopted in the study was a five-point Likert scale. The 27 items of the instrument describe specific behaviors of teachers in online learning environments. In particular, items 1-10 deal with the cognitive role, items 11-20 are related to the affective role and items 21-27 refer to the managerial role. The instrument was developed and constructed by Huang on the basis of the conceptual framework of Coppola's research and its reliability and validity have been fully discussed and proved in her previous study (Huang, 2017).

5. Data collection and analysis

The research was conducted near the end of one academic year at the university when students were supposed to complete the blended English course for the whole academic year. The questionnaires were administered to 153 students of the blended English course at the university. Data was then collected when the participants finished completing the questionnaires. Furthermore, to triangulate the research, the researcher drew on qualitative data from an interview conducted in a previous study of the same blended English course (Huang, 2016). The interview was conducted with 15 students who agreed to take the interview after the questionnaire. The researcher interviewed the students one by one and wrote down their responses to questions about the whole blended English course. The questions related to the present study included: 1. What are the roles of their teachers in online learning? 2. What are the advantages and disadvantages of online learning? To ensure successful communication, the interview was conducted in the native language of both the teacher and the students—Chinese. Later, the Chinese transcript was translated into English by the researcher and then proofread by other colleagues to avoid misunderstandings.

After the survey, the researcher input both quantitative and qualitative data into a computer. First, a series of statistical analyses were done to test the reliability and validity of both the entire instrument and the respective sub-roles. Descriptive data of each item helped to describe in details how participants perceived teachers' behaviors in online learning. Most importantly, T-test of the three main roles revealed not only possible new characteristics or changes of teacher roles but also the differences of the sub-roles of instructors in online learning. Finally, as to the transcripts of the interview, the researcher coded students' responses according to the two questions. This part of the students' responses will be used to correspond to the results of questionnaires in discussion of teacher roles in online learning.

6. Results

6.1 Reliability and validity test

First of all, a reliability and validity test was conducted to validate the instrument used in this study. Results of the reliability test are listed in Table 1 below.

Table 1. The results of Cronbach alpha values of the STRI (*n=153*).

	The overall instrument	Factor 1 cognitive role	Factor 2 affective role	Factor 3 managerial role
Cronbach Alpha value	.955	.932	.891	.899

Data in Table 1 showed that the Cronbach Alpha value of the overall instrument was .955 and those of the three main factors were .932, .891, .899, suggesting excellent reliability. Generally speaking, factors in a questionnaire with values above .60 are acceptable and one with a value above .80 is considered to be good (Wu, 2012; p. 244). The Cronbach Alpha values of the three main factors in this study all went up to and even above .90, which means the three main factors underlying the structure of the questionnaire were highly valid and those items describing teachers' behavior under each factor of sub-roles contributed substantially to the conceptual constructs.

In order to probe into the 27 items that describe teachers' behavior under each main factor of the sub-role, descriptive statistical analyses of all the items were carried out. Participants' responses to each item in the three main factors will be presented part by part. First, figure 1 below presented the cumulative percentages of each item in factor 1 of cognitive role from the highest to the lowest. The data focuses only on the positive responses of learners towards each item, i.e., the cumulative percentages of participants who chose to "agree" or "strongly agree" to the items of factor 1.
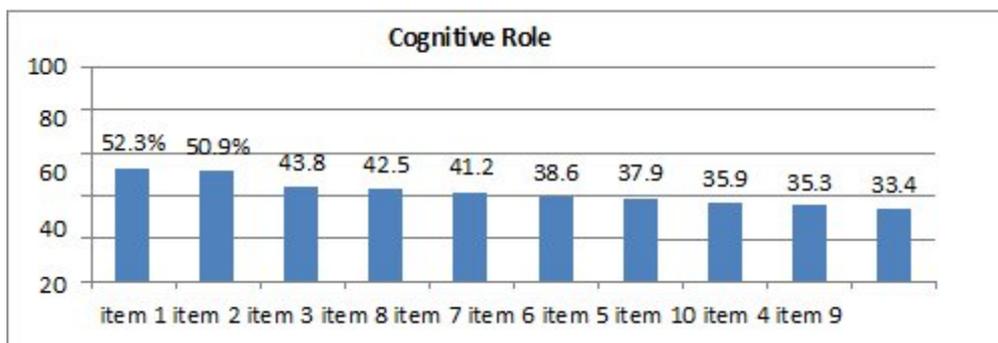

Figure 1. Cumulative percentages of participants' positive responses to the 10 items of the cognitive role.

As shown in figure 1, item 1 had the highest cumulative percentage (52.3%) of participants who agreed or strongly agreed to the statement. This suggested that over half of the participants agreed or strongly agreed that teachers used videos to facilitate English learning in the online learning context. Another two items with higher cumulative percentages were item 2 (50.9%) and item 3 (43.8%), which described teachers' use of English audios, websites and web pages to assist students with learning. These three items all dealt with technology-mediated instruction and served to reveal how ICT had influenced teaching in the online learning context. Instructors attempted to facilitate cognitive learning by resorting to media like audios, videos and websites or web pages etc., which characterized many online learning contexts (Li & Walsh, 2010; Hu & McGrath, 2011; Li & Ni, 2011). Contrary to these three items, item 9 had the lowest cumulative percentages of 33.4% among the 10 items. It seemed that teachers did not play much role in helping students to correct mistakes in the process of online learning exercises, which fits the particular context very well. The online learning program automatically checked the online exercises and thus spared the teachers of the need to do this.
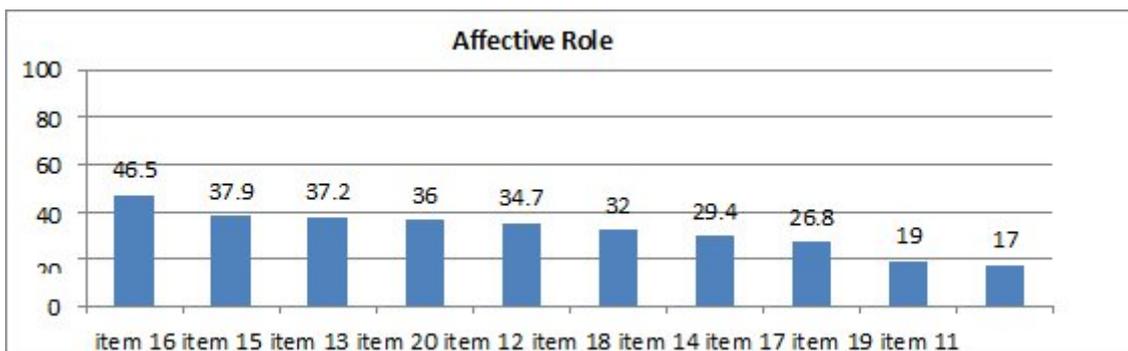
Figure 2. Cumulative percentages of participants' positive responses to the 10 items of the affective role.

In a similar vein, figure 2 shows the data of the 10 items of factor 2. Item 16 of encouraging learners to explore answers on their own had the highest cumulative percentage – 46.5% among the list. Such findings corresponded well to the condition of online learning where students were supposed to learn with a higher degree of autonomy (Lai, Yeung & Hu, 2015). On the other hand, Item 11 (17%) ranked the lowest. That is to say, very few students recognized that games were often used in online learning. The data suggested that language games in this study did not appear to be one of the common behaviors of instructors in order to connect with learners or to create a lively atmosphere in online learning.
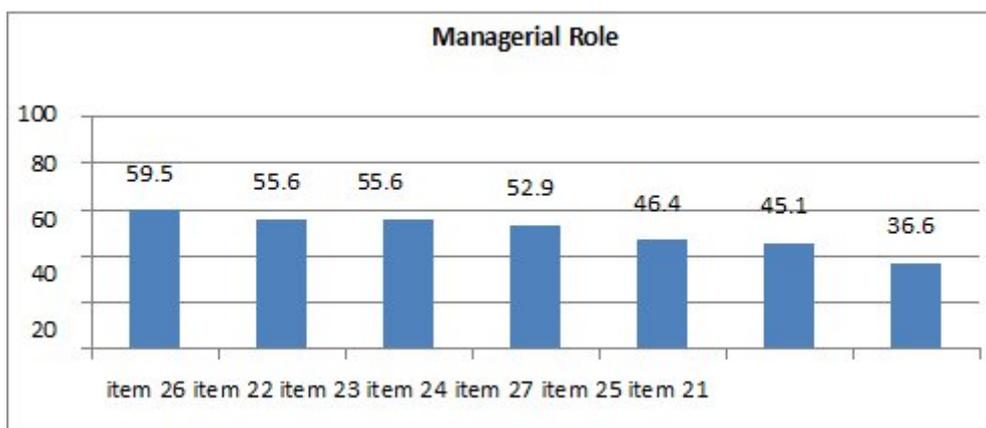
Figure 3. Cumulative percentages of participants' positive responses to the 7 items of the managerial role.

When it comes to the third factor of the managerial role, item 26 showed the highest cumulative percentage of 59.5%. In other words, more than half of the learners agreed or strongly agreed that teachers kept a record of students' exercises in online learning. Participants' responses indicated that it was important for instructors to monitor learners in online learning (Coppola et al, 2002). Contrary to item 26, item 21 that dealt with making a learning plan for students had the lowest cumulative percentage of 36.3%. It meant that only one third of the participants agreed or strongly agreed that teachers needed to make a plan for their learning. This result suggests that most learners have a degree of learning autonomy and regarded making a learning plan as more of their own duty than the responsibility of their teachers.

In addition to the descriptive data of all the 27 items in the STRI, the study also calculated the item means of each factor. Table 2 below lists the descriptive statistics of item means of the three factors. Data in Table 2 show all the three means were quite moderate, indicating that the roles of teachers as a whole were somewhat reduced and thus not very notable in online learning. Furthermore, the three sub-roles of online teachers did not have the same weight in the same learning context. To be more exact, the managerial role had the highest item means of 3.484 whereas the affective role had the lowest item means of 3.111, indicating that teachers in this study were seen to play a greater role in class management while they exerted the least influence on

affective aspects. The cognitive role, with the item means of 3.297, comes in between the two sub-roles.

Table 2. Descriptive statistics of item means of the three factors of the STRI ($n = 153$).

Factors	Item means of the factors	SD	SE
Managerial role	3.484	.836	.676
Cognitive role	3.297	.883	.071
Affective role	3.111	.761	.068

To further reveal the relationship among the three sub-roles of teachers in online learning, a T-test of the item means of the three sub-roles was conducted to find out whether significant differences existed among them. The results of the T-test are listed in Table 3 below.

Table 3. Results of the T-test of the item means of the three main factors of the STRI.

		Paired Differences							
					95% Confidence Interval of the Difference				
		Means	SD	SE	Maximum	Minimum	t	df	Sig.(Two-tailed)
Pair 1	Managerial - Cognitive	.187	.776	.063	.063	.311	2.980	152	*.003*
Pair 2	Cognitive – affective	.186	.489	.040	.108	.264	4.693	152	*.000*
Pair 3	Managerial – Affective	.373	.695	.056	.262	.484	6.632	152	*.000*

Table 3 shows that the mean differences were all significantly different from one another even though the mean differences were quite minor. In particular, the mean difference between the managerial role and the cognitive role was .187. The *t* value was 2.980 with 152 degrees of freedom. This *t* value was significant at the .05 alpha ($p =$ .003). In other words, significant differences existed between the managerial role and the cognitive role with the managerial role reporting higher item means than the cognitive role. Similarly, the cognitive role was found to be significantly different from the affective role as well with a mean difference of .186 and a *t* value of 4.693 (*df* = 152, *p* = .000). Finally, the mean difference between the managerial role and the affective role was .373. The *t* value was 6.632 with 152 degrees of freedom. This *t* value was significant at the .05 alpha (p = .000). That is to say, there was also a significant difference between the managerial role and the affective role with the item means of the managerial role higher than that of the affective role. Overall, results of a t-test revealed that the item means of the three main factors were significantly different from each other, with the item means of the managerial role being the highest, followed by the cognitive role, whereas the affective role had the lowest item means. The data suggested that, in the learners' view, teachers played a greater role in class management but contributed less to cognitive learning processes and exerted the least influence on affective aspects in the online learning context. Such findings proved to be more specific in presenting the characteristics of the different roles that teachers have played in online learning.

7. Discussion

7.1. Cognitive role

In this section, the results of the questionnaire and the interview are discussed in more detail in relation to the findings of previous studies. First of all, the researcher of this study will discuss the categorization of teacher roles together with the specific teaching-related behaviors under each sub-role. For instance, under factor 1 of the cognitive role, instructors may perform 10 different teaching-related behaviors to facilitate learners' cognitive learning processes and these behaviors do not always have the same effect in the same learning environment. To be more exact, items 1, 2 and 3 focus on the technology that teachers have applied in online learning to assist learners with their learning. Data showed that these items had the top cumulative percentages of positive responses (52.3%, 50.9% and 43.8%, respectively) among the cognitive role and were most recognized by learners.

In fact, previous research in this respect has shown overlapping and contradictory findings. Some studies highlight technological roles as a distinct category of teacher roles (Alvarez et al, 2009, p. 332; Lee, 2011, p. 923; Subramaniam, 2010, p. 945). Whereas, other studies have regarded it as a different category such as "instructional methods", "orientation to the classroom", "the role of expert and manager", and "managerial role", (Koc, 2011, p. 200; Coppola et al, 2002, p. 180; Lam & Lawrence, 2002, p. 302). The disagreement in the relevant literature indicates that more research is necessary in the area.

Despite the lack of consensus on the theoretical level and in empirical studies, the highest means of item 1, 2 and 3 of the cognitive role in this study indicated that students had a good opinion of the use of ICT by their teachers in online learning. Indeed, other studies have found that students did incorporate technological resources recommended and shared by teachers. Teachers' application of technologies and advice on what technologies to use and how to use them also affect the types of activities that students engage in and are relevant to learning processes (Lai et al, 2015, p. 3). Students were also found to have higher expectations on how teachers can teach and help learning with technology in online classes (Lai et al, 2015, p. 15). Technological applications are by no means limited to the use of videos, audios, English websites and English web pages as described in this study. Other technology-based instruction incorporates the use of ICT for different pedagogical designs and purposes such as CMC, ICQ, apps in cell phones, audio and video conferencing tools, discussion forums, movies, news and online courses on YouTube, as well as social communication media such as Facebook (Lee, 2011; Lai et al, 2015). In response to the need of technological application in online learning, teacher training should be geared to integrating technology with pedagogy. Teachers, thus, can first learn to use basic ICT tools and media, then select suitable technology to match online learning tasks, and finally creatively adapt existing technology for online learning (Compton, 2009, p. 80).

Unlike items 1, 2 and 3, the other 7 items from item 4 to item 10 in the cognitive role are related to what teachers can do in the cognitive aspects of learning. The means of these seven items all gathered around the third-point scale of neither disagree nor agree. Such moderate means revealed that the cognitive role was not very impactful in the online learning. In traditional teacher-centered classroom instruction, teachers act as the expert and authority who provide resources and answers (Lam & Lawrence, 2002, p. 295). In contrast, the online learning program in this study offered ample learning resources, actually much more than what any individual teacher can offer. It can also automatically check answers and provide keys. Presumably, these functions have reduced students' reliance on teachers and thus decentralized the roles of teachers in the online learning. Therefore, teachers are likely to move from the pivotal position to the status of "guiding on the side" and they are expected to adopt facilitative approaches in creating learner-centered online learning (Anderson et al, 2001, p.13).

7.2. Affective role

As to the affective role, data of the 10 items in this group also help reveal certain characteristics. Generally speaking, in order to encourage students to explore answers on their own (item 16) and help them to stay focused (item 15), teachers have to

promote more online communication through various ways such as encouraging students to exchange ideas (item 13), express feelings (item 12) and bringing up more discussions (item 20). In fact, items 16, 15, and 13 in this study did have the highest means among the group, which in turn validated the corresponding situation in the online learning.

In this study, learners considered it to be important for instructors to keep an eye on online discussions and exercises (Donnelly, 2013, p. 138). It is also believed that the co-presence of an online teacher in the online classroom could help make the learning environment less distant (Harms et al, 2006, p. 1). Nonetheless, the means of item 14 (the teacher brings students closer to each other) was only 3.03 and stayed nearly at the foot of the whole group. The lower means may indicate that most students did not feel closer to each other in spite of the presence of their teachers in the online learning all the time. The findings prove that teachers' presence alone is not enough.

The reasons may be multifold. First of all, data of item 11 may provide some insight. Item 11 refers to whether the teacher had led students to play games to learn English and it had the lowest means of 2.69 among the whole scale. The lowest means of item 11 indicated that games were not commonly observed in online learning even though considerable evidence shows that games provide "robust, stimulating and motivating environments" for learners (Bawa, Watson & Watson, 2018). In fact, various digital games have been used by many commercial online courses in China as technological tools and stimulus to orient and engage distance learners. Researchers also hold that language games are often task oriented and often accomplished by working in groups (Blake, 2011, p. 27). Although games are considered to be a viable way to stimulate language learning, they did not seem to be very prominent here in the study. Neither did they seem to have facilitated the atmosphere or motivate learning online.

Another reason might be that students lacked a sense of community and social cohesion online. Researchers found that students tend to feel closer to each other in a successfully-fostered online community and thus persist in learning (Senior, 2010, p.144). Hampel and Stickler (2005, p. 318) noted that meaningful communicative interaction would not take place in instructional settings that lacked social cohesion and that learner-learner and learner-instructor interaction played a crucial role especially in promoting successful language learning. Obviously, the online environment has changed the media of the interaction between instructors, learners and contents. Such changes in turn require a re-examination of the roles that teachers take in enhancing students' learning (Baran et al, 2011, p. 421) and justify the need for more research into the emotional impact of the transition from f2f instruction to online learning (Donnelly, 2013, p. 140).

7.3. Managerial role

Compared with the first two sub-roles, the managerial role has the highest item means of the whole instrument. In particular, item 26, keeping a record of students' exercises had the highest percentage (59.5) and also the highest means (3.71) not only in the managerial role but also among the entire instrument. It means that this teaching behavior of recordkeeping was regarded as the most distinct aspect of the teacher roles in online learning in this study. The findings were different from Lee's conclusion in that "be clear" was the most important aspect of the managerial role (Lee, 2011). In fact, recordkeeping has been incorporated in the managerial role by many researchers but with different terms. For example, Coppola et al. (2002) described it as "tracking students down" and classified it as one of the organizing behaviors of the managerial role. Aydin's study (2005) and Bawane & Spector's study (2009) also referred to it as "student registration" and "recordkeeping" under the construct of the managerial role.

On top of item 26, other items in the managerial role such as "making a learning plan, teaching schedule, setting up rules and disciplining the class" also help to describe more accurately the teaching behaviors related to managing online learning. In previous studies (Lee, 2011, p. 923), however, some descriptions of the managerial role like "Don't overload", "manage time properly" and "be patient" appeared quite limited and vague to reveal characteristics of the managerial role of online teachers.

The fact that the managerial role of teachers was considered to be the most notable in this study disagrees with the findings of previous research. Lam & Lawrence (2002, p. 303) found ICT caused limited changes of teacher roles in the area of the managerial role where teachers did not have to initiate the project or motivate the students in the project as much as in a traditional classroom. The researchers concluded that "the manager role of the teacher was reduced, with some of the responsibilities being passed on to the learners". However, in this study, teachers were perceived to play a greater role across different aspects of class management ranging from discipline, recordkeeping, rules and regulations to scheduling and planning. Such monitoring by instructors is supposed to help learners enrolled in online learning and prevent them from dropping out in during the course. This might be one of the most significant ways in which teachers can promote online learning.

7.4. Qualitative data from the interview

As to the qualitative data from the interview, the key findings proved to correspond to the findings of the quantitative data from the 27 items of the questionnaire. A review of the coded data resulted in identifications of several characteristics of teachers in relation to online learning. For example, one student, *Liu,* said:

"Online learning offers students more freedom and very rich learning contents. We are able to choose freely whatever we like in the online learning programs. But it is quite difficult to get access to teachers online when we have questions."

Another student, *Wang*, had similar opinions:

Online learning has lots of interesting contents. I can pick those that really interest me. However, online learning lacks supervision and monitoring. We do not communicate with each other online. It is difficult to work on.

A third respondent, *Qin*, also mentioned these problems:

Online learning provides a wide range of interesting learning contents to us. But those exercises are too easy, even easier than high school. We can seldom practice speaking or writing online although we can ask our teacher for any questions we don't understand. In fact, the teacher does not reply very much. There is little communication online.

To summarize the statements made by the interview respondents, the main problems with teachers in online learning are identified as follows:

- Little communication with the students online.
- Inadequate feedback or comments on relevant exercises, especially speaking and writing. Lack of supervision and monitoring from teachers to push students to persist.
- Less direction to guide students to learn and do the exercises.
- Too much freedom in online learning will make students feel lost or even drop out halfway more easily.

It seems that students do not need the teachers to provide learning contents or answers to exercise as these are provided by the online learning program itself. In other words, teachers in online learning are no longer content providers or an authority who offer correct answers. Rather, teachers are strongly needed by students for adequate and proper feedback, guidance, direction, supervision and monitoring in the process of learning. These aspects were described by items 4-10 of the cognitive role in the questionnaire. The complaints of students in the interview, coupled with the moderate means of the cognitive role in this study, revealed that teachers did not play adequate roles in giving timely and sufficient feedback and comments to students' learning online. Furthermore, the problems identified by interview respondents were also in line with the lowest item means of the affective role and indicates that learner-learner and learner-teacher communication was scarce. Although online learning in the present study does provide a virtual chat room for learners to communicate with each other and their teachers, the record of the virtual chat room showed that very few people talked online. One of the major reasons for this might be limited time and efforts that teachers could spend in addition to f2f instruction. Previous studies also showed that learners, with all

the conveniences of modern technology, still preferred real-life communication to virtual environments (Trinder, 2016). Finally, respondents in the interview also expressed strong concern about greater monitoring to help them to work. The highest item means of the managerial role showed that the teachers in this study made a certain effort to monitor online learning but students seemed to need more than that. It shows that this is where teachers could play a greater role in the online learning context.

8. Conclusion

The purpose of this study was to explore and quantitatively measure teacher roles in an online learning context through a 27-item instrument of five-point Likert scale (the Scale of Teacher Role Inventory, the STRI in short) (Huang, 2017). The study proposed the following three research questions:

- What are the roles of teachers in the online learning context studied?
- How do learners perceive the roles of teachers in the online learning context?
- What are the differences, if there are any, in teacher roles in the online learning context?

Research results identified three main roles of teachers in the online learning context – a cognitive role, a managerial role and an affective role. Furthermore, these roles did not seem to have the same effects in online learning. For example, among the 27 specific teaching behaviors of online teachers, recordkeeping of the online exercises proved to be the most significant for learners while encouraging students to learn English by playing games was regarded as the least important. More importantly, the cognitive role, the affective role and the managerial role were found to be significantly different from each other. In particular, the managerial role undertaken by online teachers was considered to be the most significant to students. Teachers, in students' views, played a smaller role in cognitive aspects and had the least influence on affective aspects of online learning.

9. Implications

It is hoped that the findings of this study might offer some insight into online learning and teacher training as well. For example, since teachers have the least involvement in affective aspects of online learning, it is then necessary to gear teacher training in the direction of facilitating positive instructor-learner relationships and building a helpful virtual classroom atmosphere. To fulfill this goal, on the one hand, teachers need new skills that are obviously different from those in traditional instruction (Hampel & Stickler, 2005). On the other hand, researchers and practitioners also need to work more on how technology could be made full use of in order to facilitate and foster more successful communication online (Trinder, 2016; Adnan, 2017). With regard to the cognitive role, the results of the quantitative data in this study indicated the teachers' role as a provider of learning content or as an authority to offer correct answers was somewhat weakened in online learning. On the contrary, the interview findings revealed that teachers were still greatly needed by students for their timely and adequate guidance, direction, feedback and comments while students are learning online. Thus, how to provide more individualized and effective guidance and feedback might be the focus of teacher training and online learning in the future. As to the managerial role, both quantitative data of the questionnaire and qualitative data from the interview in the present study indicate that it is teachers' monitoring and recordkeeping that prevents students from dropping out halfway and encourages them to persist. Indeed, greater efforts are needed to supervise, monitor and track students' learning online in different ways. This is probably much more crucial than in face-to-face learning contexts.

10. Limitation and future studies

Although very few attempts have been made so far to quantitatively measure the teacher roles in relation to the sub-roles and their specific teaching behaviors in online learning, there are limitations with the study when the generalizability of the study is considered. The findings were somewhat limited as the study only researched students' perceptions of online teachers. It would be more revealing if the study had compared

students' perceptions of teacher roles in the online learning context with those in other instructional contexts.

Future studies may look into teacher roles across various instructional settings rather than only in an online learning context. Comparisons could also be made between teacher roles in different learning environments so that a more complete picture of teacher roles could be presented for the benefit of both researchers and instructors and ultimately for the improvement of online learning.

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Appendix

The Scale of Teacher Role Inventory (STRI)

Dear Students,

The purpose of this survey is to find out your beliefs of teachers' roles in online English learning. The questionnaire is not a test and there is no "right" or "wrong" answer to all the questions. The results of the investigation will be used only for research purposes so please give your answers truthfully to ensure the success of the survey. Thank you very much in advance for your cooperation!

Name:

Major:

Which year at university:

Instruction:

Please circle a number from 1 – 5 to tell us how much you agree or disagree with the following statements.

Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree
1	2	3	4	5

Teacher roles in online English learning	
1. The teacher uses videos to help students to learn English.	1 2 3 4 5
2. The teacher uses audios to help students to learn English.	1 2 3 4 5
3. The teacher recommends English websites/web pages to students to learn English.	1 2 3 4 5
4. With the explanation of the teacher, the focus of the learning materials becomes clearer.	1 2 3 4 5
5. The teacher helps students to overcome misunderstandings.	1 2 3 4 5
6. The teacher helps students to analyze the learning content.	1 2 3 4 5
7. The teacher makes comment on students' work.	1 2 3 4 5
8. The teacher gives advice on doing exercises.	1 2 3 4 5
9. The teacher helps students to correct mistakes.	1 2 3 4 5
10. The teacher shows students the right direction of doing activities.	1 2 3 4 5
11. The teacher leads students to play games to learn English.	1 2 3 4 5
12. The teacher encourages students to express their feelings in English.	1 2 3 4 5
13. The teacher encourages students to exchange ideas in English.	1 2 3 4 5
14. The teacher brings students closer to each other.	1 2 3 4 5
15. The teacher helps students to stay focused.	1 2 3 4 5

16. The teacher encourages students to explore answers on their own.	1 2 3 4 5
17. While learning English, I feel confident of myself because of the teacher.	1 2 3 4 5
18. The teacher makes English learning interesting to me.	1 2 3 4 5
19. The teacher makes English learning stressful to me.	1 2 3 4 5
20. The teacher brings up different issues for discussion.	1 2 3 4 5
21. The teacher makes learning plan for students.	1 2 3 4 5
22. The teacher makes teaching schedule in class.	1 2 3 4 5
23. The teacher controls learning pace.	1 2 3 4 5
24. The teacher disciplines the class.	1 2 3 4 5
25. The teacher sets up rules and regulations for doing activities.	1 2 3 4 5
26. The teacher keeps a record of students' exercises.	1 2 3 4 5
27. The teacher adapts the exercises to meet students' needs.	1 2 3 4 5