Identification of the optimal faculty behaviors for performance improvement in distance education

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Abstract

The current study reports the findings of the first step of a comprehensive performance improvement study, identification of the optimal behaviors. In this sense, this study aims to determine the optimal faculty behaviors in distance education based on the perspectives of the stakeholders based on the framework of transactional distance (TD) theory. The data were obtained from the stakeholders of distance education practices; distance education experts from eight universities, and faculty members, administrators, and students from two universities as well as observations on online courses and available relevant documents. The data from the multiple sources were analyzed through constant comparison method. The emerged codes created the themes based on the TD theory. The findings indicated that the identified behaviors, which are student-centered and interrelated in producing the outcomes, are expected from all faculty at varying degrees in any context to manage TD outcomes. The identified behaviors might be used as the performance objectives in faculty professional development studies and practices in distance education.

Keywords Distance education · Faculty behaviors · Transactional distance · Performance improvement

Introduction

More than two decades of research on online faculty roles and competencies have clearly identified the roles and competencies of faculty in distance education (DE). Though there are common roles and competencies with traditional education, there are also other essential roles and competencies needed for online DE (Berge 2008).

Bawane (1999) clarified the relationship between teacher roles and competencies by constructing a hierarchy of roles, tasks, competencies, and skills. According to this hierarchy, the more general domain is faculty roles, followed by tasks, competencies, and skills, respectively, from general to specific. Based on this hierarchy, Bawane and Spector (2009) developed a teacher education framework on which each

competency requires the acquisition of specific skills and each faculty role has specific behaviors to display.

Previous research on faculty roles and competencies have revealed the opinions of the experts, students, or faculty and demonstrated both similarities and differences. The differences were particularly observed in the studies focusing on the prioritization of faculty competencies in DE. Bawane and Spector (2009), for example, concluded based on the expert opinions that pedagogical competencies are the most important ones, whereas Darabi et al. (2006) argued from the faculty perspective, that communication competencies are the most important ones. The observed differences in the findings of these studies might be partially due to the participants' demographic differences. However, the focus and scope of the studies also influenced their findings. For instance, in her study with the participation of faculty, mentors, and students, Easton (2003) focused more on interaction roles and underlined communication competencies as the core ones. The abovementioned examples and the relevant literature further demonstrate that various DE contexts cause variation in the underlined competencies.

In spite of the clear statement of faculty roles and competencies in previous research, optimal faculty behaviors based on DE theories still remain unidentified. For this reason,

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the literature still needs a comprehensive study on theory-driven optimal faculty behaviors as the objectives of the professional development efforts through the participation of the related stakeholders. Theory-driven faculty behaviors, rather than context-specific ones, are argued in this study as a prerequisite for the assessment of faculty performance in diverse DE contexts, including their self-assessments.

Transactional distance (TD) theory might be a framework for this purpose since Giossos et al. (2009) assert that faculty behaviors produce TD as the result through the mechanisms of dialogue, structure, and autonomy. Gokool-Ramdoo (2008) further proposes that TD theory can be used for quality assurance, policy-making, and consequently institutional and national development in DE practices rather than just measuring dialogue and structure. The author, based on the systems approach, suggested that TD theory is required to be adopted as a global theory and to be used for the further improvements in DE practices. Systems approach requires an understanding and management of the context and the variables or sub-components within it (Rummler and Brache 1988). In the perspective of Gokool-Ramdoo (2008), the systems approach, covering TD theory, is suggested to divide DE components into sub-components or into more manageable functions by providing a more segmented and comprehensive view on the components and the relationships among them. According to the author, this approach also facilitates the implementation of interventions in DE. Inclusion of all relevant stakeholders with the components in the context is also a necessity of the systems approach. Therefore, this study is to identify the optimal faculty behaviors critical to faculty performance outputs based on TD theory through the participation of all related stakeholders of DE practices. The study specifically aimed to produce performance statements in the form of behaviors required to optimize TD components, which were assumed as the instructional outcomes produced by these behaviors.

Theoretical background: transactional distance theory

TD theory is a theory about interaction in DE. According to Moore (1989), there are three types of interactions in DE: student–instructor, student–student, and student–content. Then, student–interface as the fourth interaction type was added to these interactions and it was characterized as a need for distance students to interact with faculty, peers and content, and to attend online classes effectively (Hillman et al. 1994). TD theory is based on the interactions arising in DE settings and student autonomy proposed by Moore (1993). He stated that there is a psychological and communication distance between students and faculty called TD as well as physical distance in DE context. TD is a continuous

variable that might be observed in any instructional environment at diverse degrees. This continuity imply that it might vary throughout a semester in a course depending on faculty and student actions, content, and technology. TD causes particular teacher and student behaviors and influences learning outcomes relying on students' TD perceptions. It varies depending on the course or program structure, dialogue between student and instructor, and student autonomy. In other words, it is a function and consequence of these three variables. This means that these three variables contribute to the degree of TD perceived by students. Thus, TD is operationally defined as the student perceptions of the psychological and pedagogical distance as the result of structure, dialogue, and autonomy in a DE context. More specifically, dialogue and structure describe teaching procedures implemented by faculty and autonomy refers to the degree of autonomy needed by students relying on flexibility in course or program structure and quality and intensity of dialogue with faculty.

Dialogue is defined as the interaction or series of interactions between faculty and students during the instructional process (Moore 1993). The difference between dialogue and interaction, according to Moore (1993), is that the former refers to the positive interactions. This means that dialogue has a goal, is constructive in nature, and results in added value. Said another way, dialogue excludes neutral and negative interactions that lack the previous qualifications. Thus, the ultimate aim of dialogue is to boost student learning. Constructive feedback from faculty could be illustrated as an example of dialogue. The extend of dialogue is determined by the philosophy of the faculty and course designers, personality of faculty and students, the type and degree of the subject matter to be taught, and other environmental factors such as communication media, trainings of the faculty, and physical environments of faculty and students (Moore 1993).

The second determinant factor on TD is structure of courses and program. Structure is defined as the degree of flexibility of a course or program in terms of instructional objectives, teaching and evaluation methods (Moore 1993). In fact, it delineates the degree to which a distance course or program is capable of meeting individual student needs. Thus, structure depends on the reflection of students' inputs on the course design and dialogue between faculty and students. To exemplify, availability of guidance for learning in instructional materials determines the structure of distance courses. Similar with dialogue, the structure element is also determined by the communications medium, philosophy and emotional status of faculty, characteristics of students, and other environmental factors (Moore 1993). In more structured courses or programs with high TD, students need to have self-regulated learning skills to manage their own learning process. Therefore, the minimization of TD is possible through the individualization of instruction based on

the inputs from students as appropriate with the content and the level of instruction.

Autonomy is defined as students' ability of "achieving goals of their own, in their own ways, under their own control" (Moore 1993, p. 31). In case of more course structure and less dialogue between student and faculty, students need more autonomy for learning. In case of less course structure and more dialogue, students need less autonomy to achieve their learning goals. Students' self-directed learning skills exemplify autonomy. In this sense, structure and dialogue in a DE context determine the degree to which student's autonomy is required.

Since the introduction of TD theory, advancements on the theory have been observed. The theory has been widely used as the framework to examine interactions in distance learning environments. Further studies elaborated the constructs and expanded the theory. Huang (2002) developed a model of TD with the variables of dialogue, structure, autonomy, and interface. In her model, dialogue factor included the sub-dimensions of "learner-to-instructor", "learner-to-learner", and "learner-to-content" interactions. Course structure included the sub-dimensions of "course organization" and "course delivery". Learner autonomy included the sub-dimensions of "independent" and "interdependent". She also added interface as a separate factor to her model. Zhang (2003) expanded the theory by including more complex and multidimensional factors in DE environments. She defined TD as the cognitive, psychological, social, cultural, behavioral, and physical distance between students and faculty, and operationally defined as the barriers to students' learning and active engagement in distance education courses. Other studies indicated that TD influences instructional outcomes such as satisfaction (Ekwunife-Orakwue and Teng 2014; Horzum 2015; Paul et al. 2015; Shea et al. 2016; Swart et al. 2014), social presence (Horzum 2015), academic performance (Ekwunife-Orakwue and Teng 2014; Shea et al. 2016) and engagement (Bolliger and Halupa 2018).

Gokool-Ramdoo (2008) claims that there is compelling evidence to argue that TD theory is a global theory and suggests that it is useful in explaining pedagogical, organizational, and policy-related issues. Based on the systems approach, she additionally proposes a model on which TD theory can be used for course design and development, quality assurance, policy-making, and consequently institutional and national development. She indicates that such a usage of the theory is possible by addressing the systemic issues in DE such as development of quality learning resources, use of technologies that best meet learner needs, and establishment of student support services. Giossos et al. (2009) approach TD theory through the epistemological framework of realism with the assumption that science explores "actions", which produce "results" through the "mechanisms". Based on this assumption, they propose a model on which faculty
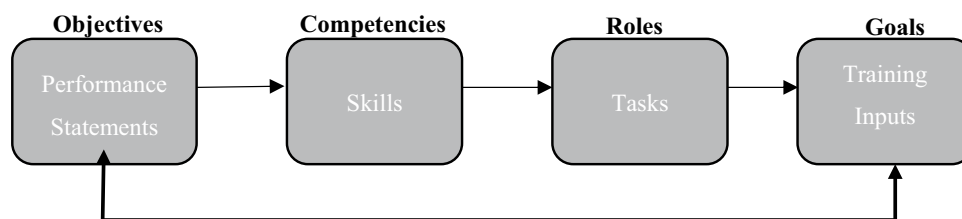
behaviors (actions) produce TD as the result through the mechanisms of dialogue, structure, and autonomy. In other words, faculty behaviors such as responding timely and developing appropriate learning materials in accordance with student needs produce TD as the outcome through the mechanisms of dialogue, structure, and autonomy. They further recommended that TD is required to be explored at the levels of "(i) the interpersonal relationship between teacher and learner, (ii) the relationship among the members of the learner group, and (iii) the mediating relationship between learners and the educational material"(p. 4).

As a quality criterion, the basic aim of DE practices is to decrease TD between students and faculty to a minimal level. To do this, the course structure is required to be flexible so that it meets the diverse needs of the students; and faculty has a facilitator role in four types of interaction mentioned above. TD is also required to be taken into consideration in performance studies in DE contexts since it is significantly influential on and the predictor of the learning outputs (e.g. Bolliger and Halupa 2018; Paul et al. 2015; Shea et al. 2016). Considering that TD theory is a global theory, which can be applied in any DE context, and it can be used in the explanation of pedagogical, organizational, and policy-related issues, it is adopted as the theoretical framework for the current study since faculty actions, or behaviors, produce TD as the outcome. Although Moore (1993) underlined the impact of teacher characteristics on TD and implied several teacher behaviors to minimize TD such as stimulating criticism, giving advice, and arranging practice, there is still a need for the definition and comprehensive elaboration of these behaviors to use them as performance indicators. Thus, TD theory was used as a guide during the development of data collection instruments and as an analytical tool in data analysis and illustration.

Faculty roles and competencies in distance education

More than two-decades of research on online faculty roles and competencies have identified the roles and competencies of online faculty (e.g. Bawane and Spector 2009; Easton 2003; Goodyear et al. 2001). Though there are common roles and competencies with traditional education, there are also other roles and competencies specifically needed for online DE (Berge 2008). Bawane (1999) clarified the relationship between teacher roles and competencies by constructing a hierarchy of roles, tasks, competencies, and skills. Based on this hierarchy, Bawane and Spector (2009) developed a teacher education framework, which includes objectives (performance statements), competencies (skills), roles (tasks), and goals (training inputs) from specific to general (see Fig. 1).

Fig. 1 Teacher education framework proposed by Bawane and Spector (2009, p. 386)

The figure shows the bidirectional relationship between teacher education goals and objectives (performance statements or behaviors). The current study focused on objectives in teacher education programs and used TD theory to obtain optimal faculty behaviors specific to DE. Since the objectives refer to the performance statements, the present study aimed to reveal the performance statements in the form of behaviors. The following sections present a snapshot of the literature on the identified faculty roles and competencies, which have relevance with this study.

Faculty roles in distance education

The studies conducted in the last two decades reported the roles and competencies of the faculty in various DE settings. These studies varied by the participants and their conclusions on prioritization although there were similarities among the identified roles and competencies.

Goodyear et al. (2001) and Williams (2003) identified several roles for DE faculty based on the expert opinions gathered in panels. Both studies underlined the roles to be played with the collaboration of, or by various professionals due to the challenging nature of getting responsibility of all these roles by a single faculty. On the contrary, from the perspectives of the faculty-attended professional development courses, Heuer and King (2004) defined the roles to be played by merely online faculty by highlighting that these roles are dynamic and can change depending on course context. In the same vein, designing/planning, social, instructive, technological, and management roles are the ones to be played by solely online faculty as described by Guasch et al. (2010) as a result of their literature review study.

Other studies on faculty roles gave an attempt to prioritize online faculty roles in terms of their importance in instructional processes (e.g. Aydın 2005; Bawane and Spector 2009; Easton 2003). Prioritization of faculty roles and competencies was a concern for the researchers since the degree of emphasis on each role and competency in faculty professional development programs might vary depending on the DE context and culture (Bawane and Spector 2009). In this regard, Easton (2003) underlined instructional designer and interaction facilitator roles based on the opinions of the distance faculty, mentors, and students. She found out that faculty roles in DE have the similar roles with the ones in face-to-face education, but instructional design and interaction

facilitator. She finally noted that distance faculty need to be in charge of multiple roles. Salmon (2004) also gave more attention on interaction by highlighting the moderator role by calling distance faculty as e-moderators. She emphasized faculty role in providing and promoting interaction and collaboration among students in DE environments. Similar with the previous studies, Aydın (2005) tried to determine and prioritize online faculty roles from the perspectives of online faculty. The study findings by Aydın (2005) are similar to those of Goodyear et al. (2001) and Williams (2003). However, he noted that faculty gave more importance to such roles as assessor, content expert, and facilitator roles over others including material producer and administrator roles. In another study, Bawane and Spector (2009), as mentioned, defined and ranked online faculty roles based on the opinions of the DE experts so that the faculty competencies can be improved based on this ranking. According to this ranking, more importance was attributed to the pedagogical roles. The secondly important one was professional role followed by evaluator, social, and technologist roles. As different from the previously presented studies, Coppola et al. (2002) constructed a classification including cognitive (faculty behaviors relevant to cognitive aspects of instruction such as perception, learning, and problem-solving), affective (faculty behaviors influencing their relationships with students such as non-verbal communication, intimacy, and humor), and managerial roles (faculty behaviors relevant to management of courses such as course planning and leadership) from the perspectives of faculty.

Faculty competencies in distance education

Each of the defined online faculty roles in the literature inherently requires single or multiple competencies or all roles require some common competencies. For this reason, within the studies describing these roles, the researchers also identified needed competencies for each role (e.g. Goodyear et al. 2001; Williams 2003; Aydın 2005).

In their study, Goodyear et al. (2001) defined the faculty competencies for each of the roles through the opinions of the DE experts. For example, the competencies related with content facilitator role cover "point to relevant learning resources" and "construct appropriate learning tasks". Williams (2003) concluded that communication and interpersonal competencies are necessary for all roles according

to the DE expert responses. In the same vein, Easton (2003) stressed the communication competencies as the more important one since she focused more on interaction roles in her study with faculty and students. Though Aydın (2005) considered assessment competencies as the most important one from faculty perspective, Bawane and Spector (2009) identified pedagogical competencies as more important based on the expert views. On the other hand, Darabi et al. (2006) defined solely online faculty competencies as different from the previously mentioned studies. According to the faculty opinions in this study, the competencies for communication and creating a learning community were found as the most crucial ones while the competencies for feedback, promotion of higher-order thinking, and facilitation of assignments are found as the most frequently performed ones. Varvel (2007) identified the core competencies and the competencies of an exemplary faculty based on the student, faculty, and administrator perceptions. The study identified the core and exemplary competency objectives for administrative (e.g. knowledge of institutional context), personal (e.g. content knowledge), technological (e.g. technical proficiency), pedagogical (e.g. knowledge of education and learning theory), assessment (e.g. awareness of online assessment issues), and social roles (e.g. maintaining online social presence).

Purpose of the study

The literature review on both faculty roles and competencies conducted in this study illustrates that the prioritization of these roles and competencies might vary depending on DE context. It is also remarkable that faculty and experts' opinions in this regard showed differences. This conclusion implies that a single group of participants such as experts or faculty would be inadequate to obtain a holistic perspective on optimal faculty behaviors. Additionally, the lack of a theoretical base in many of the research studies conducted in DE context has been a debatable issue and theory-driven studies in this field enable investigation of more complex issues and provide more predictable generalizations (Gokool-Ramdoo 2008). For this reason, there is still a need for the identification of the theory-driven optimal faculty behaviors with the participation of all DE stakeholders. Identification of optimal faculty behaviors are requisite since they are the objectives of professional development efforts. TD theory offers a useful framework to identify the optimal behaviors producing optimal instructional outcomes. Therefore, the current study aimed to identify optimal faculty behaviors in DE settings from the perspectives of all stakeholders. Specifically, the following research question framed the study: What are the optimal faculty behaviors

in DE from the perspectives of all stakeholders within the framework of TD theory?

Method

Research design

The basic qualitative study approach was employed to address the proposed research question. It is used to investigate "how meaning is constructed, how people make sense of their lives, and their worlds" when other approaches such as a phenomenological, grounded theory, or narrative analysis was not appropriate (Merriam 2009, p. 24). In this study, this approach was employed to discover how the stakeholders of DE view optimal faculty behaviors.

Sampling and participants

Maximum variation purposeful sampling was employed in the present study for the selection of the participants. It is a sampling strategy by which researchers use their judgments and previous knowledge regarding the problem based on the goals of the study instead of selecting only the ones available (Fraenkel et al. 2003). The participants of the study are the stakeholders of the faculty performance in online DE ($n = 58$). In other words, the experts including policy-makers and administrators; faculty including DE coordinators; and students were recruited in this study. The participant faculty and students were delimited with two universities assuming that both universities have sufficient experience in online DE practices and they are the typical representatives of the DE context in Turkey. Additionally, it was ensured that the participant faculty and students from these universities were adequate to provide maximum variation. As for the expert participants, it was their background that provides maximum variation in responses. For this reason, the number of the participant experts were delimited according to their professional background as well as conceptual saturation.

The experts ($n = 10$) were from the eight universities selected based on the criteria that they have teaching and administrative experience and have academic publications regarding online DE. Two of them were also the members of the national DE working group advising Higher Education Council (HEC) of Turkey for national DE policies. The faculty ($n = 22$) from two public universities were selected and varied based on their subject fields (social or applied), educational degree (undergraduate and graduate), educational background (Degree on education, DE-related discipline, or other disciplines), and experience. Six of them were also the DE coordinators of their schools. Similarly, the students ($n = 22$) were also varied in terms of the program they enrolled in, educational background, experience

and age. Their ages ranged from 19 to 53. The administrators ($n = 4$) were the ones responsible for the organization of DE practices in two universities. The sample size was identified during the data collection relying on the theoretical saturation.

Data sources and instruments

The data sources of the current study were semi-structured interviews, observation notes on online courses, course documents and materials in these courses, and institutional and national documents regarding the DE policies. The interview and observation forms were developed by the researchers based on TD theory and the relevant literature. The interview schedules were covered the components of the TD theory; dialogue (student–faculty, student–student, student–content, and student–interface interactions), structure (course design and delivery), and autonomy (support for students' autonomous learning). Separate interview schedules were developed for each participant group (experts, administrators, faculty, and students). They were reviewed by the three subject field experts of online DE and were revised based on their critics and recommendations. The interview responses of the participants were used as the main data source and other data sources were used to triangulate the findings from the interviews. The findings were also triangulated by the responses of the multiple participant groups. The interview schedules for each participant group included the following questions denoted as examples: "What responsibilities should an optimal faculty in online distance education have for interaction among students?" (Experts), "Do you have any implementation to improve faculty interaction with students? If yeas, How? If no, why?" (Administrators), "What do you do in online distance education for interaction among students? Do you think you do it in an optimal way? Why? Or How?" (Faculty), and "How do you interact with your peers? How optimally should faculty contribute to the improvement of your interaction with the peers?" (Students). In addition, an observation form was used for triangulation with the interview data as well as providing the researcher with an insight into the context. The observation form was also revised and improved based on the critics and suggestions of the subject field experts. The observation fields on online courses were the recordings of the synchronous lessons, materials, and forums. Finally, institutional and national documents about the faculty responsibilities and DE policies in general provided researchers to have a broader understanding of the DE context in Turkey.

Context of the study

DE practices in Turkey are relatively centralized at national level since the institutional practices were bounded by the national rules and regulation for DE specified by the HEC based on the advice from the national DE working group. The DE practices have a dual distributed administration: DE administration and the administrations of the schools offering DE programs. Technical, academic, and administrative infrastructure of the DE programs and courses are managed by the DE administrations in coordination with the school and program administrators, who are customarily DE coordinators in the schools. The faculty who is to offer DE courses are assigned by the school administrations considering the views of DE administration. Academic and technical support for faculty are also provided by DE administration. The courses in DE programs and mid-term exams are fully delivered online on Learning Management System (LMS) except some applied courses, which demand face-to-face practice. Final exams and applied parts of the courses are conducted on campus.

Data collection procedure

After the participants were solicited based on the identified criteria for participation, the data were obtained from the participants in the spring semester of 2017. The participants were invited for participation through e-mail and phone calls. The interviews were conducted as face-to-face or through phone calls based on their requests. The interviews were recorded with the permission of the participants and analyzed after transcription. Concurrently with the interviews and data analyses, the researchers conducted observations on the online courses of the participants for triangulation. The data collection and analysis processes were conducted concurrently and continued until achieving conceptual saturation.

Data analysis

The obtained data were analyzed through constant comparative analysis. During the analysis, TD theory was used as the analytical tool and the data were analyzed based on Merriam's (2009, p. 199) description. He describes the analysis process as follows:

> The researcher begins with a particular incident from an interview, field notes, or document and compares it with another incident in the same set of data or in another set. These comparisons lead to tentative categories that are then compared to each other and to other instances. Comparisons are constantly made within and between levels of conceptualization until a theory can be formulated.

According to this description, each participants' responses were read several times and the extracted codes were continuously compared with each other based on their

properties and dimensions. The extracted codes were also compared with the participants within and between the groups. The codes were concurrently triangulated through the observations on online courses. The emerged codes continuously constructed and refined the tentative themes in an iterative manner. During the categorization of the codes, the extracted codes and themes were linked to TD theory as it guided the analysis process. Hybrid labeling were used for naming the codes and themes. That is, the labels of the behaviors and themes were named based on both the collected data and the theory. Additionally, the codes were stated as the verbs in the form of behaviors since the study aims to reveal the optimal faculty behaviors. Throughout the data collection, the researchers kept taking field notes and used them during the analysis. The obtained codes in the form of behaviors and the themes were illustrated in tables.

Trustworthiness of qualitative analysis

The trustworthiness of the qualitative analysis was ensured based on Lincoln and Guba's (1985) guidelines. Prolonged engagement of the researchers in the field of the study, peer debriefing, and triangulation from the different data sources, and respondent validation were used for the credibility of the findings. As for the transferability, dependability, and conformability, the study procedure, context, timing and tools for the data collection and analysis were presented. Finally, the findings were described in detail through the extractions from the participants.

Findings

The main performance outcomes were categorized as Dialogue and Structure. The derived concepts for each performance output were stated as verbs in the form of behaviors. Dialogue contains the optimal behaviors for student–faculty, student–student, student–content, and student–interface interactions. Structure includes the optimal behaviors for Analysis, Design, Development, Evaluation, and finally Course Delivery. Course delivery theme also covered the sub-themes named as optimal pedagogical behaviors and optimal managerial behaviors.

Dialogue

Optimal behaviors critical to dialogue were illustrated in Table 1 below. Dialogue covered the behaviors classified as student–faculty interaction, student–student interaction, student–content interaction, and finally student–interface interaction.

Optimal behaviors for student–faculty interaction

The participants mostly underlined that establishing human touch is the most fundamental factor for facilitating student–faculty interaction. It is about faculty's friendliness and sincerity and acting in a warm way with a positive attitude towards students. The participants also stated that this behavior is a source of motivation and social presence for students. Responding timely is to respond students' all sorts of contact demands in a timely manner. Some of the participants think in case of late or non-response, learning outcomes are affected negatively. Providing feedback is to provide information about how students perform and what their progress are, not only grading, in a timely, satisfactory, and individualized manner. According to the participant responses, it could be motivational, corrective, and guiding relying on the objectives. A student, for example, explained her ideas for these behaviors as follows: *We would like to see a respondent. This is not always possible. (Electronic) Mail is very important for us. We would like to have responses to our questions.* (S4)

Providing alternative ways for interaction is to improve the ways of interaction with a student-centered perspective by considering students' possibilities and preferences

Table 1 Optimal behaviors critical to dialogue

Themes	Behaviors	N	E	A	F	S	Total
Student–faculty interaction	Establishing human touch		6	2	9	6	23
	Responding timely		10	3	4	–	17
	Providing feedback		10	3	2	2	17
	Providing alternative ways for interaction		7	–	–	–	7
Student–student interaction	Supporting students for discussions		10	2	1	3	16
	Encouraging for collaboration		7	1	1	1	10
Student–content interaction	Guiding for learning		10	3	3	4	20
Student–interface interaction	Providing easy navigation for materials		6	–	–	3	7
	Guiding for instructional tools on LMS		3	2	–	1	6
	Facilitating access to materials		4	–	–	–	4

E experts, *A* administrators, *F* faculty, *S* students

to interact with faculty. However, a disagreement among the experts and faculty about how to perform this behavior was observed. While some of them disagreed with the use of mobile phones and social media due to concerns about privacy and negative interactions, some refused any sort of communication limitation. An expert, for instance, highlighted this behavior as follows:

> If this is distance education, fundamentally students should have all sorts of communication that they need at a distance with faculty. However, face-to-face meetings or face-to-face interactions should be added to this when possible. (E6)

Optimal behaviors for student–student interaction

Supporting students for discussion covers creating a reason for, triggering, and moderating discussions among students with the aim of socially construction of knowledge. Although these discussions naturally take place among them, the participants underlined that main responsibility of faculty is to keep them on lesson or course objectives by their moderation.

Another behavior suggested by the participants for social learning is encouraging for collaboration. This behavior is faculty's encouragement for students to perform in collaboration to achieve an objective. The participants think that this behavior is not only needed for learning but also for engagement to learning process. The same disagreement on the social media usage again stated for this behavior. Some participants think that LMS is the only platform for collaboration and discussion while some of them think that social media could be used for these purposes. An expert stresses her concerns regarding social media usage as follows: *When you do it on Facebook, it has something like this. It is not a legal place and you cannot take the discussions under control there*. E7

Optimal behaviors for student–content interaction

Guiding for learning is needed for facilitating students' autonomous learning and as a source of motivation. This behavior is needed in both learning materials and activities, according to the participant responses. In both, a faculty member needs to provide guidance on learning objectives, learning resources, practices needed, and in turn learning itself in the form of learning or study strategies. Some of the experts highlighted that this behavior especially gains more importance when the learning materials lack of these guiding and interactive properties. An expert underlined this behavior as follows: *If the materials do not have something like this, faculty should fill in the gap, should tolerate it, or she/he should conduct some activities reinforcing this.* (E2)

Optimal behaviors for student–interface interaction

This type of interaction has two dimensions; (1) the navigation in and access to learning content or materials and (2) the use of instructional tools on LMS. Though the latter is mainly facilitated through student orientation, student guides or student support services, the former heavily depends on faculty.

Providing easy navigation for materials aims to facilitate students' access to materials and specific contents they need. The experts adopt this behavior as one of the main responsibilities of faculty. They claimed that content presentation in the materials is required to be in a logical structure based on course objectives and to be similar in all materials so that students can have autonomy to access the desired content. The participants agreed on that guiding for instructional tools on LMS is not a main responsibility of faculty. But, they still argued that they at least need to minimally guide them so as to continue lesson activities. Facilitating access to course materials has two dimensions as stated by the participants, both have a student-centered approach. The first dimension is to develop materials compatible with different environments considering the devices used by students. The second is to develop materials in various formats considering students' internet connection speed and online readiness to use them. En expert's ideas in this regard are as follows: *Teacher cannot deal with all of them but helping students in these issues can be viewed as one of the teachers' responsibilities*. (E6)

Structure

Course structure here is used to refer to the instructional design. The participant experts had a consensus on that instructional design for both DE courses and materials is quite different than the one conducted for face-to-face courses due to the context-specific demands of DE. This claim requires DE faculty to demonstrate behaviors specific to DE context. Experts also had an agreement on that faculty be definitely supported by the professionals during the instructional design processes. The behaviors in course design were classified based on the generic instructional design model, ADDIE (Analysis, Design, Development, Implementation, Evaluation) except Implementation, as shown in Table 2. Implementation in ADDIE model was presented in Course Delivery theme.

Optimal behaviors for analysis

Almost all participants had a consensus that DE students are heterogeneous, and their characteristics influence all aspects of a course. For this reason, analyzing student characteristics are essential for the design of a course. This behavior

Table 2 Optimal behaviors critical to course design

Themes	Optimal behaviors	N	E	A	F	S	Total
Analysis	Analyzing student characteristics	10	1	2	5		18
	Advising for course and material development	10	–	2	–		12
	Analyzing student needs	8	1	1	–		10
	Conducting analysis for lesson and course design	7	–	–	–		7
	Deciding on course and material structure	2	–	–	–		2
Design	Configuring environment and tools	10	–	1	3		14
	Advising for material design	10	–	1	–		11
	Conducting detailed planning	7	–	2	–		9
Development	Supporting autonomy through materials	10	–	3	–		13
	Developing individualized materials	8	–	4	–		12
	Producing materials based on pre-defined standards	4	–	–	–		4
	Updating materials	3	1	5	–		4
Evaluation	Evaluating effectiveness of lessons and materials	8	–	–	–		8

E experts, *A* administrators, *F* faculty, *S* students

also necessitates that faculty need to have knowledge about adult learning. A faculty stated the need for this behavior as follows: *When you design instruction, your objectives and et cetera are already clear. But, you may need to shape it according to the students' levels.* (F19)

As a fundamental aspect of all instructional design processes, expert advice is a requirement for the development of the instructional materials and online courses. Thus, the participants argued that faculty, as the subject field experts, are in charge of advising for course and material development.

As different from analyzing student characteristics, faculty are in charge of analyzing student needs before and during the course delivery as participants stated. Participants argued that this behavior is necessary for student motivation, learning, interest, and engagement. Some of the experts argued that such an analysis requires faculty to have empathy with students and the needed empathy can be best acquired through the experience of being a DE student.

Optimal behaviors for design

One of the mostly underlined behavior is configuring instructional environment and tools due to the place flexibility in DE settings. The optimization of the environment typically involves sound insulation to prevent echo, light, camera and microphone configurations. A faculty stated this behavior's importance as follows: *This should be in such a way that it will not distort the effectiveness. I mean wherever she/he is lecturing, the place should not affect the effectiveness.* (F15)

Another behavior at the design phase is planning for lesson and course activities. Most of the experts stated that planning in DE is required to be more detailed than face-to-face education due to the more influential and varying factors such as student participation, changes, or flaws. The

experts finally expressed that faculty members are needed to keep advising for material design as do they in the analysis phase.

Optimal behaviors for development

Development phase is about the development of courses or lesson materials based on the analysis and design phases. The mostly underlined issue by the participants was the learning materials. In the same vein, the first two behaviors are about the development of the materials; namely, supporting student autonomy in materials and developing individualized materials. The reason behind the emphasis on the materials was that they have the potential of meeting students' individual needs and autonomy.

Developing individualized materials is suggested as an optimal behavior because DE have heterogeneous students and they consequently have heterogeneous needs. The participants recommended two ways of individualization; compatibility for multiple devices and software platforms and enrichment of materials in terms of content, activities, practices, medium, or format. The former aims to facilitate student access to materials through multiple devices and on multiple platforms. The latter aims to provide students with multiple learning opportunities relying on their learning needs.

Some of the experts asserted that materials be developed based on pre-defined standards to provide usability and institutionalization. The standardization could be provided through material presentation, content, visual design format, and so on. An expert supported this notion as follows:

> You do a work. You spend efforts. But, you need to show this. 'What we want from you, sir, is something like this material format in these environments.' What

I mean by format is providing what characteristics are needed for the individualization of the content. (E5)

The last optimal behavior for the development phase is updating content and materials. Some of the participants think that there is no stability in DE context and characteristics of the students might vary. Additionally, the contents of some subject fields might change. For this reason, these factors necessitate frequent update on the materials.

Optimal behaviors for evaluation

Evaluation, as a requirement of all instructional design models, covers only one behavior, evaluating effectiveness of courses and materials. The participants stated that this behavior is performed through student feedback and achievement and covers evaluation of a course from all aspects such as materials, methods, interaction, and so on with a continuous improvement approach. An expert explains the need for this behavior as follows:

She/he (a faculty) have to be able to do many things something like that if she/he made a mistake, she/he could be able to correct it, revise it. I mean this is, in fact, a spiral thing, a continuous thing in instructional design processes. It is not something left as completed. (E3)

Optimal behaviors for course delivery

Course delivery is defined as all of the synchronous and asynchronous instructional activities and the delivery of learning materials and resources. The behaviors in course delivery were divided into pedagogical and managerial behaviors as shown in Table 3 below.

Optimal pedagogical behaviors The most commonly stated two behaviors were about instructional methods. The first is using appropriate instructional methods. The participants

stated that all sorts of instructional methods except the ones demanding students' physical existence could be used or adapted to be used in DE settings. What is underlined here by them was to use these methods including presentation as student-centered. A faculty stated this behavior as follows: *There should be alternative methods. …The things like what we can do in the videos… Various instructional methods are required. A faculty needs to know them.* (F5)

Second commonly stated behavior is demonstrating effective presentation skills. This behavior is separately stated since presentation is the mainstream way of instruction in all DE programs in the study context. According to the participant responses, this behavior has two dimensions; designing effective presentation materials and demonstrating effective oral presentation skills. Both of them are needed to be student-centered.

The next behavior is about the improvement of students' social presence; establishing social interaction. This behavior means synchronous social interaction between faculty and students. The experts asserted that synchronous lessons do not always have to be based on the lesson objectives, but rather they should involve extracurricular social aspects as occurred in face-to-face education. An expert, for instance, underlined this behavior as follows:

(In face-to-face education) You tell a joke as appropriate. Isn't it? You use a current example as appropriate. You say, 'Let's think about it'. Isn't it? Sometimes you ask how they are. I mean there is a socialization. We, as distance educators, forget socialization a bit. E8

Paying individual attention on each student is a controversial issue among the participants though it is needed for monitoring student progress and motivation. There were three different views regarding this behavior owing to the large number of students in some classes. The first one is to decrease number of students in each class to an optimal level. According to the second view, the performance of this behavior depends on course requirements. In other words,

Table 3 Optimal behaviors critical to course delivery

Themes	Optimal behaviors	N	E	A	F	S	Total
Pedagogical behaviors	Using appropriate instructional methods		8	2	8	4	22
	Demonstrating effective presentation skills		5	2	4	6	17
	Establishing social interaction with students		7	–	3	2	12
	Paying individual attention on each student		5	–	3	3	11
	Using alternative evaluation methods based on objectives		7	–	–	3	10
Managerial behaviors	Managing classroom appropriately		4	–	–	–	4
	Using instructional tools effectively		8	4	2	–	14
	Diagnosing and solving some common technical problems		4	3	–	–	7
	Following course plans		5	–	–	2	7

E experts, *A* administrators, *F* faculty, *S* students

this behavior is needed to be performed only if a course requires. The last view is that DE does not have any limitation in this regard and this behavior can be satisfied through materials and collaboration. A student stressed how this behavior is motivating as follows:

> Even though this is distance education, she/he (faculty) should be able to differentiate the persons who attend the classes and the ones who are not. She should know the student. When we go to there (university campus), she/he know me by my name. This is motivating. S8

The last behavior in pedagogical behaviors is using alternative evaluation methods based on lesson or course objectives. This behavior was specifically underlined by some of the experts since the mainstream way of evaluation is multiple choice exams regardless of the course or lesson objectives.

Optimal managerial behaviors The first behavior the most commonly stated by the participants is managing classroom appropriately. This behavior has three aspects according to them. The first one is to manage student behaviors in virtual environment by setting rules. The second aspect is to use lesson time efficiently, especially considering time limitations of adults. The final aspect is to manage unexpected technical problems.

The second behavior is using instructional tools effectively; namely, software platforms through which materials are used and the tools on LMS. In this regard, some of the experts claimed that faculty need to use social media effectively to enhance interaction with and among students. Thus, the similar disagreement in terms of social media usage again arised for this behavior. A faculty explained this behavior as follows:

> She/he should know the environment very well where she/he lectures. We now working on Moodle. What was the name of these programs? Is it LMS? I think she/he should know very well the features of these programs. F8

Another behavior on which disagreement observed was diagnosing and solving some technical problems. Some of the experts asserted that faculty at least need to diagnose and solve some technical problems in collaboration with the support staff, particularly in the cases when immediate support is needed. The opponents of this view claimed that faculty do not have to perform this behavior and their responsibilities should be as few as possible.

The final behavior is following course plans. This behavior is particularly stated by some participants since delays in course plans cause negative influences on students' motivation and engagement and cannot be tolerated in DE context, consequently. For this reason, this behavior has vital importance in terms of student engagement in DE context, especially due to adult students' time limitations.

Discussion

The current study revealed the optimal faculty behaviors for performance improvement in distance education. The findings were discussed based on the components of TD. The identified optimal faculty behaviors were presented and discussed in a fragmented way in the form of dialogue and structure as a requirement of the systems approach, which enables the division of components into a more manageable function (Gokool-Ramdoo 2008). This approach was adopted in this study to make faculty behaviors more manageable to minimize TD in DE context. This would also allow to determine performance deficiencies in each of the behaviors and constructs (dialogue and structure) and to apply the necessary interventions for the improvement of each behavior.

Dialogue

The identified optimal behaviors critical to student–faculty interaction are *establishing human touch*, *responding timely*, *providing feedback*, and *providing alternative ways for interaction*. All these behaviors incorporate dialogue construct from different aspects. Establishing human touch indicates the social aspect of interaction, providing alternative ways for interaction indicates the technical aspects of interaction and finally responding timely indicates timing aspect of interaction. Off all, providing feedback is viewed as the most fundamental element of instruction regardless of its medium. These behaviors were already stated in many of the relevant studies in diverse ways (e.g. Bawane and Spector 2009; Darabi et al. 2006; Goodyear et al. 2001). The less emphasized behavior in the literature is providing alternative ways for interaction. This behavior not only facilitates interaction, but also prevents possible misunderstandings between faculty and students in terms of perceptions, ideas, emotions, and situations (Moore 1993). The recent studies suggest the incorporation of more interactive communication tools to minimize TD (Huang et al. 2016) and maximizing the opportunities for dialogue (Farquhar 2013).

The identified faculty behaviors for student–student interaction are *supporting students for discussions* and *encouraging for collaboration*. While the former refers to the initiating, moderating, and maintaining discussions among students, the latter refers to encouraging students to collaborate on learning tasks. Moore (1989) ascertains that the interaction among students depends on their experiences, age, autonomy level, and circumstances. However, both behaviors are required in any context at some level

for students' social presence and satisfaction (So and Brush 2008). After the initiation, the faculty is in charge of moderating discussions as proposed in Salmon's (2004) e-moderator concept and facilitating for collaboration.

The third type of interaction is student–content interaction, which is attributed by Moore (1989) as a "defining characteristic of education". The behavior extracted for this interaction is *guiding for learning*. This guiding support is particularly demanded from faculty when guidance is not available in learning materials. Thus, the degree of faculty support in this regard largely depends on the extent to which learning materials are content-interactive (Moore 1989). This sort of guidance could be in the form of suggesting learning resources, measures to enhance performance, and guidance based on student needs (Bawane and Spector 2009).

The final type of interaction is student–interface interaction. The identified optimal behaviors for facilitating this interaction are *providing easy navigation for materials*, *guiding for instructional tools on LMS*, and *facilitating access to materials*. Student–interface interaction is a prerequisite for the accomplishment of other interaction types. For this reason, these behaviors were also consistently observed in the prior studies (e.g. Alvarez et al. 2009; Bawane and Spector 2009; Kirwan and Roumell 2015). Therefore, students are required to have competency in using tools to spend minimal mental effort to obtain information (Hillman et al. 1994). While the first and second behaviors are necessary considering students' computer experience and perceptions of technology, the last behavior is necessary for facilitating student access to materials via various technological tools and medium.

Structure

Structure was divided into two segments; (1) instructional design (analysis, design, development, and evaluation) and (2) delivery of distance courses. The covered behaviors in analysis are *analyzing student characteristics*, *advising for course and material development*, *analyzing student needs*, *conducting analysis for lesson and course design*, and *deciding on course and material structure*. The course structure depends on courses or programs' ability to be reactive to individual needs of students and their inputs into instructional process leading variations in courses or programs (Moore 1993). In this sense, the inputs from the students into the instructional process are their entry characteristics. The findings of this study suggest that faculty are required to analyze these student inputs as described in the first and third behaviors and consequently to *decide on course and material structure* as described in the last behavior by taking course or program goals and objectives into consideration. The practice of these behaviors is quite complex and requires

much time and effort since the required level of structure relies largely on the content, instructional approach, level of dialogue, and student characteristics, particularly their level of autonomy (Moore 1993). The findings also indicate that faculty are responsible for advising for material and course development as the subject matter expert in cases that materials and courses are developed by an instructional design team.

The optimal behaviors defined in Design theme is *configuring environment and tools*, *advising for material and course design*, and *conducting detailed planning*. The main categories of variables for which faculty need to conduct planning are identification of instructional goals, instructional techniques, evaluation methods, and the degree to which students' individual needs are involved (Giossos et al. 2009). In the same vein with the findings of the current study, research suggests that knowledge of students and context can guide the reduction of TD through the design decisions on the balance between structure and dialogue (Benson and Samarawickrema 2009). In conjunction with the current study, Bawane and Spector (2009) imply the issues on which faculty advice is needed through the behavioral objectives for design such as learning outcomes and sequence of the content.

The development theme includes the following optimal behaviors; "*supporting autonomy through materials*", "*developing individualized materials*", "*producing materials based on pre-defined criteria*", and "*updating materials*". Materials are the most commonly emphasized issue by all stakeholders in this study. Likewise, they are emphasized in TD theory by Moore (1993) since they include the design elements mainly determining the course structure. In this sense, material-related behaviors are argued as a key success factor to minimize TD considering the DE contexts where faculty-student interaction is limited.

Evaluation theme covers one behavior, "*evaluating effectiveness of lessons and materials*". This evaluation is also one of the inputs of the analysis phase for the re-design of courses and materials. Goodyear et al. (2001) clarify how faculty can be able to do evaluation on the effectiveness. Based on the expert opinions, they report that faculty can be able to "analyze and reflect upon data, experiences, and records of online teaching to monitor and improve one's own performance" (p. 71). The current study, however, suggests that faculty needs to get support from instructional designers and other professionals to perform evaluation.

The current study identified nine behaviors critical to course delivery. They are categorized as the pedagogical and managerial behaviors. The first two behaviors in pedagogical behaviors are *using appropriate instructional methods* and *demonstrating effective presentation skills*. Although presentation can be stated as an instructional method, it is separately underlined due to its mainstream use by all faculty. It

is also specifically included in TD theory by Moore (1993) due to the same reason. Student–faculty dialogue is suggested to be covered in various instructional methods since it is influential on student motivation and construction of knowledge (Moore 1993). Additionally, the use of diverse instructional methods might be useful to enhance students' higher-order thinking skills that are highly desired in higher education (Moore 1993).

During synchronous lessons, *establishing social interaction with students* are additionally suggested for student motivation and engagement. This behavior is needed for both facilitating dialogue during synchronous lessons by creating a friendly environment (Bawane and Spector 2009; Darabi et al. 2006) and motivating students for contribution. The participants pointed out another behavior as a source of student engagement and their feeling of social presence; *paying individual attention on each student*. This behavior is one of the ways of individualization of instructional process through individual attention and feedback about each student's progress. However, some of the opponent participants suggested that the demonstration of this behavior depends on course objectives and requirements.

The final behavior in course delivery is *providing alternative evaluation methods* based on the stated objectives. These alternative evaluation methods might also be the opportunities for students to practice what they learn, to manipulate information and ideas, or to improve higher-order thinking skills (Moore 1993).

The managerial behaviors are suggested to use synchronous lesson durations effectively and efficiently and to deliver asynchronous parts of courses effectively. *Managing virtual classroom in an appropriate manner* and *following course plans* are key behaviors to avoid deviations from lesson plans while *using instructional tools effectively* is both a prerequisite and continuously needed behavior throughout instructional process. Similarly, *using instructional tools effectively* and *solving some common technical problems* are faculty behaviors that are useful to avoid waste of time due to technical issues during synchronous lessons.

Conclusion

The findings of the study specified the optimal faculty behaviors critical to performance outputs and aimed to manage TD in DE settings. The study provided theory-driven optimal faculty behaviors in DE settings as the performance statements. The identification of these behaviors contributed to the DE literature by revealing the faculty behaviors in a more manageable way to be used in faculty professional development studies and practices. The presentation of the optimal faculty behaviors in terms of dialogue and structure has the potential to enable researchers and practitioners

to identify performance deficiencies in each construct, and design and develop interventions to improve faculty behaviors and thereby performance outputs.

The identified optimal behaviors are the central behaviors needed in any context at some degree to gather the desired performance outputs. A faculty member cannot be expected to perform all these behaviors alone, but rather they are expected to perform through the external support from DE professionals. Particularly, the behaviors critical to course design demand professional support from instructional designers. The performance outputs, assumed as TD components in this study, are the product of these faculty behaviors. This means that the deficiency in one behavior might severely influence the performance outputs regardless of how well the other behaviors are demonstrated. For this reason, any DE context is likely to require the integrated demonstration of the multiple optimal behaviors. The study results are in conjunction with the existing faculty roles and competencies in the literature. On the contrary to the existing faculty tasks and the classifications in the literature, the main contribution of this study is the identification of the faculty behaviors to manage TD and classification of these behaviors in terms of TD components.

The study also provided suggestions for the improvement of students' learning performance based on the identified optimal faculty behaviors. The findings imply that such faculty characteristics as friendliness and positive attitude towards dialogue with students is highly desired as well as timely response and feedback for the improvement of student motivation and social presence. Alternative ways of interaction is also desirable for the enhancement of dialogue opportunities among faculty and students. Student–student interaction could not occur by itself based on course objectives without faculty contribution. They are required to start and maintain interaction among students through encouragement for participation and moderation. For student–content interaction, faculty members are needed to provide guidance in both instructional materials and synchronous lessons. Such a guidance is highly desirable in materials considering students' low participation into the synchronous lessons. Besides, access to and navigation within these materials and content they covered are required to be facilitated by faculty through the presentation of materials in a consistent way with a user-friendly interface. In this regard, predefined institutional standards are a prerequisite for material development. As for structure and course delivery, the obtained optimal behaviors are in line with the paradigm shift toward student-centered instruction. For this reason, course and material structure are suggested to be based on the students' characteristics and learning needs through detailed planning and in collaboration with instructional designers during the design, development, and evaluation phases. Student-centered instruction also requires faculty to

demonstrate diverse pedagogical and managerial behaviors during course delivery. Therefore, the current study findings suggest pedagogical accreditation for faculty recruitment and continuous trainings and support to adequately demonstrate these optimal behaviors and improve student learning, consequently.

Implications for further studies

The current study has several implications for future studies. First, the identified optimal behaviors in the current study might be validated through the quantitative methods to use it as a quantitative metric in professional development studies. Second, empirical studies are needed to demonstrate how faculty talents and personality influence the performance outputs adopted in the current study and other performance outputs such as student satisfaction, persistence, engagement, and motivation in DE context. Further studies might focus on the type and degree of faculty support from instructional designers and other support staff in specific contexts. It would also be a research interest for future studies to illustrate the similarities and differences in the responses of the DE stakeholders (experts, administrators, faculty, and students) in terms of optimal faculty behaviors. Finally, the optimal behaviors can be elaborated by specifically investigating student–content interaction depending on students' self-regulated learning skills.

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