DESCRIBING SECONDARY SCHOOL MENTOR TEACHERS' MENTORING CONCEPTIONS AND MOTIVATIONS IN PRESERVICE TEACHER EDUCATION

by

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ABSTRACT

DESCRIBING SECONDARY SCHOOL MENTOR TEACHERS' MENTORING CONCEPTIONS AND MOTIVATIONS IN PRESERVICE TEACHER EDUCATION

The main purpose of this study is to describe secondary school (5th – 12th grade) mentor teachers' mentoring conceptions and motivations. It is also aimed to examine relationship between mentoring conceptions and motivations. Lastly, the study aims to examine whether mentor teachers' mentoring conceptions and motivations are differentiated in terms of their subject areas, years of mentoring experience, school levels, and school types. The sample of the study was comprised of 141 secondary school mentor teachers in Istanbul. The data were collected by using the Mentoring Conception Scale (MCS), and the Mentoring Motivation Scale (MMS). Within the scope of this study, the MCS and the MMS were translated Dutch to Turkish and Confirmatory Factor Analysis was performed. The results of the study showed that mentor teachers tended to give high scores for each conception and motivation factors. While mentor teachers reported stronger agreement with a developmental mentoring conception than an instrumental mentoring conception, they reported almost equal agreement on personal learning and generative outcome motives. It was found that all of the relationships between mentoring conception and motivation factors were statistically significant and positive. The results also showed that mentor teachers' conception and motivation factors were differentiated in terms of subject areas but not years of mentoring experience, and school types. Mentor teachers whose subject areas are in Language and Social Science group tended to give high scores for each conception and motivation factor than Science and Mathematics groups.

ÖZET

HİZMET ÖNCESİ ÖĞRETMEN EĞİTİMİNDE ORTAOKUL VE LİSE MENTÖR ÖĞRETMENLERİNİN MENTÖRLÜK ANLAYIŞ VE MOTİVASYONLARININ BETİMLENMESİ

Bu çalışmanın temel amacı, ortaokul ve lise (5.-12. sınıf) mentör öğretmenlerinin mentörlük anlayış ve motivasyonlarının betimlenmesidir. Ayrıca mentör öğretmenlerin mentörlük anlayışları ile motivasyonları arasındaki ilişkinin incelenmesi amaçlanmaktadır. Son olarak, araştırma, mentör öğretmenlerin mentörlük anlayışlarının ve motivasyonlarının konu alanlarına, mentörlük deneyimi yıllarına, okul seviyelerine ve okul türlerine göre farklılaşıp farklılaşmadığını incelemeyi amaçlamaktadır. Araştırmanın örneklemini İstanbul'daki 141 ortaokul ve lise mentör öğretmeni oluşturmaktadır. Veriler, Mentörlük Anlayış Ölçeği ve Mentörlük Motivasyon Ölçeği kullanılarak toplanmıştır. Bu çalışma kapsamında, ölçekler Hollandaca'dan Türkçe'ye çevrilmiş ve Doğrulayıcı Faktör Analizi yapılmıştır. Bulgular, mentör öğretmenlerin her bir anlayış ve motivasyon faktörü için yüksek puanlar verme eğiliminde olduğunu göstermiştir. Mentör öğretmenler, araçsal mentörlük anlayışına göre gelişimsel mentörlük anlayışı faktörü için daha yüksek puanlar verirken, kişisel öğrenme ve üretken sonuç güdüleri faktörleri için neredeyse eşit puanlar vermişlerdir. Mentörlük anlayış ve motivasyon faktörleri arasında ilişkilerin tamamı istatistiksel olarak anlamlı ve pozitif bulunmuştur. Ayrıca sonuçlar, mentör öğretmenlerin anlayış ve motivasyon faktörlerinin konu alanlarına göre farklılaştığını ancak mentörlük deneyimi yıllarına ve okul türlerine göre farklılaşmadığını göstermiştir. Konu alanları Dil ve Sosyal Bilimler grubunda olan mentör öğretmenler, Fen ve Matematik konu alanı gruplarına göre her bir anlayış ve motivasyon faktörü için yüksek puan verme eğiliminde olmuştur.

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LIST OF ACRONYMS/ABBREVIATIONS

AVE	Average Variance-Extracted
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
ITC	International Test Commission
MCS	Mentoring Conception Scale
MERID	MEntor (teacher) Roles in Dialogues
MMS	Mentoring Motivation Scale
NCATE	National Council of Accreditation and Teacher Education
NCTM	National Council of Teachers of Mathematics
OECD	Organization for Economic Cooperation and Development
RMR	Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
SPSS	Statistical Package for the Social Sciences
TLI	Tucker-Lewis Index
WLSMV	Means and Variance Adjusted Weighted Least Square
WRMR	Weighted Root Mean Residual

1. INTRODUCTION

In the line with fast changing world, the education has an important role to shape generations of countries who are capability to overcome the challenges. Therefore, the quality of education is important for countries in order to raise qualified humans who make their countries and the world much better. The most essential component of education is teachers and raising good teachers is the first step of effective education for students. Because "the quality of teachers determines the quality of education" (Jan, 2017, p. 50) and the quality of teachers is determined by the quality of teacher education. Therefore, effective teacher education is crucial for teachers to learn how to teach.

Teacher education is a life-long learning and preservice teacher education is the first step of it. The most essential part of preservice teacher education is teaching practice because teaching practice give opportunities for preservice teachers to transform their theoretical knowledge into practice (Azkiyah & Mukminin, 2017). During the teaching practice process, preservice teachers need guidance and support at practicum school and mentor teachers are responsible to provide this support. Therefore, mentor teachers have crucial role to create an appropriate environment that gives opportunities preservice teachers to construct their teaching experiences and teaching styles at mentoring process (Graham, 2006).

However, mentor teachers' roles and responsibilities show difference country to country because teacher training programs are affected by the characteristics of countries own education systems (Sarıboğa-Alagöz, 2006). In Turkey, the most essential changes on preservice teacher education were made in 1998 with the Faculty-Practice School Partnership Program. In accordance with this partnership program, teaching practices were added at the last year of preservice teacher education and roles and responsibilities of mentor teachers were stated. These roles and responsibilities have started to be explained by three-days mentor training program to them. Even if men-

tor teachers' roles were identified as a person who provides guidance about required skills and knowledge in order to improve preservice teachers' own teaching profession (the Council of Higher Education, 1998), in Turkey, mentoring cannot be implemented regularly by mentor teachers because of the non-systematic structure of it (Dağ & Sarı, 2017).

Mentoring has complex structure and understanding of this process is crucial to increase its effectiveness in preservice teacher education. Mentoring process is generally evaluated in terms of mentor teachers' practices because these practices provide researchers a concrete way to understand and evaluate it. In general, mentor teachers' roles and practices are defined in terms of preservice teachers' needs and these needs are expected to shape mentor teachers' practices. Even if there are expected roles and practices from mentor teachers, each mentor teacher shapes their mentoring practices in terms of their beliefs about what mentoring is and which mentoring practices are required for preservice teachers. These sets of beliefs about mentoring create bases for mentor teachers' mentoring conceptions and motivations. Mentoring conceptions and motivations are crucial to identify how mentor teachers see mentoring in preservice teacher education (van Ginkel *et al.*, 2016). Therefore, it is necessary to describe mentor teachers' mentoring conceptions and motivations in order to understand mentor teachers' mentoring practices and how these practices shape whole mentoring process. Thus, the main aim of this current study is to describe secondary school mentor teachers' mentoring conceptions and motivations in preservice teacher education. It is also aimed to investigate the relationship between mentor teachers' mentoring conceptions and mentoring motivations. Lastly, the study aims to examine whether mentor teachers' mentoring conceptions and motivations are differentiated in terms of their subject areas, years of mentoring experience, school levels, and school types.

2. REVIEW OF LITERATURE

This part of this current study contains a review of literature about teacher education, preservice teacher education and practicum, mentoring, mentoring models, the Kram Mentoring Model, the Clinical Supervision Model, the MEntor (teacher) Roles In Dialogues (MERID) Model, and the Five-Factor Model, mentoring according to perspectives of preservice teachers and mentor teachers, and mentor teachers' conceptions and motivations about mentoring.

2.1. Teacher Education

Over the years, the importance of education has increased because it is the first step to make students ready for these changes in fast changing world. Education has a complex structure because there are a lot of factors that affect process of education. One of the most important influencer figure of education is teachers. Therefore, the roles and responsibilities of teachers have become important to increase the quality of education and to raise qualified people to make our world a better place.

Even if the importance of teacher has started to increase, many people think that anyone who has such content knowledge can be a teacher (Darling-Hammond, 2000). According to Shulman (1987), being teacher and skills that teacher must have are underestimated. However, being teacher is more complicated than having content knowledge. Being teacher contains within itself many roles, responsibilities, knowledge, and skills. Even if content knowledge is an essential to be a good teacher, it is not the only component of teaching because it just forms the "what" part of teaching. Teachers should also have pedagogical knowledge to be qualified to "how" she will teach the content.

To represent the complexity of teaching, Darling-Hammond and Bransford (2005) explained teaching by likening to an orchestra. According to audiences of an orchestra,

the role of conductor is simplest one because conductor just stands in front of an orchestra and waving her arms then glorious sounds are produced by other members of an orchestra. However, there are hidden roles, competences, and responsibilities that a conductor has. Firstly, conductor has an ability to read and understand the whole part of concert and she also has an ability to play most of the instruments in an orchestra. She also arranges harmony in an orchestra and establishes a relationship between whole members. Like audiences of an orchestra, many students and family see teachers as a person who just gives assignments, observes a class, and writes somethings at board. However, teachers have many hidden skills, knowledge, plans, and moves to arrange whole process. Therefore, people who underestimate teachers' roles and skills, cannot realize teachers' hidden roles and skills to conduct whole teaching process.

According to Shulman (1987), teachers should have at least seven kinds of knowledge in order to get required skills and competencies and overcome problems that they might encounter, effectively. These knowledge types are content knowledge, general pedagogical knowledge, curriculum knowledge, pedagogical content knowledge, knowledge of learners and their characteristics, knowledge of educational context, and knowledge of educational ends (Shulman, 1987).

Knowing how these skills and knowledge can be got as much as important knowing which skills and knowledge are necessary to be a teacher (Darling-Hammond, 2006). According to Shulman (1987) and Darling- Hammond (2000), preparation is one of the important step for getting these skills and knowledge because teaching can be learned. Therefore, teacher education has significant role to raise qualified teachers.

Teacher education is not short-term learning, it is a life-long learning. Therefore, it is not true to say that each teacher who graduates from undergraduate teacher education program completes her teacher education. Undergraduate teacher education program is just the first step of teacher education, and it has a great role to shape preservice teachers' professional development as a teacher.

2.1.1. Preservice Teacher Education and Practicum

In the line with the changing needs of countries, their expectations from teachers also changed in order to raise students who meet the needs of society. Therefore, countries have started to give importance to teacher education. Due to the fact that preservice teacher education is the first step of teacher education, planning and applying the preservice teacher education is important to raise qualified teachers for countries. Even if each county may have own preservice teacher education program, preservice teacher education has generally two parts to prepare preservice teachers as a teacher. One part constitutes the theoretical side of preservice teacher education, and the second part constitutes the practical side of it.

Owing to the theoretical part of preservice teacher education, preservice teachers get the content knowledge, pedagogical and professional knowledge with participating subject area courses and pedagogy courses. Even if the theoretical knowledge is necessary, it is not sufficient to be a teacher. According to Munby *et al.* (2001), knowledge of teaching can be acquired and improved by the preservice teachers' own teaching experience. Therefore, preservice teachers should have opportunities to apply their theoretical knowledge into practice (Azkiyah & Mukminin, 2017; Nguyen, 2020; Zeichner, 2009) to build a bridge between theory and practice. Additionally, the National Council for Accreditation and Teacher Education (NCATE) highlights the importance of teaching practices and NCATE (2008) stated that preservice teachers should have field experiences and practices in order to use their theoretical knowledge in school context.

In preservice teacher education, while university provides theoretical knowledge, practicum school provides opportunities for preservice teachers to complete their teaching practices (Allen & Wright, 2014; Kwenda *et al.*, 2017; Nguyen, 2020). Therefore, the relationship between practicum school and university is important for theory-practice integration of preservice teachers. The importance of relationship between practicum school and university is also emphasized by the Organization for Economic

Cooperation and Development (OECD). The OECD report (2011) stated that teachers at practicum school and university's members should establish constructive dialogue in order to provide an opportunity for preservice teachers to get experience at practicum school.

In teaching practice process of preservice teacher education, preservice teachers need a guidance and support at practicum school. Therefore, mentor teacher has essential roles and responsibilities to make preservice teachers' practicum process more efficient. To understand the roles and responsibilities of mentor teachers in preservice teacher education, it is necessary to understand what mentoring is and how mentoring works in preservice teacher education.

2.2. Mentoring

The origin of the term "mentor" comes from Greek Mythology Mentor in Homer's Odyssey. According to mythology, Odysseus, the king of Ithica, left his son Telemachus during ten years because of the Trojan War. He placed Telemachus under Athena as a mentor in order to protect, guide and be model for him. Thus, mentor came into the language as a person who is a role model and counselor for others in specific context, not necessarily about learning. For example, parents are the first mentor or role model in their children's lives, and they guide and support them to find out a way to make their lives meaningful. Therefore, mentoring has been an ancient practice for teaching and learning. For example, learning based on master-apprentice relationship can be considered as the oldest example of mentoring and it is very common in Turkish culture. From past to present, learning based on master-apprentice relationship has been used to raise qualified human resources in different fields such as science, medicine, education, and management. In a sense, once can say that when there is some skills and application to be learned, mentoring comes in handy in order to address complexities of certain practice.

Even if the usage of mentoring dated the distant past, there is no consensus about the operational definition of what mentoring is (Jacobi, 1991). According to Merriam (1983):

> The phenomenon of mentoring is not clearly conceptualized, leading to confusion as to just what is being measured or offered as an ingredient in success. Mentoring appears to mean one thing to developmental psychologists, another thing to business people, and a third thing to those in academic settings. (p. 169).

Different definitions of mentoring derived from different fields, such as education, psychology, and management. This can be considered as a result of difference in practices to be learned for different fields. Definitions of mentoring from field of higher education generally focus on the positions of mentor as an expert and mentees as a novice during mentoring process and emphasize the roles of mentors that are being guidance, support and model for protégé (Blackwell, 1989; Moore & Amey, 1988; Schmidt & Wolfe, 1980). Definitions of mentoring from field of management generally focus on effects of mentors for mentees' career lives and mentors are seen as an authority that provide a way to reach good positions (Fagenson, 1989; Philips-Jone, 1982). In psychology, mentoring is defined as a complex and developmentally important process for mentees in order to develop themselves by following the guidance of mentors (Speizer, 1981). Even if there are many different definitions of mentoring, these definitions have some common points about what mentoring is and how mentoring should be. According to Flaxman, Ascher, and Harrington (1968), in the most general sense, mentoring was defined:

> Mentoring is defined as a supportive relationship between a youth or young adult and someone who offers support, guidance and concrete assistance as the younger partner goes through a difficult period, takes on important tasks or corrects an earlier problem. (p. 10).

Reviewing the different definitions of mentoring shows that mentoring is a process that gives opportunities mentees to get supportive guidance from mentors who are experts in specific area. Mentoring is an important and required source of development for mentee in every career plan (Kram & Bragar, 1990).

The lack of consensus about the operational definition of mentoring also brings along some terms that are used synonymously with mentoring, such as coaching (Mullen & Klimaitis, 2019). To develop understanding about mentoring process, it is also important to know what mentoring is not and in which ways mentoring become different from coaching. In general manner, both mentoring and coaching is a process that individual who is expert in her field helping another who is novice in the same field (Anderson & Shannon, 1988; Clutterbuck & Ragins, 2002; Ng, 2005) by establishing mutual, trustful, respectful, and open relationship to develop novice's skills and practices in the desired field (Jeruchim & Shapiro, 1992; Ng, 2012; Orland-Barak & Yinon, 2005; Timperley, 2001; Stowers & Barker, 2010).

The main difference between coaching and mentoring comes from the ways that experts' (mentor and coach) using their roles, and the duration of process. Coaching is more concerned with task specific improvements or practices, and it is a short or medium-term process (Ng, 2012). Expert in coaching must not to be more experienced than novice, it is sufficient to be an expert in the field. However, mentoring is more concerned with learning for professional development, and it is long-term process (Ng, 2012). Expert in mentoring must be more experienced than novice and mentors are generally older and higher up in the field (Pelan, 2012). The roles of mentor and coach also become different. Coach generally asks open-ended questions to help the coachee to solve the problem. Coach does not give an answer or some advice directly, she tries to enhance awareness of coachee. However, mentor generally gives advice based on her experiences in the field and guides mentees by acting as a role model.

There are also debates about what mentors' roles and functions are (Jacobi, 1991). Roles of mentors that researchers show consensus are encouragement/support (Blackwell, 1989; Kram, 1985; Levinson *et al.*, 1978; Philips-Jones, 1982), advice/guidance (Blackwell, 1989; Nieva & Gutek, 1981; Zey, 1984), role model (Blackwell, 1989; Kram, 1985; Nieva & Gutek, 1981; Philips-Jones, 1982), coaching (Burke, 1984; Kanter, 1977; Kram, 1985), and training/instruction (Kanter, 1977; Levinson *et al.*, 1978; Philips-Jones, 1982; Zey, 1984). These common roles and functions of mentors show that

mentors provide an emotional and psychological support and guidance for mentees by appealing direct assistance to improve mentees' professional developments (Jacobi, 1991).

The complex structure of mentoring practice also causes difficulty to develop a model that generalizes the process of mentoring and represents the roles and functions of mentors (Gray, 1994). When mentoring models are examined, it can be seen that they generally have more comprehensive approach to mentoring rather than focusing on mentoring in specific fields such as mentoring in health or in teacher education. In this part, models are examined starting from more general model that represents general roles and functions of mentoring to specific model that represents roles and functions of mentoring in preservice teacher education.

2.2.1. Mentoring Models

In this section, Mentoring Models, which are the Kram Mentoring Model, the Clinical Supervision Model, the MEntor (teacher) Roles In Dialogues (MERID) Model, and the Five-Factor Model are mentioned.

2.2.1.1. Kram Mentoring Model. Kram (1983) defined mentoring as a "relational and developmental" (p. 11) process that has both career and psychological functions and it "includes phases and transitions" (p. 11). According to Kram (1983), there are two functions of mentoring, one of them is career functions and other one is psychological functions. Career functions of mentoring emphasize to enhance professional development for mentees, whereas psychological functions of mentoring emphasize to enhance psychological and social development of mentees (Fletcher & Mullen, 2012; Kram, 1983; Mullen & Klimaitis, 2019; Schunk & Mullen, 2013). Career functions of mentoring involve being sponsorship and coaching, protection, providing exposure and visibility, and providing challenging assignment to enhance mentees' career development (Johnson, 2017; Young *et al.*, 2004). Psychological functions of mentoring involve "role modelling, acceptance and confirmation, counseling, and friendship" to

provide dynamic learning for mentees (Mullen, 2017, p. 262).

Besides the functions of the mentoring, Kram (1983) developed model that represents how mentoring relationship moves through. Kram identified four developmental mentoring relationship phases, initiation, cultivation, separation, and redefinition. Figure 2.1 was drawn by author according to these four phases.

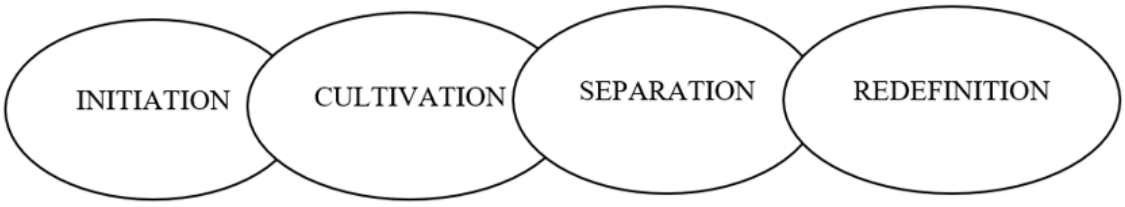

Figure 2.1. The phases of Kram's Mentoring Model

The first phase of the mentoring relationship is initiation. In this phase, mentor and mentee try to establish an effective relationship and set goals to decide the progress of mentoring (Kram, 1983). Establishing a connection between mentor and mentee provides a foundation for mentoring relationship to a new phase, cultivation. During the phase of cultivation, mentor provides active career and psychological supports to mentees by giving them oral or writing feedback (Kram, 1983). Cultivation phase is the most intensive phase because the interaction between mentor and mentee is peak (Mullen & Klimaitis, 2019).

The next phase of mentoring relationship is separation phase. During this phase, mentees establish their independence and the interaction between mentee and mentor decreases (Mullen & Schunk, 2012). At this phase, the psychological and career support of mentor decreases and mentee gains autonomy (Mullen & Klimaitis, 2019). The last step of mentoring relationship is redefinition. During the redefinition phase, the relationship between mentor and mentee redefines. Either the relationship ends or turns to collegial friendship that is characterized by informal bond and mutual support (Kram, 1983; Mullen & Klimaitis, 2019). At the end of the mentoring relationship, mentee becomes a qualified person in the field with mentor's support and guidance.

This model represents how mentoring relationship moves through during the mentoring process and the model has general perspective that can be applied for any field not just for teacher education. This model is not subject or field specific, it just defines the mentoring relationship in a general manner. It is important to examine more specific mentoring models in teacher education in order to understand how mentoring process moves through for mentors and mentees and what mentors' roles are in teacher education. Therefore, Cogan's Clinical Supervision Model is examined in order to focus on mentoring in teacher education.

2.2.1.2. Clinical Supervision Model. The idea of "clinical supervision" originated from the work of Moris Cogan in 1950's at Harvard University. The main idea displayed under the clinical supervision is to collect data through systematic observations about teachers' behaviors and their principles at classroom (Bulunuz, *et al.*, 2013; Reilkoff, 1981). The main aim of clinical supervision is "to help teachers develop and improve through cooperative planning, observation, and feedback" (Acheson & Gall, 2003, p. 85). In this model, clinical supervision has resemblance to mentoring process, but it gives more importance to oversee process to collect data and evaluate them. Also, the term supervisor is used as a synonymous with mentor. Cogan (1973) developed Clinical Supervision Model by giving attention to the importance of relationship between mentors, mentees and university supervisors in order to provide professional developments for teacher (Bulunuz, *et al.*, 2013). Clinical Supervision Model includes eight stages that focus on planning, observation, and evaluation. The model emphasizes to give feedback to mentees by observing and collecting data from mentees' teaching practices.

The stages of Clinical Supervision Model:

a. *Establishing Supervisor-Teacher Relationship*: The first phase of the clinical supervision model is to establish relationship between supervisor (mentor teacher) and the teacher (mentee) to explain the ideas behind clinical supervision and new roles and functions of teacher (mentee) in supervision. It is important to

establish effective relationship between supervisor (mentor teacher) and teacher (mentee) to before the observation start.

b. Collegial Planning: At this stage, teachers (mentees) and supervisor (mentor teacher) plan a lesson or lessons, together. Lesson plans generally contain outcomes of lesson, problems that may be encountered during teaching practice, learning materials, strategies, feedback, and evaluation about teaching practice.

c. *Planning Observational Strategies*: At this stage, supervisor (mentor teacher) plans physical and technical regulations to observe and collect data from teaching practice. The roles and responsibilities of supervisor (mentor teacher) are determined clearly before the observation. Teacher (mentee) also joins the planning of the strategies of observation and data collection. Teacher (mentee) starts to have a part in planning the observation, after s/he is acquainted with the clinical supervision.

d. *Observation of Instruction*: At this stage, supervisor (mentor teacher) observes the lesson and collects data.

e. *Analysis of teaching and learning*: After the observation, both teacher (mentee) and supervisor (mentor teacher) analyze the teaching practice, separately. Then they start to analyze the practice together in order to develop teachers' (mentee) competencies in clinical supervision by considering teachers' (mentee) needs.

f. *Planning conference strategy*: At the beginning of the working with a teacher (mentee), supervisor (mentor teacher) improves new plans, strategies to hold a conference with teacher. Afterwards, supervisor (mentor teacher) and teacher (mentee) may develop these new plans and strategies together to hold a conference and this planning stage may be included in conference.

g. *Conference*: The participants of conference are generally teacher (mentee) and supervisor (mentor teacher); but others may also participate the conference. The conference may be conducted by the teacher (mentee) or supervisors (mentor teacher).

h. *Planning is renewed*: During the conference, teacher (mentee) and supervisor (mentor teacher) decide which behaviors and methods should be changed by teacher (mentee) during teaching practice. Then, they start to plan next behav-

iors and methods that teacher (mentee) will change. With this new planning, the sequence of cycle starts, again.

When the clinical supervision model is examined, it can be seen that this model is not special to preservice teacher education. It can be also used for novice teacher education. Additionally, the usage of the model is not special to mentoring, it can be also used for coaching because it does not focus on the difference between the roles of mentor and coach. Also, clinical supervision model generally gives importance to process, the relationship between mentees and mentors, but it does not emphasize content of mentoring and practices at mentoring process. It provides a way to understand what mentees and mentor do, but it has limited approach to understand how they do during teaching practicum. Even if clinical supervision model gives a way to understand mentoring process in teacher education, it is necessary to examine a mentoring model that focus on preservice teacher education to understand what and how mentee and mentor teachers do at teaching practicum. Therefore, the MEntor (teacher) Roles In Dialogues (MERID) Model is examined to understand roles and responsibilities of mentor teachers by considering the process of mentoring in preservice teacher education.

2.2.1.3. The MERID Model. The model that aims to represent diverse roles of mentor teachers was developed by Hennissen *et al.* (2008) by reviewing the studies that focused on the dialogues of mentor teachers with their preservice teachers. The model is called the MEntor (teacher) Roles In Dialogues (MERID) Model. In this model, Hennissen *et al.* (2008) explained the social position of mentor teachers. They also explained what dialogue means in this study in order to prevent the confusion of terminology. For the MERID Model, Hennissen *et al.* (2008) considered that "mentor teacher" carries out supervisory activities as a first position. According to Hennissen *et al.* (2008), "first position" is that supervisory activities are implemented by a person who is a member of school as a classroom teacher. Additionally, Hennissen *et al.* (2008) chose the term "dialogue" to refer to the conversation between mentor teachers and preservice teachers and they defined the dialogue as a two-way conversation.

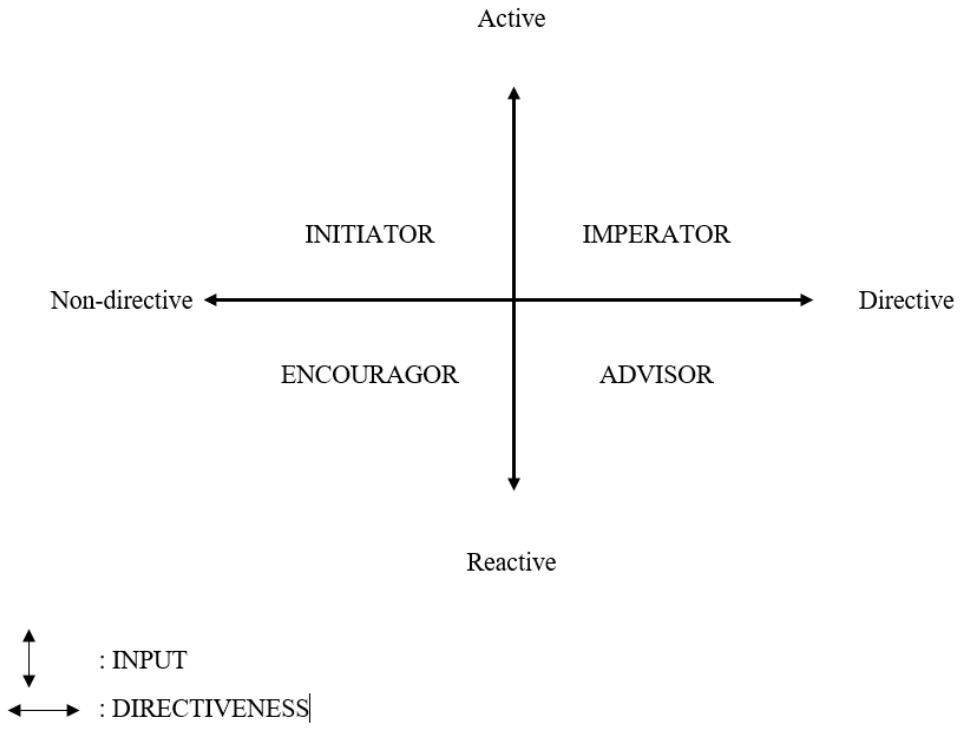

Figure 2.2. The MERID Model.

The MERID Model contains two dimensions. The horizontal dimension represents the amount of directiveness that mentor teachers use. The vertical dimension represents the degree of the input that mentor teachers give during the dialogue. These two dimensions of the MERID Model are independent of each other. The combination of two dimensions exhibits four mentor teachers' roles: initiator, imperator, encouragor, and advisor. Figure 2.2 was drawn by author according to these four roles.

The role of mentor teacher as a "initiator" is that mentor teachers use active input to start the dialogue with preservice teachers and mentor teacher uses non-directive supervisory skills during the dialogue. For example, mentor teacher may start a dialogue with these sentences: you have continued our mathematics lessons for several days, what is your first idea about the lesson? The role of mentor teacher as a "imperator" is that mentor teacher introduces dialogue with giving active input and

uses directive supervisory skills during the dialogue. For example, mentor teacher may say that in the trigonometry lesson, it was useful to give real life examples to students and more web-based tools should be used.

The role of mentor teachers as a "encouragor" is that preservice teacher introduces a topic and then mentor teacher reacts this input with using non-directive supervisory skills during the dialogue. As an example of the encouragor role, mentor teacher may ask a question is "how are things going?" The role of mentor teachers as a "advisor" is that mentor teacher reacts the topic that is introduced by preservice teachers by using directive supervisory skills during the dialogue. As an example of the advisor role, preservice teacher may need some guidance about classroom management and ask a question about this issue, then mentor teacher gives advice to them.

Reviewing the literature showed that there are five aspects of mentoring dialogues. (Hennissen *et al.*, 2008) These five aspects are content and topics, styles and supervisory skills, mentor teachers' inputs, time, and phases of dialogues. To develop the MERID Model, three of these five aspects "styles/supervisory skills", "input", and "time" were considered because these three aspects connect with distinctive mentor teachers' behaviors; however, the key aspects "content and topic" and "phases" did not connect with distinctive mentor teachers' behaviors (Hennissen *et al.*, 2008).

The first aspect, the topics of the dialogues between mentor teachers and preservice teachers have three main categories: "instruction and organization", "the pupils and class", and "the subject matter". Second aspect about mentor teachers' supervisory skills and studies showed that mentor teachers generally use directive or non-directive style during the dialogue. Mentor teachers who use directive style tell preservice teachers what to do and how to do, directly. Studies called mentor teachers who use directive style as an authoritarian (Ben-Peretz & Rumney, 1991), an instructive (Harrison *et al.*, 2005), and a corrective (Franke & Dahlgren, 1996). Mentor teachers who use non-directive styles guide preservice teachers by asking questions and listening actively. Studies called mentor teachers who use non-directive style as a reflective

(Franke & Dahlgren, 1996), a cooperative (Ben-Peretz & Rumney, 1991), and a guiding (Harrison *et al.*, 2005).

The third aspect about level of participation of mentor teachers and preservice teachers display. If mentor teachers present the topic of the dialogue, it is the source of active input. However, if mentor teachers react the topic represented by preservice teachers, this input has reactive nature. The studies showed that mentor teachers give more active input than reactive input during the dialogue. The fourth aspect is about the duration of mentoring dialogue. Studies showed that using directive supervisory skills takes more time than using non-directive supervisory skills (Hennissen *et al.*, 2008). The last aspect is about the phases of dialogue and there is no study that examines the phases of mentoring dialogue, directly. However, generally dialogues follow the same structure is that mentioning the previous class, asking questions, and giving some feedback about the class time.

The MERID Model focuses on mentoring in preservice teacher education, unlike Clinical Supervision Model. Furthermore, the MERID Model focuses on the process of mentoring in order to identify the different roles and responsibilities of mentor teachers; however, it does not give importance to the interaction between preservice teachers and mentor teachers. Even if the model accepts the complex structure of mentoring process, it just approaches the mentoring process as two dimensions, such as the amount of directiveness and the degree of input. Additionally, the MERID Model does not contain any identification about the role of mentor teacher based on pedagogical content knowledge, it does not use specific content knowledge in order to define the mentoring process. Therefore, it is necessary to examine the Five-Factor Mentoring Model that gives importance to pedagogical knowledge and other four key aspects in order to identify mentors' roles, practices, and attributes, more comprehensively.

2.2.1.4. The Five-Factor Mentoring Model. Hudson and Skamp (2001, 2003) developed the Five-Factor Mentoring Model that contains mentor teachers' roles, practices, and attributes to improve preservice teachers' knowledge and competence for devel-

opment of effective science teaching. The five factors in the model related to mentor teachers' practices and attributes are: personal attributes, system requirement, pedagogical knowledge, modelling, and feedback (Hudson & Skamp, 2001; Hudson & Skamp, 2003). Figure 2.3 was drawn by author according to these five factors.

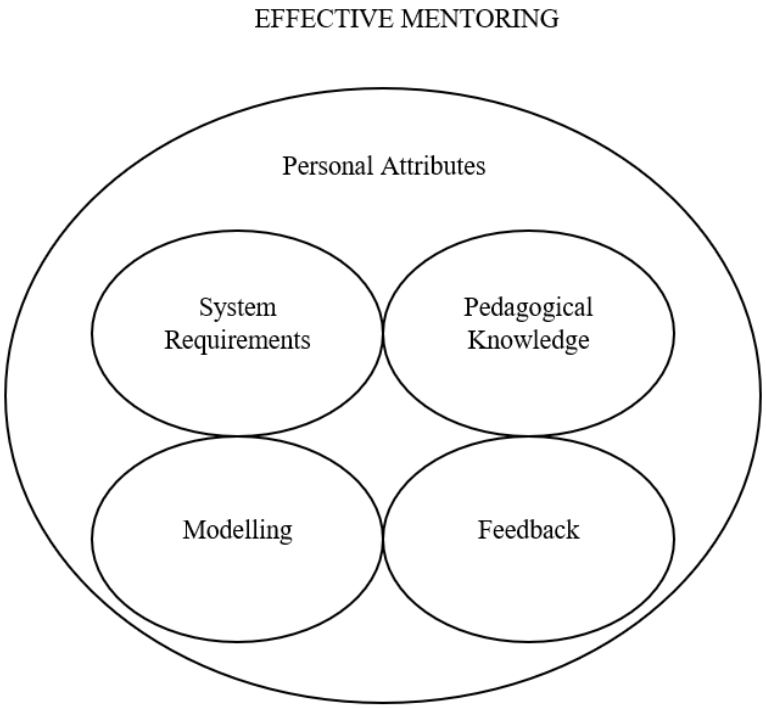

Figure 2.3. Five key aspects of the Five-Factor Mentoring Model.

In this model, each factor has own items to explore and identify preservice teachers' perceptions about attributes, practices, and roles that mentor teachers should have to be an effective mentor. As a result of the findings of Hudson and Skamp (2001, 2003), these five factors are defined by considering items below each factor.

1. *Personal Attributes*: Learning is a social activity, and it occurs within social context (Kerka, 1997). Social interactions and relationship skills are requirement to provide effective learning; therefore, mentor teachers' personal attributes are fundamental for effective mentoring (Ackley & Gall, 1992; Ganser, 1996). Mentoring process has a complex structure; therefore, it is necessary that mentor teachers

should have some interpersonal skills to manage this process. The basic personal attributes that mentor teachers should have are being supportive, friendly, and attentive to increase mentees' confidence and instill them positive attitudes towards teaching. In this model, there are eight items that explain the factor personal attributes.

2. *System Requirement*: Each education system has its own requirements that give a direction about what should be taught and how it should be taught. Mentor teachers must have knowledge about aims, policies, procedures, and curriculum of the education system in order to follow systematic procedures. These systematic procedures make assessment and controlling of the mentoring process easier. Additionally, mentor teachers must explain aims, policies, procedures, and curriculum of the education system and rules of practicum school to their preservice teachers. In this model, there are four items that explain the factor system requirements.
3. *Pedagogical Knowledge*: Mentor teachers' pedagogical knowledge has an impact on effective mentoring because the aim of the mentoring program is to provide preservice teachers working with someone who is more knowledgeable and competent (Kesselheim, 1998; Odell, 1989). Therefore, mentor teachers must need to have pedagogical knowledge to aid preservice teachers' mentoring process. Mentor teachers should have knowledge of programming in order to guide preservice teachers for planning lessons and required time for lessons. Mentor teachers should have required pedagogical knowledge to guide preservice teachers about classroom management skills, assessment techniques, teaching strategies, problem solving strategies, and questioning techniques. In this model, there are 11 items that explain the factor pedagogical knowledge.
4. *Modelling*: Mentor teachers are defined as an authority who model what to teach and how to teach for preservice teachers (Barab &Hay, 2001; Galvez-Hjoernevik, 1986) and learning to teach is effective when it is learned by observing the model (Bellm *et al.*, 1997; Carlson & Gooden, 1999). Mentor teachers should be a model that shows a way to develop understanding for learning to teach. Mentor teachers should be a model for preservice teachers about lesson planning, classroom

management skills, assessment techniques, language that they use with students, relationship with students, and hands-on activities that they prepare. In this model, there are seven items that explain the factor modelling.

5. *Feedback*: Constructive feedback has an essential role for preservice teachers (Bishop, 2001; Haney, 1997; Little, 1990; Riordan, 1995). Mentor teachers should give oral and written feedback about preservice teachers' teaching practices, what they did, and how they did during the mentoring process. In this model, there are three items that explain the factor feedback.

In general manner, the Five-Factor Mentoring Model emphasizes the five key aspects that are necessary to provide effective mentoring for preservice teachers. As mentioned earlier, the Five-Factor Mentoring Model is more specific than the MERID Model for mentoring in preservice teacher education. Because it emphasizes mentor teachers' pedagogical content knowledge that is essential to articulate best practices for preservice teachers. Due to the more specific structure of the Five-Factor Mentoring Model in preservice teacher education, it has been used as a popular model in order to examine preservice teacher mentoring in different countries and branches. Usually, preservice teachers' perceptions about mentor teachers' roles, practices, and attributes have been investigated to examine the mentoring process. Hudson and Peard (2006) conducted a study in Australia to investigate and identify 147 final year preservice teachers' perceptions about their mentoring process in primary mathematics education in relation to the Five-Factor Mentoring Model. The results of the study indicated that most preservice teachers' perceptions about mentor teachers' practices were high in personal attributes, pedagogical knowledge, modelling, and feedback. For the factor system requirement, preservice mathematics teachers' perceived that mentor teachers' practices about the aim of the mathematics teaching, school mathematics policies, and mathematics curriculum were all below 50%.

Similar study was conducted by Hudson (2007) in Australia in order to investigate and identify final year preservice teachers' perceptions about their mentoring process in primary science and primary mathematics education. This study indicated

that preservice mathematics teachers gave higher scores for items in each factor than preservice science teachers. For example, 89% of preservice mathematics teachers considered their mentor teachers as supportive and 86% of them thought that their mentor teachers were comfortable in talking about mathematics teaching. However, 64% of preservice science teachers considered their mentor teachers as supportive towards them and 56 % of them thought that their mentor teachers were comfortable in talking about science teaching. For each item under system requirement factor, perceptions of preservice mathematics teachers were higher than preservice science teachers. Similar to the Hudson and Peard (2006), the majority of preservice mathematics and science teachers rated items under system requirement below 50%. In addition, while 37% of preservice science teachers thought that they received pedagogical knowledge during mentoring, 64% of preservice mathematics teachers thought that they received adequate pedagogical knowledge. For modelling factor, above 70% of preservice mathematics teachers claimed that mentor teachers modeled mathematics teaching; however, only 44% of preservice science teachers thought that mentor teachers modeled science teaching during the mentoring process. For the last factor feedback, preservice teachers perceived that mentor teachers in mathematics education gave more feedback than mentor teachers in science education.

As another example Duah (2011) conducted the study in the UK and this study aimed to investigate preservice mathematics and science teachers' perceptions about their mentoring process by using the Five-Factor Mentoring Model. As opposed to Hudson (2007), the results of the study indicated that preservice mathematics and science teachers' perceptions about mentoring were not too different. In addition, the results indicated that both mathematics and science mentor teachers exhibited personal attributes for mentoring such as being comfortable in talking about mathematics and science teaching. Furthermore, according to preservice mathematics and science teachers, their mentor teachers exhibited effective pedagogical knowledge, modeled science and mathematics teaching effectively, and gave feedback to them. However, similar to Hudson and Peard (2006) and Hudson (2007), preservice mathematics and science teachers stated that both science and mathematics mentor teachers did not provide

adequate information about system requirements such as school policies and national curriculums.

Similar study about preservice science teacher mentoring was also conducted by Hudson et al (2010) in Turkey. This research study aimed to explore preservice primary science teachers' perceptions about mentoring practices to establish benchmarking for mentoring practice. Even if the majority of preservice primary science teachers agreed or strongly agreed their mentor teachers provided five mentoring factors, 20% of them claimed that they did not receive adequate mentoring practices about system requirements such as explaining curriculum and school policies. Similar results were also found in study of Civan (2020) in Turkey. In this study, Civan (2020) worked with each figure in teaching practicum, supervisors, mentor teachers, and preservice teachers to examine mentoring practices in teaching mathematics. The results of the study showed that both mentor teachers and preservice teachers tended to give high scores for each factor, but they stated that system requirement practices are perceived the least.

There are other research studies that focused on other branches rather than mathematics and science in preservice teacher mentoring. Simsar and Doğan (2020) conducted a study in early childhood teacher education to explore mentor teachers' practices in terms of preservice early childhood teachers' perceptions. Similar to perceptions of preservice mathematics and science teachers in the studies of Hudson and Peard (2006), Hudson (2007), and Duah (2011), the majority of preservice early childhood teachers stated that they received limited mentoring practice related to system requirement practices when it compared other mentoring practices feedback, modelling, pedagogical knowledge, and personal attributes.

According to the abovementioned studies (Duah, 2011; Hudson & Peard, 2006; Hudson, 2007; Hudson *et al.*, 2010; Simsar & Doğan, 2020), perceptions of preservice teachers with different branches about their mentor teachers' roles, practices, and attributes were differentiated country to country. While Duah (2011) found that pre-

service teachers' perceptions about mentoring were not differentiated in terms of their branches in the UK, Hudson (2007) found that preservice mathematics teachers' perceptions were higher than preservice science teachers for all five factors in Australia. Though preservice teachers' perceptions about mentor teachers' practices were differentiated in countries, it was found that preservice teachers' perceptions about the factor system requirements is generally lower than other factors in studies (Duah, 2011; Hudson & Peard, 2006; Hudson, 2007; Hudson *et al.*, 2010; Simsar & Doğan, 2020).

Even though the Five-Factor Mentoring Model is a more specific model in preservice teacher education than other mentoring models by providing a structure for mentoring practices in five categories, there is still a need for more comprehensive approach to understand mentors teachers' practices. In the Five-Factor Mentoring Model, mentor teachers' practices are generally defined in terms of preservice teachers' needs and perspectives about the mentoring process. However, the model does not give importance to how mentor teachers adopt these expected practices and which factors may affect mentor teachers' practices during the mentoring process. Furthermore, the model may be affected by the education system of the country in which it was developed. In countries where the education system is more centralized, the factor system requirements does not work well because preservice teachers do not have any expectation that mentor teachers should share system requirements with them. Also, mentor teachers do not see that sharing system requirements with preservice teachers is their responsibility. Therefore, besides the Five-Factor Mentoring Model, different approaches have been used to understand the mentoring process based on mentoring practices.

2.2.2. Mentoring according to Preservice Teachers' Perspectives

When the mentoring literature is reviewed, it can be seen that generally preservice teachers' perspectives about the mentoring process have been appealed to understand how they evaluate their mentor teachers' roles, responsibilities, practices, and deficiencies.

Ekiz (2006) conducted a research study that aimed to investigate mentoring practices from the perspectives of preservice teachers and mentor teachers. The results of the study showed that there is an atmosphere of having an unshared understanding between mentor teachers and teacher education institutions in terms of assignments that preservice teachers must do at practicum school and how to teach primary school pupils. Additionally, preservice teachers mentioned a challenge which is absence of mentor teachers when they were engaged in active teaching. Similar result was found by Akyar (2020). The aim of this study was to investigate the effectiveness of mentor teachers and academic supervisors in the mentoring process by considering the perspectives of twelve preservice teachers in early childhood education. According to preservice teachers, mentor teachers were not in class when preservice teachers gave a lecture actively. Preservice teachers also categorized their mentor teachers' feedback in three categories: giving supportive feedback, giving not supportive feedback, and not giving feedback (Akyar, 2020).

In addition to these studies, Sari and Dağ (2017) conducted a study that aimed to represent novice teachers and preservice teachers' needs in the mentoring process. Similar to the studies of Hudson *et al.* (2010) and Ekiz (2006), preservice teachers mentioned some challenges in their mentoring process. According to the result of the study, preservice teachers thought that preservice teacher education is inadequate in terms of educational principles and methods, class management, time management, material design, activity design, and educational planning.

As another example, Kiraz (2003) conducted a study that aimed to investigate how preservice teachers assess their mentor teachers' supervisory competencies based on three domains. These domains are preparation for supervision, instructional planning and reflection, and collegial supervision and mentoring. According to the result of the study, preservice teachers thought that mentor teachers were less competent in instructional planning and reflection than preparation for supervision, and collegial supervision and mentoring. After this study, Kiraz and Yıldırım (2007) conducted a follow-up study that compared mentoring practices of novice teachers and experienced

teachers by considering preservice teachers' perspectives. The results indicated that less experienced teachers demonstrated a higher competency in supervision compared to their more experienced colleagues in three areas, especially in instructional planning and reflection area. It can be meant that mentor teachers' year of teaching experience might not be an indicator of being a good mentor teacher.

Preservice teachers also stated that the lack of communication between mentor teachers and teacher education institutions caused the inadequacy of mentor teachers and academic supervisors in the mentoring process (Akyar, 2020; Aydın & Selçuk; 2007; Ekiz, 2006). Therefore, establishing effective communication between mentor teachers and university is necessary to provide effective mentoring for preservice teachers.

When the literature is reviewed, it can be seen that the mentoring process is generally examined based on preservice teachers' perspectives. Research studies generally focus on preservice teachers' needs and their perspectives in order to make the mentoring process more effective and define necessary mentor teachers' roles, responsibilities, and practices for effective mentoring. However, it is not enough to evaluate the mentoring process only from the perspective of preservice teachers. Because focusing only the perspectives of preservice teachers may be misleading. Even if mentor teachers perform mentoring practices effectively, preservice teachers may not recognize their mentoring practices. Therefore, mentor teachers' perspectives about mentoring should be also considered to evaluate the mentoring process correctly.

2.2.3. Mentoring according to Mentor Teachers' Perspectives

Besides considering preservice teachers' perspectives about mentoring practices, mentor teachers' perspectives are also required to develop understanding about what mentoring is and how mentoring practices shapes the mentoring process (Ekiz, 2006). However, there is a limited number of studies that focus on mentor teachers' perspectives about mentoring and these studies generally aimed to explore what mentor teachers' needs are, and how mentor teachers identify their roles and responsibilities to

be an effective mentor teacher. Bıkmaz and Yılmaz (2020) conducted a qualitative case study that aimed to find out the professional learning needs of mentor teachers from the perspectives of 20 mentor teachers, 21 university supervisors, and 238 preservice teachers. The findings of the study revealed that the professional learning needs of mentor teachers were classified into three categories. These categories are professional knowledge and skills, core mentoring skills, and social qualifications. According to the study, mentor teachers needed to improve themselves in curriculum implementation, teaching strategies, doing effective observation, giving effective feedback, and presenting empathy, love, and tolerance. Additionally, mentor teachers needed that their roles and responsibilities in the mentoring process should be clearer (Yılmaz & Bıkmaz, 2020).

Besides these three professional learning needs, mentor teachers also mentioned that they need to get professional development to improve themselves as an effective mentor teacher. According to Hudson (2010), mentor teachers believed that professional development on effective mathematics and science mentoring can improve their skills; therefore, professional development for mentoring should be provided to mentor teachers to make them effective one. Similar argument was stated by Sowell (2017). Sowell reviewed the literature about mentor teachers' perspectives about their needs to be an effective mentor teacher. The study indicated that mentor teachers need to receive professional development in classroom management, instructional practice, and building relationships with preservice teachers to be an effective mentor.

When research studies that considered mentor teachers' perspectives are reviewed, it can be also seen that mentor teachers also identified their roles and responsibilities as a mentor teacher. Hudson (2003) investigated experienced mentor teachers' understanding about professional learning communities, mentoring and leadership within school context. According to the study, mentor teachers stated some responsibilities and roles to be an effective mentor teacher. They stated that effective mentor teachers should be able to establish effective communication with preservice teachers and they should be willing to share their knowledge and experience with them. Addition-

ally, effective mentor teachers can be able to manage time in the mentoring process effectively because time is the key issue to provide adequate mentoring practice for preservice teachers. Similar to Hudson's study (2003), Phang *et al.* (2020) conducted a study that aimed to determine the roles of mentor teachers by considering the views of six mentor teachers and 385 preservice teachers. The results of the study indicated that mentor teachers perceive themselves as holding multiple identities such as advisor, counselor, facilitator, guide, and motivator. They see themselves as a person who builds relationships with preservice teachers in the mentoring process. Additionally, mentor teachers thought that informing preservice teachers about system requirements is not their role, it is the role of university supervisor. Even if mentor teachers' practices are decided based on the needs of preservice teachers, mentor teachers as a person who implements these practices should know and accept these practices as their responsibilities. Also, this finding confirms the result of Yılmaz and Bıkmaz's study, the roles of mentor teachers should be stated clearly.

When the literature about mentoring is reviewed, all above mentioned mentoring models and research studies were done in order to understand the mentoring process well and make it more effective for novices. In general, the effectiveness of the mentoring process is evaluated in terms of expected to be implemented and implemented mentoring practices. Mentor teacher as a person who manages whole teaching practices at the practicum school, has a crucial role to shape the mentoring process with her roles and practices. So, mentor teachers' roles and practices were stated by the Ministry of Education with the Faculty-Practice School Partnership Program in 1998 in general terms. Although mentor teachers' roles and practices are determined by the Ministry of Education, their set of beliefs about what mentoring is and which mentoring practices are required to make it effective shape their implemented practices. Therefore, mentor teachers' mentoring conceptions and motivations should be considered to understand their mentoring practices which means to understand the mentoring process well.

2.3. Mentor Teachers' Mentoring Conceptions

To comprehend mentor teachers' conceptions about mentoring, it is necessary to define the term "conception" and explain how it is related to the terms concept and belief. The term concept can be defined as a set of objects, symbols, and ideas that can be grouped together because they have common features (Merril & Wood, 1974). In a short, concept is a *mental representation* of an object, or an idea. According to Ponte (1994), conception defined as "cognitive constructs that may be viewed as the underlying organizing frames of concepts, and they are essentially metaphorical." (p. 169). Difference between concept and conception stems from the objectivity. Conception is a person's set of beliefs about certain concept; therefore, conceptions are subjective, they change person to person. It can be said that conception is subjective ideas about concepts; therefore, it is difficult to give operational definition for conception (Furinghetti, 1998).

By considering the definition of concept and conception, mentoring conception is defined as a set of "beliefs about goals, sources, and nature of mentored learning to teach" (van Ginkel *et al.*, 2016, p. 104). A mentoring conception has different perspective than mentoring approaches and mentoring styles because mentoring styles and approaches are typical behaviors or acts that mentor teachers show during the mentoring process. However, mentoring conception refers to mentor teachers' mental models and beliefs about the mentoring process that they plan to act according to these models and beliefs.

There is a limited number of studies about mentoring conceptions. One of them was conducted by Franke and Dahlgren (1996). The aim of this phenomenographic research study was to describe mentoring conceptions of mentor teachers and preservice teachers in teaching practice. The data were collected by asking what and how questions about mentoring. The results were stated in three domains: the function of mentoring, the form of mentoring, and the content of mentoring. In the function of mentoring domain, there are two prominent conceptions. One of them is a reflecting

perspectives of the teachers' professional knowledge. According to this conception, the function of mentor teacher is seen as a creative person who provides a way for preservice teachers to find their own understanding about what learning to teach is. Other prominent conception is a taken-for-granted perspectives of the teachers' professional knowledge. In this conception, mentor teacher is seen as a model, supportive assistant teacher, and master who corrects preservice teachers.

In the form of mentoring domain, two main conceptions become prominent. One of them is principle-oriented strategy. According to this conception, preservice teachers' teaching practices are criticized in terms of different principles of teaching. According to second conception episode-oriented strategy, preservice teachers' teaching practices are discussed in terms of their acts during the practice. In the content of mentoring domain, preservice teachers' teaching sessions as an object for reflection and as an occasion for practices are found as two dominant conceptions. The first conception type emphasizes preservice teachers' own reflections about their teaching practices. Furthermore, the second one sees preservice teachers' practices as an exercise to improve their teaching ability. Even if there are different conceptions about the function, the form, and the content of mentoring, mentor teachers must not have only one of them (Franke & Dahlgren, 1996).

Another study about mentoring conceptions was conducted by Orland-Barak and Klein (2005). The study was conducted with 12 in-service mentor teachers with three data sources, the visual text, the verbal annotation, and the conservation. According to the result of study, two dominant mentoring conceptions were defined: a developmental mentoring conception and an instrumental mentoring conception (Orland-Barak & Klein, 2005). For a developmental mentoring conception, mentor teachers see themselves as a creative person in teaching process to provide effective, collaborative, and reciprocal mentoring relationship for preservice teachers to discuss the reason behind principle of teaching and learning. They consider mentoring as a process that preservice teachers increase their awareness about relationship between learning and teaching. For an instrumental mentoring conception, mentor teachers see themselves as a maestro

(Graham, 2006) and a model to develop proficiency in the mechanics of teaching for preservice teachers. They see mentoring process as a performance improvement for preservice teachers by coping the effective practices of themselves. Therefore, mentor teachers holding an instrumental mentoring conception see the mentoring relationship as an asymmetrical.

As a similar with the study of Orland-Barak and Klein (2005), a developmental and an instrumental mentoring conceptions were also emphasized by other research studies (Kroeze, 2014; van Ginkel *et al.*, 2016; Wang & Odell, 2002). Wang and Odell (2002) conducted a literature review study focused on studies in Anglo-Saxon countries related to mentoring practices about learning to teach. According to this study, mentor teachers generally tend to hold an instrumental mentoring conception than a developmental mentoring conception. Another study conducted by Crasborn *et al.* (2008). The participants of the study were 30 Dutch mentor teachers from primary education and the data were collected by recording mentor teachers' mentoring dialogues. As a result of this study, mentor teachers generally stated more agreement on an instrumental mentoring conception than a developmental mentoring conception. The same result was also found by Kroeze (2014). According to this study, Dutch mentor teachers tended to emphasize mentoring roles related to an instrumental mentoring conception.

All above mentioned studies were conducted as a qualitative study with small number of mentor teachers. Unlike these qualitative studies, van Ginkel *et al.* (2016) conducted a quantitative study with 726 Dutch mentor teachers in order to assess mentor teachers' mentoring conceptions by using the Mentoring Conception Scale (MCS). This scale was developed by considering the results of study of Orland-Barak and Klein (2005). Therefore, the scale has two conception factors a developmental and an instrumental mentoring conception with 24 items for each factor. The result of the study showed that Dutch mentor teachers reported more agreement with a developmental mentoring conception (M = 5.48, SD = 0.53) than with an instrumental mentoring conception ($M = 5.12$, $SD = 0.55$) with large effect size ($r = 0.51$). This finding conflicts with the result of previous studies. According to van Ginkel *et al.* (2016),

the reason for these different result may be related to cultural differences between the participant mentor teachers, reform movements in preservice teacher education within years, the absence of a shared standard to measure mentoring conceptions, and type of the studies.

2.4. Mentor Teachers' Mentoring Motivations

Other important factor that may affect mentor teachers' mentoring practices is mentor teachers' mentoring motivations. Mentoring motivations can be defined as "the reasons mentor teachers give for engaging in the mentor role; why they consider it important to become a mentor for novice teachers" (van Ginkel *et al.*, 2016, p. 103). Being a mentor teacher is a voluntary activity; therefore, it is important to understand why mentor teachers want to work with preservice teachers. In despite of the importance of mentoring motivations, there is limited number of empirical studies that emphasize to describe mentor teachers' motivations to be mentor teacher.

One of the studies that try to describe mentor teachers' mentoring motivations was conducted by Stout (1982). The study aimed to understand why mentor teachers accept to work with preservice teachers. In accordance with this purpose, Stout (1982) conducted a survey study with 40 secondary public-school teachers. As a result of the study, 73% of mentor teachers stated that their first reason to accept preservice teachers is professional obligation. As a second important reason, they stated that accepting preservice teachers provides opportunity to develop their professional development by learning new techniques and evaluating their own teaching styles and methods. Other study about the reasons to be a mentor teacher was conducted by Allen *et al.* (1997). According to the results of this study, the reasons to be a mentor were classified into two categories: other-focused factors, and self-focused factors. The other-focused factors include a desire to pass information on to others, a desire to build a competent workforce, and a general desire to help others (Allen *et al.*, 1997). The self-focused factors include a personal desire to work with others, increasing personal learning, and a desire to feel gratification (Allen *et al.*, 1997).

Similar classification was also found by Sinclair *et al.* (2006). According to the results of their study, more than 25% of the participant mentor teachers reported that their dominant motives to be a mentor teachers include a desire to share their knowledge with preservice teachers, a desire to help preservice teachers learn what teaching is, and ensuring qualified beginner teachers in the profession. These reasons show similarities with the other-focused factors. Additionally, Sinclair *et al.* (2006) found that 10% of the participant mentor teachers stated their dominant factor to be mentor teacher was to develop their professional development as a teacher and mentor teacher. This second dominant reason of the participant mentor teachers is parallel with the self-focused factors.

Based on similar classifications of abovementioned mentoring motivation studies, van Ginkel *et al.* (2016) classified mentor teachers' mentoring motivations into two categories: personal learning motives and generative outcome motives. Personal learning motives are related with the self-focused factors to be a mentor teacher, and they include a desire to develop mentor teachers' personal learning and feel enjoyment, and satisfaction. Mentor teachers who have personal learning motives see mentoring relationship as a reciprocal because they believe that preservice teachers might help to improve their professional development. General outcome motivates are related with the other-focused factors to be a mentor teacher, and these motives include a desire to guide the next generation by transferring experience and information to preservice teachers at mentoring process. According to mentor teachers who have generative outcome motives, mentoring relationship has one-sided nature because they believe that the role of preservice teachers is to ape their mentor teacher' teaching methods to be a good teacher.

Based on these two mentoring motivation factors personal learning motives and generative outcome motives, van Ginkel *et al.* (2016) conducted a quantitative study with 726 Dutch mentor teachers to assess their mentoring motivations. To assess mentor teachers' mentoring motivations, they developed the Mentoring Motivation Scale (MMS). The scale includes two motivation factors personal learning motives and

generative outcome motives with 24 items for each factor. As a similar with result of Sinclair *et al.* (2006), van Ginkel *et al.* (2016) found that mentor teachers state significantly more agreement with generative outcome motives ($M = 5.53$, $SD = 0.71$) than with personal learning motives ($M = 5.45$, $SD = 0.89$) but with a small effect size ($r = 0.09$). Due to the fact that effect size is too small, van Ginkel *et al.* (2016) considered that Dutch mentor teachers had almost equal agreement on both personal learning motives and generative outcome motives. In other words, mentor teachers must not have one dominant motivation type to be a mentor teacher, they can have more than one reason to work with preservice teachers (Sinclair *et al.*, 2006).

In addition, van Ginkel *et al.* (2016) also emphasized the relationship between mentor teachers' mentoring motivations and their mentoring conceptions in the same study. The result of the study stated that mentor teachers with personal learning motives generally hold a developmental mentoring conception ($r=0.50$, $p<0.01$) than an instrumental mentoring conception ($r=0.11$, $p<0.01$). Also, study showed that mentor teachers with generative learning motives generally hold a developmental mentoring conception ($r=0.49$, $p<0.01$) than an instrumental mentoring conception ($r=0.38$, $p<0.01$). However, the relationship between personal learning motives and developmental mentoring conception ($r=0.50$, $p<0.01$) was stronger than the relationship between generative learning motives and developmental mentoring conception ($r=0.49$, $p<0.01$). Which means that when mentor teachers hold a developmental mentoring conception, they tend to have more personal learning motives than generative outcome motives. This support the idea that "mentors holding a developmental mentoring conception may be more readily motivated by the desire to realize that potential for personal learning through mentoring" (van Ginkel *et al.*, 2016, p. 105). Furthermore, the correlation between mentoring motives was statistically significant and positive ($r=0.42$, $p<0.01$), which means that mentor teachers who hold agreement with personal learning motives also hold agreement with generative outcome motives. Similar finding was also found for mentor teachers' mentoring conceptions. The correlation between mentoring conception factors was statistically significant ($r=0.34$, $p<0.01$) and positive, which means that mentor teachers who report agreement on one mentoring

conception are also more likely to report agreement on the other one.

Mentor teachers' mentoring conceptions and motivations should be described in order to understand their mentoring practices which means to understand the mentoring process well. Additionally, to understand mentor teachers' practices better, examining which factors might cause difference in mentor teachers' mentoring conceptions and motivations as important as describing mentor teachers' mentoring conceptions and motivations. The factors that cause difference in teachers' mentoring conceptions and motivations might be the year of mentoring experience, subject areas that mentor teachers teach at school (science, mathematics, and social science and language), their school levels (middle school, and high school), and school types (public school, and private school) that mentor teachers work.

Mentor teachers' mentoring conceptions and motivations might become different in terms of the years of mentoring experience. Due to the fact that being a mentor teacher is seen as a separate profession than being a teacher (Achinstein & Athanases, 2005), using the years of mentoring experience rather than the years of teaching experience might be more meaningful to examine mentoring in preservice teacher education. Mentor teachers' years of mentoring experience might shape their set of beliefs about what mentoring is and how effective mentoring should be. So, mentor teachers' years of mentoring experience might cause differentiation on mentor teachers' conceptions and motivations about mentoring. Therefore, in this current study, the participant mentor teachers' mentoring conceptions and motivations are examined in terms of the years of mentoring experience.

The other factors that cause difference in mentoring conceptions and motivations might be mentor teachers' subject areas, and their grade levels. According to Yılmaz and Bökeoğlu (2008), subject areas are one of the crucial factors to shape teachers' beliefs about what teaching is. Mentor teachers' mentoring conceptions and motivations might be differentiated in terms their subject areas because mentor teachers' beliefs about teaching affect their beliefs about learning to teach. Additionally, teachers'

conceptions about teaching may be also changed by their grade levels because a developmental mentoring conception and an instrumental mentoring conception are similar to student-centered and teacher-centered conceptions of teaching (Donche & Van Petegem, 2011). Teachers who work at middle school generally might tend to emphasize more constructivist approaches than teachers who work at high school. These different conceptions to teaching and learning might also cause difference in teachers' conceptions about learning to teach. Therefore, mentor teachers' mentoring conceptions and motivations might be differentiated in terms of their grade level. Lastly, school types that mentor teachers work might also cause difference in mentor teachers' mentoring conceptions and motivations. In Turkey, public schools and private schools are differentiated in terms of their conceptions of teaching and learning and opportunities that they provide to students. These different approaches to education also cause to differentiate teachers' conception of teaching and learning at these schools. Therefore, it might be important to examine whether mentor teachers' mentoring conceptions and motivations become different in terms of their school types that they work.

Thus, based on examination of literature on mentoring, this current study aims to describe secondary school mentor teachers' mentoring conceptions and motivations to understand the mentoring process in terms of mentor teachers' perspectives and make it more effective for preservice teachers. It is also aimed to investigate the relationship between mentor teachers' mentoring conceptions and mentoring motivations in order to find out how much variance in mentoring conceptions and motivations can be explained by each other. Lastly, the study aims to examine whether mentor teachers' mentoring conceptions and motivations are differentiated in terms of mentor teachers', subject areas, the years of mentoring experience, school levels, and school types in order to provide in-depth understanding about mentor teachers' conceptions and motivations about mentoring.

3. SIGNIFICANCE OF THE STUDY

Nowadays, the needs and expectations of people have changed rapidly. To meet these rapidly changing needs and expectations, nations have started to give more importance to education in order to raise citizens who are capable to adopt fast changing world. Due to the fact that one of the most important figures in education are teachers, teacher education has also gained importance. In teacher education, preservice teacher education has a critical role to raise qualified teachers because it is the first step to be a teacher. There are two aspects of preservice teacher education; i) theoretical part which contains subject matter and teaching method courses and ii) practical part which contains teaching practices (NCATE, 2008; OECD, 2011). Teaching practices in preservice teacher education are required because it provides a way for preservice teacher to complete their professional growth in teaching by applying their theoretical knowledge into practice (Azkiyah & Mukminin, 2017; Nguyen, 2020; Zeichner, 2009).

There are three important figures at practicum process: preservice teacher, mentor teacher, and university supervisor. Each figure has own roles, responsibilities, and practices. During the practicum process, preservice teachers need guidance and support because it is difficult for them to establish their own teaching style without any support. At this point, mentor teachers play a role in managing the practicum process, taking important decisions, and establishing effective relationship with preservice teachers to make teaching practices at practicum school easier for them. There are models (the Kram Mentoring Model, Clinical Supervision Model, the MERID Model, and the Five-Factor Mentoring Model) and empirical studies (e.g. Duah, 2011; Hennissen *et al.*, 2008; Hudson & Peard, 2006; Hudson, 2007) about mentor teachers' roles and practices. These studies aim to understand the mentoring process and make it more effective for preservice teachers. In these models and empirical studies, the mentoring process in preservice teacher education was generally evaluated in terms of mentor teachers' roles and practices. Even if there are expected roles and practices from mentor teachers, each mentor teacher shapes their mentoring practices in terms

of their beliefs about what mentoring is and which mentoring practices are required for preservice teachers. These sets of beliefs about mentoring create bases for mentor teachers' mentoring conceptions and motivations. Therefore, mentoring conceptions and motivations are reasons behind mentor teachers' practices at the mentoring process and this makes them important indicators that shape mentoring practices and the mentoring process. However, there are limited number of research studies that focus on describing mentoring conceptions and motivations in order to comprehend the mentoring process and mentor teachers' mentoring practices (van Ginkel *et al.*, 2016).

Furthermore, these studies (e.g. Allen *et al.*, 1997; Franke & Dahlgren, 1996; Kroeze, 2014; Wang & Odell, 2002) were generally qualitative and conducted with limited number of mentor teachers in order to describe their mentoring conceptions and motivations. Even if these studies provide in-depth understanding about the participant mentor teachers' conceptions and motivations about mentoring, the results of these studies cannot be generalized because of the nature of the qualitative study. They just provide narrative description of the mentoring process in terms of participant mentor teachers' perspectives. Therefore, there is a need to conduct quantitative study with higher number of mentor teachers to make inferences about the results. With these results, more extensive approaches might be occurred to understand mentor teachers' practices and the mentoring process.

The study that examined mentor teachers' conceptions and motivations about mentoring in Turkey could not be reached. The mentoring process in Turkey was tried to be understood by focusing mentor teachers' practices not mentor teachers' sets of beliefs behind their practices. Additionally, any study about the definition of the terms mentoring conception and motivation in Turkey could not be located. In this study, the researcher implemented the scales the Mentoring Conception Scale (MCS) and the Mentoring Motivation Scale (MMS) developed based on the terms mentoring conception and motivation defined by van Ginkel *et al.* (2016). From this aspect, this study is the first study that uses the terms mentoring conception and motivation in order to describe mentor teachers' conception and motivation in Turkey. This study

aims to describe mentor teachers' mentoring conceptions and motivations. The study also aims to investigate the relationship between mentor teachers' mentoring conceptions and mentoring motivations. Lastly, the study aims to examine whether mentor teachers' mentoring conceptions and motivations are differentiated in terms of mentor teachers' subject areas, years of mentoring experience, grade levels, and school types in order to provide in-depth understanding about mentor teachers' conceptions and motivations about mentoring. Describing mentor teachers' conceptions and motivations about mentoring might provide opportunities to inform mentor training program for the preparation of mentor teachers in Turkey. With these mentor training program, mentoring in Turkey might be more useful for the professional development of preservice teachers and mentor teachers. Additionally, this current study might provide a basis to develop more comprehensive mentoring model in Turkey that consider mentor teachers' reasons to be a mentor and mentoring practices rather than evaluating just the effectiveness of their practices.

4. STATEMENT OF PROBLEM

This study aims to describe secondary school mentor teachers' mentoring conceptions (developmental and instrumental) and mentoring motivations (personal learning and generative outcome) in preservice teacher education. Also, the current study aims to examine the relationship between mentoring conceptions and mentoring motivations to find out how much variance in mentoring conceptions and motivations can be explained by each other. Furthermore, it's aimed to examine whether mentor teachers' mentoring conception factors and mentoring motivation factors are differentiated regarding demographic variables, subject area, years of mentoring experience, school level, and school type. In this section, the operational definitions of variables were given, and research questions and related hypotheses were stated.

4.1. Variables

4.1.1. Demographic Variables

Gender: The sex of mentor teachers such as female and male. To know mentor teachers' gender, demographic survey was used.

Age: The age of mentor teachers. To know mentor teachers' age, demographic survey was used.

Year of Teaching Experience: Year of teaching experience is defined number of years that mentor teachers worked as a teacher at school. To know mentor teachers' total years of teaching experience, demographic survey was used.

Year of Mentoring Experience: Year of mentoring experience is defined number of years that mentor teachers worked with preservice teachers at practicum school. To know mentor teachers' total years of mentoring experience, demographic survey was

used.

Subject Area: In this study, the subject is defined as a specific field that mentor teachers teach at school. To know mentor teacher' subject area, demographic survey was used.

School Level: The school level is defined as the grade level of the students that mentor teachers worked. Mentor teachers from middle school and high school level participated in this study. To know mentor teachers' school level, demographic survey was used.

School Type: In this study, the school type referred to public school or private school. To know mentor teachers' school type, demographic survey was used.

4.1.2. Mentor Teachers' Mentoring Conceptions

In this study, mentoring conception is defined as a set of "beliefs about goals, sources, and nature of mentored learning to teach" (van Ginkel *et al.*, 2016, p.104). Mentoring conceptions refer to mentor teachers' mental models and beliefs about mentoring process that they plan to act these models and beliefs. Referring to research studies about mentor teachers' mentoring conceptions, there are two main distinct mentoring conception factors: a developmental mentoring conception and an instrumental mentoring conception. These factors are measured by three different sub-conception instruments. These sub-conception instruments emphasize mentoring goals and intentions, beliefs about sources of learning to teach, and beliefs about the nature and process of teacher knowledge and learning.

4.1.2.1. Developmental Mentoring Conception. For a developmental mentoring conception, mentoring goal and intention statements are about understanding of student-centered teaching routines, statements on beliefs are about sources of learning to teach referring to learn from students by coping modeling, and statements on beliefs about

teacher knowledge and learning refer to beliefs about understanding of teaching and learning by awareness of their relationship (van Ginkel *et al.*, 2016). The mentor teachers who hold developmental mentoring conception believe that mentoring relationship has a collaborative and a symmetrical nature (Hall & Davis, 1995). In the current study, to measure mentor teachers' developmental mentoring conception, Mentoring Conception Scale (Appendix C) was used.

4.1.2.2. Instrumental Mentoring Conception. For an instrumental mentoring conception, mentoring goal and intention statements are about transferring of teacher-centered teaching routines, statements on beliefs are about sources of learning to teach that refers to beliefs about learning by experts or maestro, and statements on beliefs about teacher knowledge and learning is about stable and assessable teaching abilities (van Ginkel *et al.*, 2016). Mentor teachers who hold an instrumental mentoring conception believe that the mentoring relationship has an asymmetrical nature (Hall & Davis, 1995) because they see themselves as a maestro (Graham, 2006) that preservice teachers copy their effective practices with observation. In the current study, to measure mentors' instrumental conception, Mentoring Conception Scale (Appendix C) was used.

4.1.3. Mentor Teachers' Mentoring Motivations

Mentoring motives can be defined as reasons why mentor teachers give importance to be a mentor for preservice teachers and why they want to be volunteer to engage in the mentor roles. By referring to research studies about mentor teachers' motives, there are two types of motivation factors: personal learning motives, and generative outcome motives.

4.1.3.1. Personal Learning Motives. Personal learning motives include a wish to improve mentor teachers' own personal learning and to feel gratification about what they do at mentoring process (Allen *et al.*, 1997). The mentor teachers who emphasize personal learning motives believe that mentoring relationship has a reciprocal nature

and both preservice teachers and mentor teacher can develop their proficiencies during mentoring process (van Ginkel *et al.*, 2016). In this current study, mentor teachers' personal learning motives were measured by Mentoring Motivation Scale (Appendix D).

4.1.3.2. Generative Outcome Motives. Generative outcome motives contain a wish to help to others with conveying information and guide the next generations by transmitting traditional values (Merriam, 1983). The mentor teachers who emphasize generative outcome motives aim to transfer their knowledge and experiences to preservice teachers by guiding them during mentoring process (van Ginkel *et al.*, 2016). In this current study, mentor teachers' generative outcome motives were measured by Mentoring Motivation Scale (Appendix D).

4.2. Research Questions

In the current study, the research questions were stated as follows:

1. What is the secondary school (5^{th} - 12^{th} grade) mentor teachers' conceptions about mentoring for preservice teachers?
2. Is there any statistically significant difference between secondary school (5^{th} - 12^{th} grade) mentor teachers' *developmental and instrumental mentoring conceptions*?
3. What is the secondary school (5^{th} - 12^{th} grade) mentor teachers' motivations about mentoring for preservice teachers?
4. Is there any statistically significant difference between secondary school (5^{th} - 12^{th} grade) mentor teachers' *personal learning motives and generative outcome motives?*
5. What is the relationship between secondary school (5^{th} - 12^{th} grade) mentor teachers' mentoring conception factors and their mentoring motivation factors?
6. Is there any statistically significant difference in secondary school (5^{th} - 12^{th} grade) mentor teachers' *mentoring conceptions (developmental mentoring conception and instrumental mentoring conception*) regarding demographic variables?

6.1. Is there any statistically significant difference in mentor teachers' *developmental mentoring conception in terms of subject areas?*

6.2. Is there any statistically significant difference in mentor teachers' *developmental mentoring conception in terms of years of mentoring experience?*

6.3. Is there any statistically significant difference in mentor teachers' *developmental mentoring conception in terms of school level?*

6.4. Is there any statistically significant difference in mentor teachers' *developmental mentoring conception in terms of school type?*

6.5. Is there any statistically significant difference in mentor teachers' *instrumental mentoring conception in terms of subject areas?*

6.6. Is there any statistically significant difference in mentor teachers' *instrumental mentoring conception in terms of years of mentoring experience?*

6.7. Is there any statistically significant difference in mentor teachers' *instrumental mentoring conception in terms of school level?*

6.8. Is there any statistically significant difference in mentor teachers' *instrumental mentoring conception in terms of school type?*

7. Is there any statistically significant difference in secondary school (5^{th} - 12^{th} grade) mentor teachers' mentoring motivations (*personal learning motives and generative outcome motives*) regarding demographic variables?

7.1. Is there any statistically significant difference in mentor teachers' *personal learning motives in terms of subject areas?*

7.2. Is there any statistically significant difference in mentor teachers' *personal learning motives in terms of years of mentoring experience?*

7.3. Is there any statistically significant difference in mentor teachers' *personal learning motives in terms of school level?*

7.4. Is there any statistically significant difference in mentor teachers' *personal learning motives in terms of school type?*

7.5. Is there any statistically significant difference in mentor teachers' *generative outcome motives in terms of subject areas?*

7.6. Is there any statistically significant difference in mentor teachers' *generative outcome motives in terms of years of mentoring experience?*

7.7. Is there any statistically significant difference in mentor teachers' *generative outcome motives in terms of school level?*

7.8. Is there any statistically significant difference in mentor teachers' *generative outcome motives in terms of school type?*

4.3. Hypotheses

In the current study, the null hypotheses were stated as follows:

2. There is no statistically significant difference in secondary school (5^{th} - 12^{th} grade) mentor teachers' *developmental and instrumental mentoring conceptions.*
4. There is no statistically significant difference in secondary school (5^{th} - 12^{th} grade) mentor teachers' *personal learning motives and generative outcome motives.*
5. There is no statistically significant relationship between secondary school (5^{th} - 12^{th} grade) mentor teachers' mentoring conception factors and their mentoring motivation factors.
6. There is no statistically significant difference in secondary school (5^{th} - 12^{th} grade) mentor teachers' *mentoring conceptions* (*developmental mentoring conception and instrumental mentoring conception*) regarding demographic variables.
   6.1. There is no statistically significant difference in mentor teachers' *developmental mentoring conception in terms of subject areas.*
   6.2. There is no statistically significant difference in mentor teachers' *developmental mentoring conception in terms of years of mentoring experience.*
   6.3. There is no statistically significant difference in mentor teachers' *developmental mentoring conception in terms of school level.*
   6.4. There is no statistically significant difference in mentor teachers' *developmental mentoring conception in terms of school type.*
   6.5. There is no statistically significant difference in mentor teachers' *instrumental mentoring conception in terms of subject areas.*
   6.6. There is no statistically significant difference in mentor teachers' *instrumental mentoring conception in terms of years of mentoring experience.*

6.7. There is no statistically significant difference in mentor teachers' instrumental *mentoring conception in terms of school level.*

6.8. There is no statistically significant difference in mentor teachers' *instrumental mentoring conception in terms of school type.*

7. There is no statistically significant difference in secondary school (5^{th} - 12^{th} grade) mentor teachers' *mentoring motivations* (*personal learning motives and generative outcome motives*) regarding demographic variables.

7.1. There is no statistically significant difference in mentor teachers' *personal learning motives in terms of subject areas.*

7.2. There is no statistically significant difference in mentor teachers' *personal learning motives in terms of years of mentoring experience.*

7.3. There is no statistically significant difference in mentor teachers' *personal learning motives in terms of school level.*

7.4. There is no statistically significant difference in mentor teachers' *personal learning motives in terms of school type.*

7.5. There is no statistically significant difference in mentor teachers' *generative outcome motives in terms of subject areas.*

7.6. There is no statistically significant difference in mentor teachers' *generative outcome motives in terms of years of mentoring experience.*

7.7. There is no statistically significant difference in mentor teachers' *generative outcome motives in terms of school level.*

7.8. There is no statistically significant difference in mentor teachers' *generative outcome motives in terms of school type.*

5. METHODS

This current study is a part of a large-scale research project (BU-BAP, 15961 - Matematik Öğretiminde Etkin Mentörlük (MÖEM): Öğretmen Adayları ve Öğretmenlik Uygulaması Mentörlerinin Algılarının İncelenmesi) that the researcher also took role. This project is conducted as part of a "Teacher Learning Research Lab" (https://sced.boun.edu.tr/matematik-ve-fen-bilimleri-egitiminde-ogretmen-ogrenmesi-laboratuvari). One of the aim of this project was to describe mathematics mentor teachers' mentoring conceptions and motivations. In this study, the scope of the project was extended to not just mathematics mentor teachers but mentor teachers in other subject areas (Science, Physics, Chemistry, Biology, English, Turkish, History, Geography, Social Science). The main aim of the current study is to describe the secondary school mentor teachers' mentoring conceptions, (developmental and instrumental mentoring conception) and mentoring motivations (personal learning and generative outcome motives) in preservice teacher education. Also, the current study aims to examine the relationship between mentoring conceptions and mentoring motivations to find out how much variance in mentoring conceptions and motivations can be explained by each other. Furthermore, it's aimed to examine whether mentor teachers' mentoring conception factors and mentoring motivation factors are differentiated regarding demographic variables, subject area, years of mentoring experience, school level, and school type. In the direction of these aims, this study can be defined as an exploratory quantitative study for which causal comparative and correlational methods were used. Mentor teachers from different practicum schools in Istanbul were the participants of this study. The data were gathered from mentor teachers of Mathematics, Science (Science, Physics, Chemistry, and Biology), Language (English, Turkish), and Social Science (History, Geography, Social Science) subject areas with using Demographic Survey, Mentoring Conception Scale (MCS), Mentoring Motivation Scale (MMS). The data from mentor teachers were collected in 2021 fall term at a single point in time. Both instruments which are the MCS, the MMS were translated Dutch to Turkish for this study. In this section, sampling and participants, instruments, data collection procedure, and data

analysis were explained.

5.1. Sampling and Participants

In Turkey, Ministry of Education provides mentor teachers an additional certification. To get this certification, teachers should complete three-day mentor training program. This means that, even though preservice teachers can observe and interact with many teachers at practicum schools, the one without certification is not considered mentor teacher by the Ministry. In this study, the aim is to reach and collect data from mentor teachers who work with preservice teachers at practicum schools in Istanbul.

The target population of this study was secondary school Turkish mentor teachers of Mathematics, Science (Science, Physics, Chemistry, and Biology), and Language and Social Science (Turkish, English, History, Geography, and Social Science) subjects in Istanbul. The total number of university in Turkey is 209. The 57 of these universities are located in Istanbul, which means that one fourth of the universities in Turkey are in Istanbul. Additionally, 18 of these 57 universities have education faculty. Since the highest number of universities providing preservice teacher education in Turkey is in Istanbul, the most of the teaching practices take place in this city. Therefore, the target population of this study was chosen secondary school mentor teachers in Istanbul. In order to reach mentor teachers in Istanbul, the researcher contacted with the Istanbul Directorate of National Education for a list of mentor teachers for last five years and obtained a list of practicum schools. Due to the Ministry's policy of protecting personal information of teachers, the list was consisting of only the school names of these teachers without the name and the communication information of them. The researcher contacted these practicum schools by phone or visited them to invite mentor teachers to the study. Mentor teachers from the selected subject areas were invited to participate the study.

The sample of this study consisted of 141 (94 female, 47 male) secondary school mentor teachers of Mathematics, Science (Science, Physics, Chemistry, and Biology), Language and Social Science (Turkish, English, History, Geography, and Social Science) subjects. The demographic data of the participant mentor teachers included their gender, age, subject areas, school level, school type, and the year of teaching and mentoring experience. The demographic information about the participant mentor teachers' gender, school type, and school level were given in Table 5.1.

Table 5.1. Demographic information of the participant mentor teachers.

The Number of	Gender		School Type		School Level	
Mentor Teachers	Female	Male	Public	Private	High	Middle
141	94	47	86	55	79	62

The ages of the participant mentor teachers were in between 24 and 61 (*M=42.3, SD=4.96*). While 55 of the participant mentor teachers worked at private schools, 86 of them worked at public schools. Also, all mentor teachers were asked to answer their school level such as middle school or high school. Whereas 62 of the participant mentor teachers work at middle school, 79 of them work at high school. Also, the participant mentor teachers were asked to point out their year of mentoring and teaching experiences. The participant mentor teachers' the year of teaching experience ranged from 2 to 35 (*M=18.66, SD=7.48*) and their year of mentoring experience ran*ged from 1 to 25 (M=7.23, SD=5.89*). Table 5.2 presents the frequency of the participant mentor teachers mentoring experience.

Table 5.2. The frequency of the year of mentoring experience.

The Intervals of Mentoring Experience Year	The Number of Mentor Teachers
More than 12 years	30
8-11	21
4-7	47
1-3	43

According to Table 5.2, 43 of the participant mentor teachers had mentoring experience ranged from zero to three, 47 of them whose mentoring experience ranged from four to seven, 21 of them had eight to eleven years of mentoring experience, and 30 of them had more than 11 years of mentoring experience. Lastly, the subject areas of the participant mentor teachers were asked, and Table 5.3 represents the number of mentor teachers according to their subject areas.

Table 5.3. Number of the participant mentor teachers according to their subject areas.

Subject Areas		The Number of Mentor Teachers	The Total Number of Mentor Teachers
Mathematics		28	49
		21	
Science	Physics	19	44
	Biology	5	
	Chemistry	13	
	Science	7	
Language and Social Science	Turkish	6	48
	English	37	
	History	1	
	Geography	0	
	Social sciences	4	
Total			141

The participant mentor teachers were classified in term of their subject areas. Subject area of 49 of the participant mentor teachers were mathematics at middle and high school. Under the science group, there were 44 mentor teachers whose areas were physics, biology, chemistry, and science. In the group of Language and Social Science, there were 48 mentor teachers whose areas were Turkish, English, History, Geography, and Social Science.

Even if the highest number of universities providing preservice teacher education in Turkey is in Istanbul, the target population of this study for all branches is limited. Especially, for social science subject areas, the number of participant mentor teachers was low because there is only one university in Istanbul that has the faculty of education for Social Science, Geography, and History areas and their quotas are very low. For example, the quotas of History and Geography teaching at the university are only 20 for each. Therefore, only three or four mentor teachers in these subject area work in a one year in Istanbul. The quota of Social Science teaching is more than the quota of History and Geography teaching but there is still only one university that gives teacher education for this subject area. The quota of Social Science teaching department is 70 and the maximum number of mentor teacher in this subject area is 10 or 11 in a one year in Istanbul. Due to the fact that the Social Science department is in only one university and supervisors generally want to continue with the same mentor teachers, the number of mentor teacher who work with social science preservice teachers does not change much over the years. Therefore, the number of the participant mentor teachers for Social Science areas in the current study was low. Because of the limited number of target population, the pilot studies for the instruments could not conducted. The reliability and validity analyses for the instruments will be stated further.

5.2. Instruments

One of the aims of this study is to describe the participant secondary school mentor teachers' mentoring conceptions and motivations. In accordance with this purpose, Demographic Survey, the MCS (Appendix C), and MMS (Appendix D) were used. For

this current study, the MCS and the MMS were translated from Dutch to Turkish as a part of a large-scale research project (BU-BAP, 15961 - Matematik Öğretiminde Etkin Mentörlük (MÖEM): Öğretmen Adayları ve Öğretmenlik Uygulaması Mentörlerinin Algılarının İncelenmesi) that the researcher also took role. In this current study, the Turkish version of these instruments were used.

5.2.1. Demographic Survey

The information about the participant mentor teachers such as their age, gender, years of teaching experience, years of mentoring experience, school level, subject areas, and school type that mentor teachers work were learned from mentor teachers with using the demographic survey at the beginning of the data collection.

5.2.2. Mentoring Conception Scale

The MCS was developed by van Ginkel *et al.* (2016) in order to assess mentor teachers' conceptions through a literature review and pilot study. There are 48 seven-points Likert type (strongly disagree, disagree, disagree more than agree, disagree as much as agree, agree more than disagree, agree, strongly agree) statements to describe mentor teachers' conceptions. van Ginkel *et al.* (2016) focused on two main different mentoring conceptions: a developmental mentoring conception and an instrumental mentoring conception by referring research on teacher mentoring (Orland-Barak & Klein, 2005). There are 24 items on the MCS about mentor teachers' developmental mentoring conception. For a developmental mentoring conception, mentor teachers see themselves as a creative person in teaching process to provide effective, collaborative, and reciprocal mentoring relationship to discuss the reason behind principle of teaching and learning. The remaining 24 items on the MCS are about instrumental mentoring conception. For an instrumental mentoring conception, mentor teachers see themselves as a maestro, as a model to develop proficiency in the mechanics of teaching for novice teachers.

The MCS consists of three sub-instruments focused different dimensions of mentoring conceptions. Eighteen statements in the first sub-instrument (a) aim to assess mentoring goals and intentions, then 14 statements in the second sub-instrument (b) aim to assess beliefs about sources of teacher knowledge and learning, and 16 statements in the third sub-instrument (c) aim to assess beliefs about the nature and process of teacher knowledge and learning (van Ginkel *et al.*, 2016). Statements on developmental mentoring conception and instrumental mentoring conception can be distinguished in terms of these three sub-aims. For both mentoring conceptions, there are 24 statements: nine of them are about mentoring goals and intentions, seven of them are about beliefs about sources of learning to teach, and eight of them are about beliefs about the nature and process of teacher knowledge and learning. Table 5.4 presents each conception factors along with the item numbers.

Table 5.4. The MCS with item numbers.

Mentoring Conception Scale	Item number of a developmental mentoring conception	Item number of an instrumental mentoring conception
Mentoring goals and intentions (a)	Item 1 (a)	Item 10 (a)
	Item 2 (a)	Item 11 (a)
	Item 3 (a)	Item 12 (a)
	Item 4 (a)	Item 13 (a)
	Item 5 (a)	Item 14 (a)
	Item 6 (a)	Item 15 (a)
	Item 7 (a)	Item 16 (a)
	Item 8 (a)	Item 17 (a)
	Item 9 (a)	Item 18 (a)

Table 5.4. The MCS with item numbers (cont.)

Mentoring Conception Scale	Item number of a developmental mentoring conception	Item number of an instrumental mentoring conception
Beliefs about sources of learning to teach (b)	Item 1 (b) Item 2 (b) Item 3 (b) Item 4 (b) Item 5 (b) Item 6 (b) Item 7 (b)	Item 8 (b) Item 9 (b) Item 10 (b) Item 11 (b) Item 12 (b) Item 13 (b) Item 14 (b)
Beliefs about the nature and process of teacher knowledge and learning (c)	Item 1 (c) Item 2 (c) Item 3 (c) Item 1 (c) Item 4 (c) Item 5 (c) Item 6 (c) Item 7 (c)	Item 9 (c) Item 10 (c) Item 11 (c) Item 12 (c) Item 13 (c) Item 14 (c) Item 15 (c) Item 16 (c)

The MCS was implemented to 726 mentor teachers in Dutch. According to this study, the reliability and validity analysis of instruments were done. Even if the researchers mentioned that they did validity analysis to provide construct validity of instrument such as Exploratory Factor Analysis, they shared only the result of reliability analysis of instrument. The Cronbach Alpha coefficients were .85 for the developmental mentoring conception scale, and .82 for the instrumental mentoring conception scale (van Ginkel *et al.*, 2016).

5.2.2.1. Translation of the Instrument. In this current study, the MCS developed by van Ginkel *et al.* (2016) was used to investigate mentor teachers' mentoring concep-

tions. The original language of the instrument is Dutch; therefore, as a first step, the adaptation of the instrument was conducted by following the International Test Commission (ITC, 2018) guideline. The adaptation of instrument is a complex term that covers many steps from obtaining permission from the developers of instrument to providing technical document about the adapted test (ITC, 2018). In this study, "the adaptation of instrument" corresponds to "the translation of instrument" from Dutch to Turkish.

For the translation of instrument, there are two commonly used translation design, the forward translation design, and the backward translation design (ITC, 2018). In the forward translation design, the translator or (group of translators) translates the instrument into the target language. Then, a different translator (or group of translators) evaluates the equivalence of original and target language version of the instrument to provide the best translation of instrument. When the forward translation design is used, the translation of instrument into target language mostly depends on the translator's experience and that may cause to decrease validity of the translation. In the backward translation approach, firstly, the instrument is translated to the target language and then it is translated back to the source language by different translator (or group of translators). After the translations of the instrument, the original version of the instrument and the back-translated version of it are compared in order to assess their equivalence.

In this study, the translation of the MCS into Turkish was made by using the backward translation design. First of all, the researcher got permission from van Ginkel *et al.* (2016) to translate the instrument into Turkish and use it in Turkey via e-mail. After the getting permission from the developers of the instrument, the translation process started. First of all, items of the instrument were translated from Dutch to English by using translation software tool. Then, items translated into English were translated into Turkish by the expert who is native speaker of Turkish and is fluent in English. In the sequel, these Turkish and English versions of the instrument were sent two experts who are fluent in Dutch and Turkish in order to be performed control

of the translation of the instrument from Dutch to Turkish. Thus, the translation of the instrument from Dutch to Turkish finished. Then, items translated into Turkish were translated back into Dutch to judge the equivalence of the original version of the instrument and the back-translated version of it.

After the translation of the instrument, to strengthen the language equivalence of the instrument, experts' opinions were consulted. Firstly, the researcher did interviews with eight mentor teachers to see what mentor teachers understand from the translated items. Based on these interviews, there were some terms and statements that were not understood by mentor teachers. Besides, it was seen that some statements were understood as a different from the original statements. Therefore, researcher appealed the expert in teacher education fluent in English to judge the translated items by considering of possible cultural issues, and teacher education in Turkey. Items in the instrument were examined one by one and some changes were suggested by the expert. The examples of some suggested changes were given in Table 5.5.

Table 5.5. The example of expert's suggested changes in the MCS.

Item Numbers	Statements
Item 11 (b) (Instrumental mentoring conception)	I think it is a condition for guiding student teachers that someone can teach better than average. Öğretmen adaylarına mentörlük yapmak için, ortalamanın üzerinde iyi ders veren bir kişi olmanın şart olduğunu düşünürüm. Öğretmen adaylarına mentörlük etmek için, ortalamadan daha iyi öğreten biri olmanın şart olduğunu düşünürüm.

Table 5.5. The example of expert's suggested changes in the MCS. (cont.)

Item Numbers	Statements
Item 13 (b) (Instrumental mentoring conception)	The feeling that they are being judged on what they do helps student teachers to work on their lessons. Bence, yaptıkları şeyle yargılandıkları hissi, öğretmen adaylarının derslerinde daha iyi olmalarına yardımcı olur. Bence, yaptıklarıyla yargılanıyor olma hissi, öğretmen adaylarının öğretimleri üzerine çalışmalarına yardımcı olur.
Item 12 (c) (Instrumental mentoring conception)	Talented student teachers will soon teach well Öğretmenlikte yetenekli olan öğretmen adayları, daha hızlı ve daha iyi öğretir. Yetenekli öğretmen adayları daha erken iyi öğretecektir.

For the item 11, the word "teach" was translated in Turkish as a word "ders veren" in the first translation of the instrument but this word was suggested to change with "öğreten" by the expert. The same suggestion was made in the item 13. Again, the word "lesson" was translated in Turkish as a word "ders", but this word was suggested to change with "öğretim". The reason behind these changes comes from the meaning of the word "lessen" in Dutch. This word means both "lesson" and "teaching" and the expert suggested to use "teaching" by considering teacher education context. In the item 12, the first translation of the statement had more information than the original one; therefore, extra explanations were removed by the expert.

After these changes, the equivalence of translated instrument was again judged by the expert in teacher education and experienced teachers who are fluent in English. After these last controls, the translation of the instrument finished, and researcher got the final version of Turkish MCS.

5.2.3. Mentoring Motivation Scale

The MMS was developed by van Ginkel *et al.* (2016) in order to assess mentor teachers' mentoring motives through a pilot study. Items on mentoring motives were developed by emphasizing mentor teachers' reasons why they want to be a mentor teacher. According to this reason, van Ginkel *et al.* (2016) asked mentor teachers to answer the open-ended question which is "why is it important to me to mentor student teachers?".

There are 19 items which are seven-points Likert type (strongly disagree, disagree, disagree more than agree, disagree as much as agree, agree more than disagree, agree, strongly agree) statements to describe mentor teachers' motives that are important to be mentor in two different motivation dimensions: personal learning motives, and generative outcome motives. Eight of them are about personal learning motives meant to personal learning and enjoyment. The remaining 11items about generative outcome motives meant to transfer personal knowledge and experience to the new generation. Table 5.6 presents each motivation factor along with the item numbers.

Table 5.6. The MMS with item numbers.

Motivation Factors	Item Numbers in Each Factor
Personal Learning Motives	Item 1
	Item 4
	Item 5
	Item 7
	Item 9
	Item 11
	Item 12
	Item 13

Table 5.6. The MMS with item numbers. (cont.)

Motivation Factors	Item Numbers in Each Factor
Generative Outcome Motives	Item 2
	Item 3
	Item 6
	Item 8
	Item 10
	Item 14
	Item 15
	Item 16
	Item 17
	Item 18
	Item 19

The MMS was implemented to 726 mentor teachers in Dutch. According to this study, the reliability and validity analysis of instruments were done. However, the researchers shared only the result of reliability analysis of instrument. The Cronbach Alpha coefficients were .86 for personal learning motives, and .83 for generative outcome motives (van Ginkel, *et al.*, 2016).

5.2.3.1. Translation of the Instrument. In this current study, the MMS developed by van Ginkel *et al.* (2016) was used to investigate mentor teachers' mentoring motivations. The original language of the instrument is Dutch; therefore, as a first step, the translation of the instrument was conducted by following the International Test Commission (ITC, 2018) guideline. The translation of the MMS instrument was done by following almost the same translation steps with the translation of the MCS instrument. Differently from the translation of the MCS instrument, English version of the instrument was provided by van Ginkel *et al.* (2016). Therefore, the instrument was not translated from Dutch to English by the researcher. The version translated into

English by van Ginkel *et al.* (2016) was used.

After the translation of the instrument, to strengthen the language equivalence of the instrument, experts' opinions were consulted. Firstly, the researcher did interviews with eight mentor teachers to see what mentor teachers understand from the translated items. Based on these interviews, there were some terms and statements that were not understood by mentor teachers. Besides, it was seen that some statements were understood as a different from the original statements. Therefore, researcher appealed the expert in teacher education to judge the translated items by considering of possible cultural issues, and teacher education in Turkey. Items in the instrument were examined one by one and some changes were suggested by the expert. The examples of some suggested changes were given in Table 5.7.

Table 5.7. The example of expert's suggested changes in the MMS.

Item Numbers	Statements
Item 2 (Generative Outcome Motives)	To ensure my subject will be taught by well trained and competent teachers. Dersimin iyi eğitimli ve yetkin öğretmenler tarafından öğretildiğinden emin olmak için. Branşımın iyi eğitimli ve yetkin öğretmenler tarafından öğretildiğinden emin olmak için.
Item 19 (Generative Outcome Motives)	Because I would like to pass on my vision of teaching to them. Eğitim ve öğretime bakış açımı aktarmak için. Çünkü öğretmen adaylarına eğitim vizyonumu aktarmak isterim.

In the item 2, the word "subject" was translated in Turkish as a word "ders" in the first translation of the instrument, but this word was suggested to change with "branş" by the expert. In this statement the word "subject" does not mean mentor teacher's lesson, it is more broad term. The English version of the item 19 includes the

words “them” and “because”, but the first Turkish version does not include “öğretmen adayı” and “çünkü”. These words were added in the second version of the instrument to avoid the misunderstanding.

After these changes, the equivalence of translated instrument was again judged by the expert in teacher education and experienced teachers who are fluent in English. After these last control, the translation of the instrument finished, and researcher got the final version of Turkish MMS.

5.2.4. Reliability Analysis of Instruments

In order to check the reliability of the MCS and the MMS, the Cronbach’s alpha coefficients for each instrument and each factor under these instruments were calculated. The Cronbach’s alpha coefficient is an internal consistency estimation method which is suitable to be used when items in instrument are scored as ordinal (one to seven- Likert Type) (Cronbach, 1951; Dawson & Trap, 2004). The Cronbach’s alpha coefficient is a weighted standard change average found by dividing the sum of the variances of the k items in the instrument to the general variance (Cronbach, 1951; Dawson & Trap, 2004). There are different rules of thumb to interpret the degree of reliability in literature. One of the most used the rule of thumb was provided by George and Mallery (2003) and it was given in Table 5.8.

Table 5.8. The rule of thumb for interpreting the degree of Cronbach’s Alpha Coefficient.

Cronbach’s Alpha Coefficient	The degree of reliability
$\alpha \geq 0.9$	Excellent
$0.7 \leq \alpha < 0.9$	Good
$0.6 \leq \alpha < 0.7$	Acceptable
$0.5 \leq \alpha < 0.6$	Weak
$\alpha < 0.5$	Unacceptable

Additionally, for each item under two instruments, corrected-item total correlation values were reported. The corrected-item total correlation shows the degree of relationship between each item with the total score. If the corrected-item total correlation value of item is lower than 0.3, this indicates that the item measures something different from the instrument. Therefore, the values larger than 0.3 are considered acceptable (De Vaus, 2004). In the lights of these information, reliability results of the MCS and the MMS were stated separately.

5.2.4.1. Reliability Analysis of Mentoring Conception Scale. First of all, the Cronbach alpha coefficient for overall the MCS with 48 items was calculated. Then Cronbach alpha coefficients for each conception factor, and the corrected item-total correlations for items on each conception factor were calculated. The Cronbach alpha coefficient for the overall the MCS was 0.96. According to George and Mallery (2003), the degree of reliability of the instrument is considered as excellent.

For developmental mentoring conception items on the MCS, the Cronbach alpha coefficient was found 0.96 and the degree of the reliability of developmental mentoring conception factor is also considered as excellent. Additionally, the corrected item-total correlations for each item on developmental mentoring conception were given in Table 5.9. The value of each corrected item-total correlation was larger than 0.3; therefore, these values are considered as acceptable (De Vaus, 2004).

Table 5.9. The Corrected Item-Total Correlations for developmental mentoring conception items.

Item	Corrected Item-Total Correlation
1	0.58
2	0.59
3	0.65
4	0.6
5	0.62
6	0.62
7	0.62
8	0.56
9	0.52
19	0.63
20	0.73
21	0.65
22	0.67
23	0.72
24	0.59
25	0.52
33	0.53
34	0.58
35	0.51
36	0.54
37	0.55
38	0.59
39	0.52
40	0.63

For instrumental mentoring conception items on the MCS, the Cronbach alpha coefficient was found 0.94 and the degree of the reliability of the instrumental mentoring

conception factor is also considered as excellent. Additionally, the corrected item-total correlations for each instrumental mentoring conception items were given in Table 5.10. The value of each corrected item-total correlation was larger than 0.3; therefore, these values are considered as acceptable (De Vaus, 2004).

Table 5.10. The Corrected Item-Total Correlations for instrumental mentoring conception items.

Item	Corrected Item-Total Correlation
10	0.53
11	0.8
12	0.61
13	0.64
14	0.7
15	0.67
16	0.61
17	0.5
18	0.49
26	0.64
27	0.62
28	0.61
29	0.63
30	0.57
31	0.61
32	0.66
41	0.61
42	0.68
43	0.6
44	0.69
45	0.51
46	0.67
47	0.57
48	0.52

5.2.4.2. Reliability Analysis of Mentoring Motivation Scale. First of all, the Cronbach alpha coefficient for overall the Mentoring Motivation Scale (MMS) with 19 items was calculated. Then, Cronbach alpha coefficients for each motivation factor, and the cor-

rected item-total correlations for items on each motivation factor were reported. The Cronbach alpha coefficient for the overall the MMS was 0.92. According to George and Mallery (2003), the degree of reliability of the instrument is considered as excellent.

For personal learning motives items on the MMS, the Cronbach alpha coefficient was found 0.87 and the degree of the reliability of the personal learning motives factor is considered as good. Additionally, the corrected item-total correlations for each personal learning motives items were given in Table 5.11. The value of each corrected item-total correlation was larger than 0.3; therefore, these values are considered as acceptable (De Vaus, 2004).

Table 5.11. The Corrected Item-Total Correlations for personal learning motives items.

Item	Corrected Item-Total Correlation
1	0.56
4	0.38
5	0.8
7	0.77
9	0.74
11	0.66
12	0.72
13	0.75

For generative outcome motives items on the MMS, the Cronbach alpha coefficient was found 0.89 and the degree of the reliability of the generative outcome motives factor is considered as good. Additionally, the corrected item-total correlations for each generative outcome motives items were given in Table 5.12. The value of each corrected item-total correlation was larger than 0.3; therefore, these values are considered as acceptable (De Vaus, 2004).

Table 5.12. The Corrected Item-Total Correlations for generative outcome motives items.

Item	Corrected Item-Total Correlation
2	0.62
3	0.53
6	0.63
8	0.66
10	0.53
14	0.57
15	0.64
16	0.74
17	0.64
18	0.61
19	0.66

5.2.5. Validity Analysis of Instruments

In this part of the study, the construct validity of the MCS and the MMS were checked. Confirmatory Factor Analysis (CFA) is oft-used way to checked construct validity of instruments (Thompson & Daniel, 1996). Besides the assessing construct validity of instruments, the CFA can also be used in psychometric evaluation of test instruments, method effects, and measurement invariance evaluation. In this study, the CFA was used to checked how well observed variables (items in MCS and MMS) fit the constructs in the instruments (developmental mentoring conception, instrumental mentoring conception, personal learning motives, and generative outcome motives).

Before performing the CFA, some assumptions should be checked such as sample size, normality, outliers, missing data, and interpretation of model fit indices. Even if there is no common consensus about the sample size in the CFA, it should be large

enough to make out the relationship between observed variables and constructs. According to Kline (1994), 200 participants are enough to perform the CFA. Additionally, if the structure of construct is clear and the number of construct is low, then the number of participant can be decreased up to 100 (Kline, 1994). To decide an appropriate sample size for the CFA, the ratio of N:p should be also considered (N: sample size, p: the number of observed variables). According to Kline (1994), the ratio of 10:1 is more acceptable, but this ratio can be decreased up to 2:1 depending on the structure and the number of the constructs in instrument. Besides taking into consideration the ratio of N:p, the ratio of p:f may be also considered to decide enough sample size for the CFA (f: the number of construct-factor). If there is small sample size, it is better to have more observed variables per factor (Marsh, 1995).

Before performing the CFA, the normality of data should be also checked. In this study, for the normality analysis, skewness values for each conception and motivation factor were calculated. To accept that the data is normally distributed, the value of skewness should be ranged -1 to 1 (Hair *et al.*, 2014). Getting more accurate result about the normality of data, Kolmogorov-Smirnov test was also performed. To interpret result of Kolmogorov-Smirnov test, p value of the test is evaluated. If the value of p is smaller than 0.05 then null hypothesis is rejected, and it is accepted that the data is not normally distributed. According to simulation study of Beauducel and Herzberg (2006) when the data is ordinal and the sample size is small, using the indicator means and variance adjusted weighted least square (WLSMV) is well-advised. Due to the fact that, the sample size is small, and the data is ordinal in this study, WLSMV estimation was considered in the CFA.

After checking assumptions of the CFA, some fit indices are used to interpret the construct validity of instrument such as chi-square (X^2), the ratio of X^2 and degree of freedom (X^2/df), the Root Mean Squared Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI) and the Weighted Root Mean Residual (WRMR). The chi-square (X^2) test indices present the difference between observed and expected covariance matrices. When the value of X^2 is close to

zero, the model gives better fit (Gatignon, 2010). However, The X^2 value is affected by sample size (Muthén, 2001), the correlation between observed variables, and the value of skewness. If sample size, correlation between observed variables, or value of skewness are large, then the X^2 test does not provide accurate results. Therefore, when sample size is large, other fit indices should be also considered to interpret the result of the CFA. The ratio of X^2 and degree of freedom is also reported to interpret results of the CFA.

The Root Mean Squared Error of Approximation (RMSEA) is used to find the level of fit of the covariance matrix estimated from the model with the covariance matrix obtained from the sample (Hooper *et al.*, 2008). The value of RMSEA ranges from 0 to 1 and smaller values indicates better model fit. The Comparative Fit Index (CFI) and the Tucker Lewis Index (TLI) are both comparative fit indices (Bentler, 1990) and they are reported to compare the X^2 value of the hypothesized model and the baseline model. Another fit index the Weighted Root Mean Residual (WRMR) is recommended to report by Muthén and Muthén (1998-2017) when the data is ordinal and is not normally distributed. Good and acceptable values for the fit indices were given in Table 5.13. This table is formed according to Bentler (1990), Bentler and Bonett (1980), Hooper, Coughan and Mullen (2008), and Yu (2002).

Table 5.13. The good and acceptable values for fit indices.

Names of Indices	Good Fit Values	Acceptable Fit Values
X^2/df	$0.00 \leq X^2/df < 2.00$	$2.00 \leq X^2/df < 5.00$
RMSEA	$0.00 \leq$ RMSEA <0.50	$0.50 \leq$ RMSEA <0.1
CFI	$0.95 \leq$CFI<1.00	$0.90 \leq$CFI<0.95
TLI	$0.95 \leq$TLI<1.00	$0.90 \leq$TLI<0.95
WRMR	≤ 1.00	

Abbreviations: The ratio of chi-square (X^2) and degree of freedom (X^2/df), the Root Mean Squared Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), and the Weighted Root Mean Residual (WRMR).

Besides the fit indices, to interpret the results of the CFA, standardized factor loadings, and discriminant validity should be considered. According to Hair *et al.*, (2014), the standardized factor loadings should be higher than 0.5. Discriminant validity refers to difference between constructs in model (Hair *et al.*, 2014). High discriminant validity suggests that each construct has unique nature in model. According to Fornell and Larcker (1981), to assess discriminant validity, the average variance extracted (AVE) estimate should be calculated. The AVE estimate for factor is calculated by dividing the total of its squared standardized factor loadings to number of items in factor. To provide discriminant validity for constructs in instrument, the AVE values should be greater than the squared correlations. In the lights of these information, construct validity of the MCS and the MMS were stated separately.

5.2.5.1. Validity Analysis of Mentoring Conception Scale. To check the construct validity of the MCS, CFA was done. First of all, assumptions for CFA were checked. The sample size of this study is 141. The ratio of sample size and observed variable is 2.94:1 and the ratio of observed variable and factors is 24:1.

For the normality, the skewness value for the MCS was calculated. Also, Kolmogorov-Smirnov test was conducted. For overall the MCS instrument, the skewness value was -.81, and it is in acceptable range (-1 to 1) (Hair *et al.*, 2014). However, the Kolmogorov-Smirnov test result gave that the value of p is smaller than 0.05 ($p = .00$). Therefore, it is accepted that the data is not normally distributed. It can be seen that most of the data were gathered on the right side of the histogram in Figure 5.1.

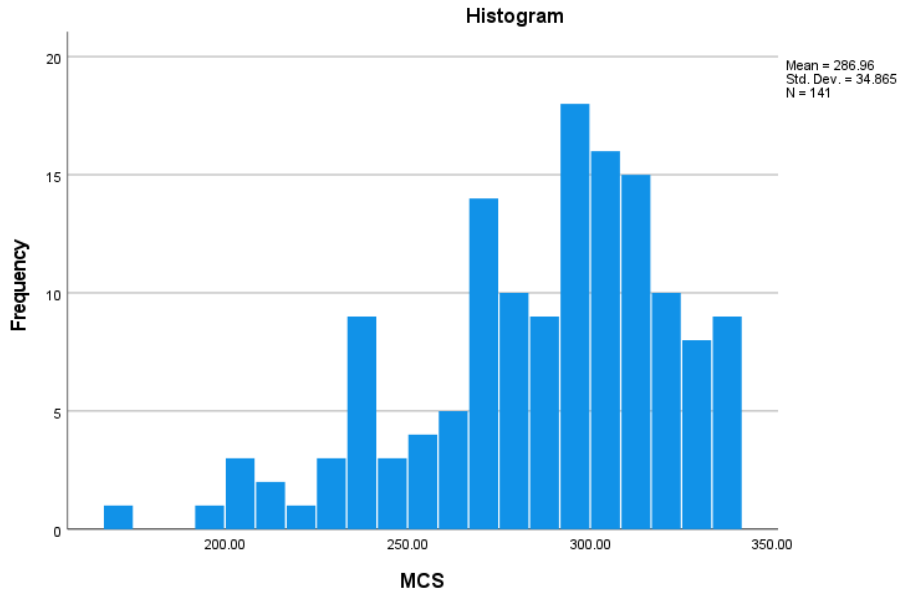

Figure 5.1. The histogram for the MCS.

Since the data were categorical, the CFA was performed to check the construct validity of the MCS by using Mplus 7 by considering the mean and variance- adjusted weighted least squares (WLSMV) estimator. A visual diagram that shows the factor loadings and correlation between the factors was given in Figure 5.2. (Figure 5.2 was divided into two parts because of the fact that there are lots of items in the MCS. Also, the factor loadings in Figure 5.2. are not read because of the number of items. Therefore, the factor loadings were given in Appendix E as a Mplus output).

According to the results of the CFA, the values of chi-square (X^2), the ratio of X^2 and degree of freedom (X^2/df), the Root Mean Squared Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI) and the Weighted Root Mean Residual (WRMR) were given in Table 5.14. The values of X^2, X^2/df, CFI, and TLI are in acceptable for two factor model for mentoring conceptions. However, the values of RMSEA, and WRMR are not in acceptable range, especially the value of WRMR is far from acceptable value. Even if the WRMR value is not in acceptable range, all factor loadings are statistically significant and all of them are higher than 0.5.

Table 5.14. Confirmatory factor analysis of the MCS.

	X^2	*df*	X^2/df	RMSEA	CFI	TLI	WRMR
2-Factor Model	2841.01	1079	2.63	0.11	0.9	0.89	1.945

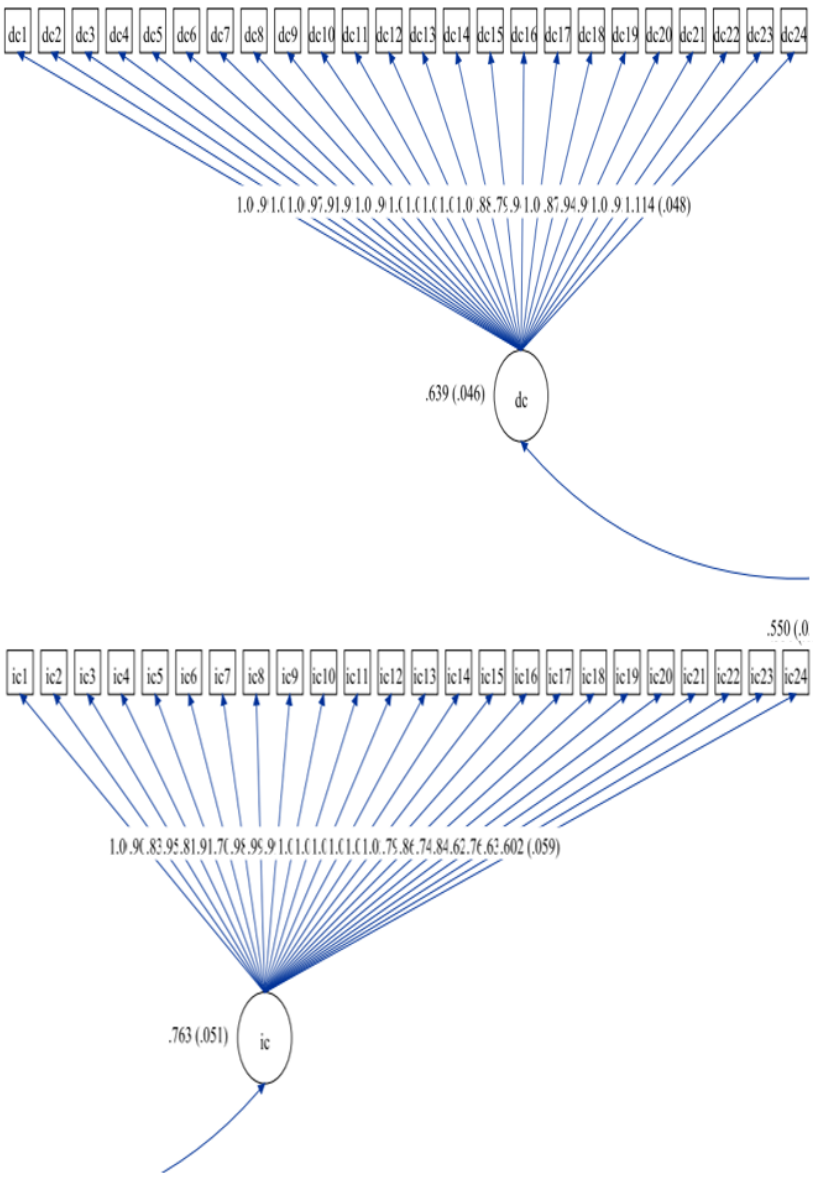

Figure 5.2. Two factor mentoring conception model for the MCS with factor loadings and correlation.

The correlation between two factors were also showed in Figure 5.2 and there was a moderate level correlation between two conception factors. Checking the discriminant validity, the values of average variance extracted (AVE) for two factor were calculated. The AVE estimate for developmental mentoring conception factor is 0.96, and the AVE estimate for instrumental mentoring conception factor is 0.80. The squared correlation of two mentoring conception is 0.30. The AVE estimates are higher than the squared correlation of two mentoring conception factors; therefore, the discriminant validity for the MCS instrument was provided. In other words, each factor under the MCS has unique nature.

The RMSEA and the WRMR model fit indices values for the MCS instrument are barely acceptable in terms of the good and acceptable values for the model fit indices. However, X^2/df, CFI, and TLI values for the MCS instrument are in acceptable range. Also, discriminant validity of factors is high, and each factor loading is higher than 0.5. Additionally, when evaluating the model fit indices, the sample size of this study and item numbers in the instrument should be considered. According to Shi *et al.* (2018), when sample size is low and item number of instrument is high, RMSEA, CFI, and TLI are likely to be biased and tend to give worse model fit than the population values. Due to the small sample size, high item number, the acceptable fit indices values (X^2/df, CFI, TLI) and high discriminant validity and factor loadings, the researcher will proceed to use the MCS to assess mentor teachers' mentoring conceptions in this study.

5.2.5.2. Validity Analysis of Mentoring Motivation Scale. To check the construct validity of the MMS, CFA was done. First of all, assumptions for CFA were checked. The sample size of this study is 141. The ratio of sample size and observed variables is 7.42:1 and the ratio of observed variables and factors is 9.5:1.

For the normality, the skewness value for the MMS was calculated. Also, Kolmogorov-Smirnov test was conducted. For overall the MMS, the skewness value was -.70, and it is in acceptable range (-1 to 1), (Hair et al, 2014). However, the Kolmogorov-Smirnov

test result gave that the value of p is smaller than 0.05 ($p = .00$). Therefore, it is accepted that the data is not normally distributed. It can be seen that most of the data were gathered on the right side of the histogram in Figure 5.3.

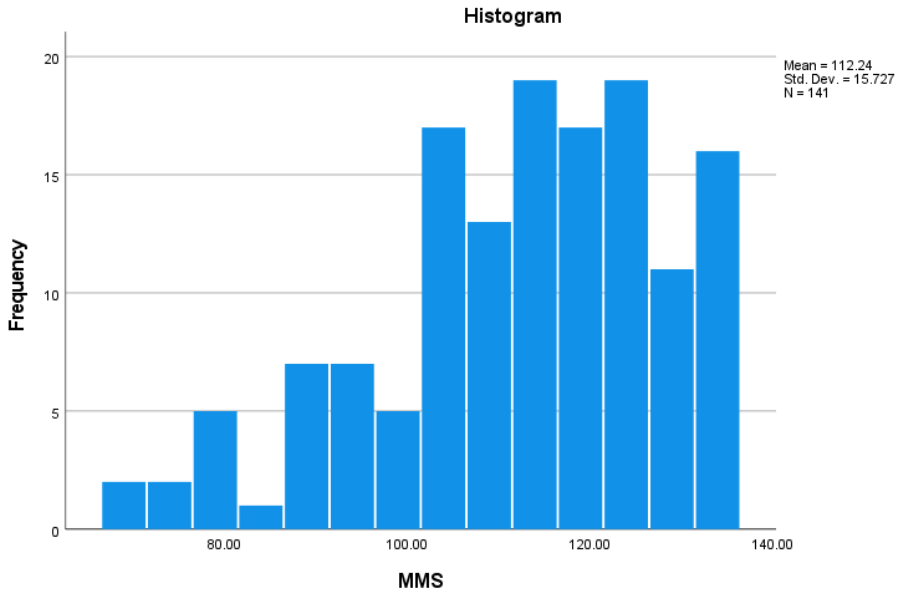

Figure 5.3. The histogram for the MMS.

Since the data were categorical, the CFA was performed to check the construct validity of the MMS by using Mplus 7 by considering the mean and variance- adjusted weighted least squares (WLSMV) estimator. A visual diagram that shows the factor loadings and correlation between the factors was given in Figure 5.3.

According to the results of CFA, the values of chi-square (X^2), the ratio of X^2 and degree of freedom (X^2/df), the Root Mean Squared Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), and the Weighted Root Mean Residual (WRMR) were given in Table 5.15. The values of X^2, X^2/df, CFI, and TLI are in acceptable for two factor model for mentoring motivations. However, the value of WRMR is not in acceptable range. Even if the WRMR value is not in acceptable range, all factor loadings are statistically significant and all of them are higher than 0.5.

Table 5.15. Confirmatory factor analysis of the MMS.

	X^2	df	X^2/df	RMSEA	CFI	TLI	WRMR
2-Factor Model	725.649	151	4.8	0.075	0.922	0.912	1.623

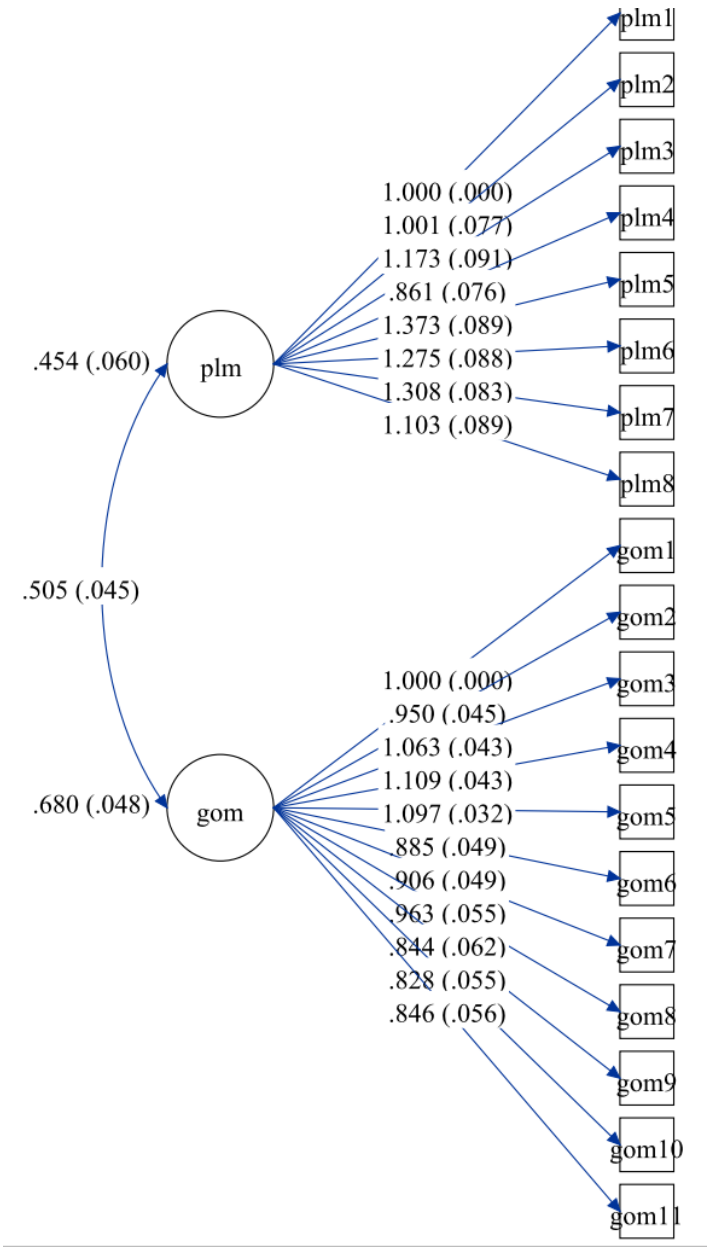

Figure 5.4. Two factor mentoring motivation model for the MMS with factor loadings and correlation.

The correlation between two factors were also given in Figure 5.4 and there was a moderate level correlation between two motivation factors. Checking the discriminant validity, the values of average variance extracted (AVE) for two factor were calculated. The AVE estimate for personal learning motives factor is 1.32, and the AVE estimate for generative outcome motives factor is 0.92. The squared correlation of two mentoring motivation is 0.26. The AVE estimates are higher than the squared correlation of two mentoring motivation factors; therefore, the discriminant validity for the MCS instrument was provided. In other words, each factor under the MMS has unique nature.

Due to the fact that the item number of the MMS is lower than the MCS, the model fit indices values are more acceptable than for the values of the MCS. The WRMR model fit indices value for the MMS instrument is just barely acceptable in terms of the good and acceptable values for the model fit indices. However, X^2/df, RMSEA, CFI, and TLI values for the MMS instrument are in acceptable range. Also, discriminant validity of factors is high, and each factor loading is higher than 0.5. Although the number of item in the MMS is not as high as the number of item in the MCS, the ratio of sample size and item number for the MMS is still little low. Therefore, when evaluating the model fit indices, the sample size of this study and item numbers in the instrument should be considered. According to Shi *et al.* (2018), when sample size is low and item number of instrument is high, RMSEA, CFI, and TLI are likely to be biased and tend to give worse model fit than the population values. Due to the small sample size, the acceptable fit indices values (CFI, TLI, RMSEA) and high discriminant validity and factor loadings, the researcher will proceed to use the MMS to assess mentor teachers' mentoring motivations in this study.

5.3. Data Collection

The instruments Demographic Survey, the MCS, and the MMS were administered to participants in 2021 fall term. The data were collected from mentor teachers at a single point. Each instrument was arrived to mentor teacher at the same time because

all instruments were in one link. The data collection process continued along 2021 fall semester and mentor teacher participated the study at different time.

According to the list of practicum schools obtained from the Istanbul Directorate of National Education, the researcher contacted with the practicum schools to reach mentor teachers up. For most of the practicum schools, the researcher went to schools and informed the school principals about the aim of the current study. Because of the Covid-19, most of the school principals did not allow the researcher to have a talk with mentor teachers personally and they wanted the researcher to send the link of instruments to themselves and they shared with mentor teachers. In total 141 mentor teachers volunteered to participate the study in Istanbul.

Survey links were prepared and distributed by using Google Forms. Google Forms were preferred to collect data because the usage of it is common in Turkey, and it is also free. All instruments were conducted online by sharing one link for each mentor teacher. In total, the researcher prepared three different forms for three groups of mentor teachers in order to prevent the possibility of overload to Google Forms. The first form was for high school mentor teachers whose subject areas are Mathematics, Physics, Chemistry, and Biology. The second form was prepared for mentor teachers whose subject areas are English, Turkish, Social sciences, Science, and Mathematics at middle school. The third form was for mentor teachers whose subject areas are English, History, and Geography at high school level. At the beginning of the survey, there was an informed consent to inform mentor teachers about the study and to get their permission about participating the study. After they approved the informed consent, the items in survey came in sight to mentor teachers.

5.4. Data Analysis

The process of analyzing data obtained from Demographic Survey, the MCS, and the MMS was carried out based on the research questions. There are two parts of data analysis. At the first part of analysis, the reliability and validity analyses of the

instruments MCS and MMS were conducted by using the Confirmatory Factor Analysis (CFA). The CFA was performed by using Mplus 7 (Muthén & Muthén, 1998-2017).

Secondly, associated with the research questions, appropriate statistical analyses were done. To decide an appropriate statistical analyses, the normality of data for each factor was checked. The skewness values were -1.34, -0.58, -1.13, and -0.80 for developmental mentoring conception factor, instrumental mentoring conception factor, personal learning motive factor, and generative outcome motive factor, respectively. Even if the skewness values of instrumental mentoring conception and generative outcome motives factors are in acceptable range for normal distribution (-1 to 1), according to the results of Kolmogorov-Smirnov test, data on each factor were not normally distributed. Therefore, non-parametric alternatives of statistical analysis methods were used for each research question. Every statistical analyses except CFA were done by using Statistical Package for the Social Sciences (SPSS) Statistics for Windows, Version 27.0.

For the RQ1 and the RQ3, descriptive statistics (mean, median, standard deviation, and maximum and minimum scores) were calculated for each mentoring conception and motivation factor.

The RQ2 aims to compare mentor teachers' conception factors, developmental mentoring conception, and instrumental mentoring conception. In the same manner, the RQ4 aims to compare mentor teachers' motivation factors, personal learning motives and generative outcome motives. Because of that the data were not normally distributed, for the analysis of the RQ2 and the RQ4, non-parametric alternative of Paired-Sample t test that is Wilcoxon Signed Rank Test was used.

For the RQ5, correlation coefficients were calculated to explain the relationship between mentor teachers' conception factors and motivation factors. Because of that the data were not normally distributed, Spearman rho correlation coefficients were calculated between these factors; developmental mentoring conception and personal

learning motives, developmental mentoring conception and generative outcome motives, instrumental mentoring conception and personal learning motives, and instrumental mentoring conception and generative outcome motives.

The RQ6 and the RQ7 aim to compare mentor teachers' conception factors (developmental and instrumental mentoring conception) and motivation factors (personal learning motives and generative outcome motives) in terms of subject area groups, the years of mentoring experience groups, school level (middle and high school) and school type (private and public school), respectively. Because of that the data were not normally distributed, non- parametric statistical methods, Kruskal Wallis test and Mann-Whitney U test were used. To compare conception and motivation factors in terms of variables that have two categories, school levels and school types, a Mann-Whitney U test was used. For the variables that have more than two categories, subject area groups and the years of mentoring experience groups, a Kruskal Wallis test was used.

6. RESULTS

In the result section, the findings of this study were presented as three parts. The first part is about the descriptive statistics (mean, standard deviation, minimum, and maximum scores) of conception and motivation factors, separately. Also, in the first part, mentor teachers' conception and motivation factors were compared to determine if there is a significant difference between the mean of mentor teachers' conception and motivation factors. The second part of results includes correlation coefficients between conception factors (developmental and instrumental mentoring conception) and motivation factors (personal learning and generative outcome motives). In the third part of results, comparative statistics results (comparing both conception and motivation factors in terms of subject area groups, mentoring experience groups, school levels, and school types) were given.

6.1. Mentor Teachers' Conception and Motivation Factors

The current study mainly aims to describe the secondary school mentor teachers' mentoring conceptions and mentoring motivations about their mentoring process. Therefore, the Mentoring Conception Scale (MCS) and the Mentoring Motivation Scale (MMS) were used to collect data from mentor teachers. The MCS and the MMS have two factors to define mentor teachers' mentoring conceptions and motivations. Therefore, the mean, standard deviation, and minimum and maximum scores were calculated in terms of each conception and motivation factor, separately. First of all, the descriptive statistics of conception factors were given, and the comparison results of these two conception factors were also stated. Then, the descriptive statistics about motivation factors were served, and the comparison results of these two motivation factors were stated.

6.1.1. Mentoring Conception Factors

One of the conception factors of the MCS is developmental mentoring conception and to describe mentor teachers' developmental mentoring conception, 141 participated mentor teachers completed 24 items. The mean, standard deviation, minimum and maximum scores were calculated regarding 141 mentor teachers' developmental mentoring conception scores (*M = 150.9, SD = 15.95*). The maximum score of this factor is 168 points. The calculated maximum developmental mentoring conception score of participants mentor teachers was 168 and the calculated minimum score was 87. The distribution of mentor teachers' developmental mentoring conception scores was presented in Figure 6.1.

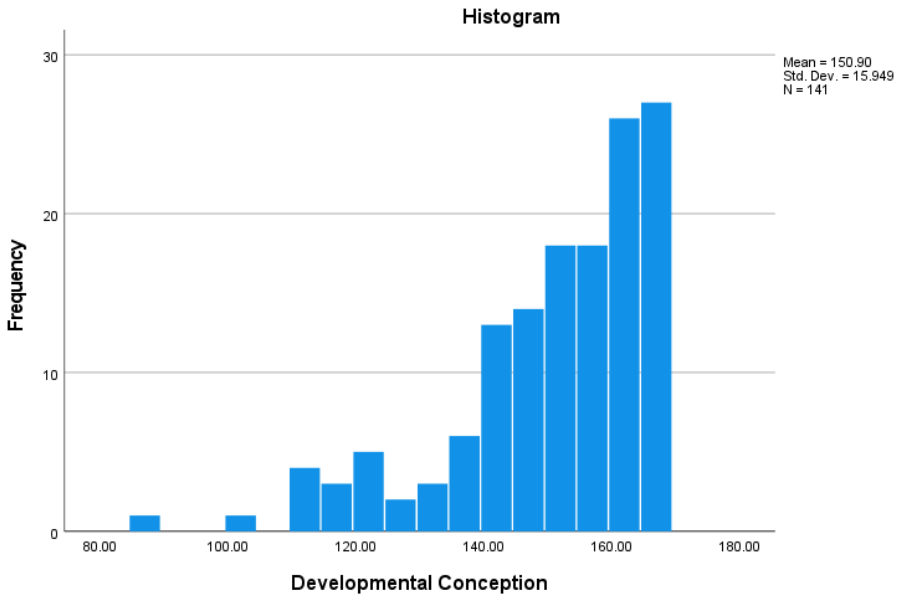

Figure 6.1. Distribution of developmental mentoring conception scores.

The other factor under mentoring conception is an instrumental mentoring conception. There are 24 items in the MCS in order to describe mentor teachers' instrumental mentoring conception. The mean, standard deviation, minimum and maximum scores were calculated in terms of 141 mentor teachers' instrumental mentoring conception scores (*M=136.1, SD=21.87*). The maximum instrumental mentoring conception

score that participant mentor teachers may get from scale is 168. The calculated maximum score was 168 and the calculated minimum score was 78. The distribution of mentor teachers' instrumental mentoring conception scores was illustrated in Figure 6.2.

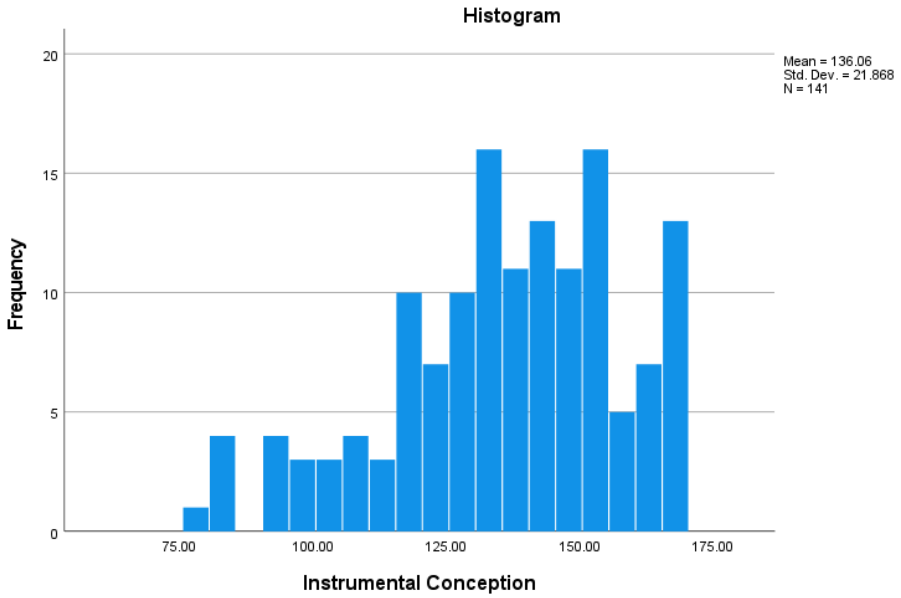

Figure 6.2. Distribution of instrumental mentoring conception scores.

6.1.2. Comparing Conception Factors

After the giving descriptive statistics about mentor teachers' conception factor scores, the significancy of differences between mean scale scores for mentoring conceptions was checked, respectively. Due to the fact that mentor teachers mentoring conception scores were not normally distributed, non-parametric statistical testing alternative of Paired-Samples t Test which is Wilcoxon Signed-Rank Test was used. A Wilcoxon Signed-Rank Test is a statistical method to use to investigate a difference of two sets of scores that comes from the same sample. Due to the fact that motivation factors do not have the same number of items; for both conception and motivation factors, the mean scores out of seven were calculated. The descriptive statistics based

on mean scores of conception factors were given in Table 6.1.

Table 6.1. Descriptive statistics for conception factors.

	Mean	SD	Min.	Max.
Developmental Mentoring Conception	6.29	0.66	3.63	7.00
Instrumental Mentoring Conception	5.67	0.91	3.25	7.00

A Wilcoxon Signed-Rank Test results showed that there was statistically significant difference among mentor teachers' conception factors (*z=-9.02, p< .001*), with a large effect size (*r=0.54*) (Cohen, 1988). Mentor teachers reported stronger agreement with a developmental mentoring conception (*M=6.29, SD=0.66*) than with an instrumental mentoring conception (*M=5.67, SD=0.91*).

6.1.3. Mentoring Motivation Factors

The MMS was given the participant mentor teachers to describe their mentoring motives. The MMS has two factors to define mentoring motives. One of them is mentoring personal learning motive. There are eight items at the MMS to measure mentor teachers' personal learning motives scores. The mean, standard deviation, minimum and maximum scores were calculated in terms of 141 mentor teachers' personal learning motives scores (M=47.6, SD=7.14). The maximum personal learning motives score is 56 and there were the participant mentor teachers who get the maximum score. The minimum calculated score was 17. The distribution of mentor teachers' personal learning motive scores was presented in Figure 6.3.

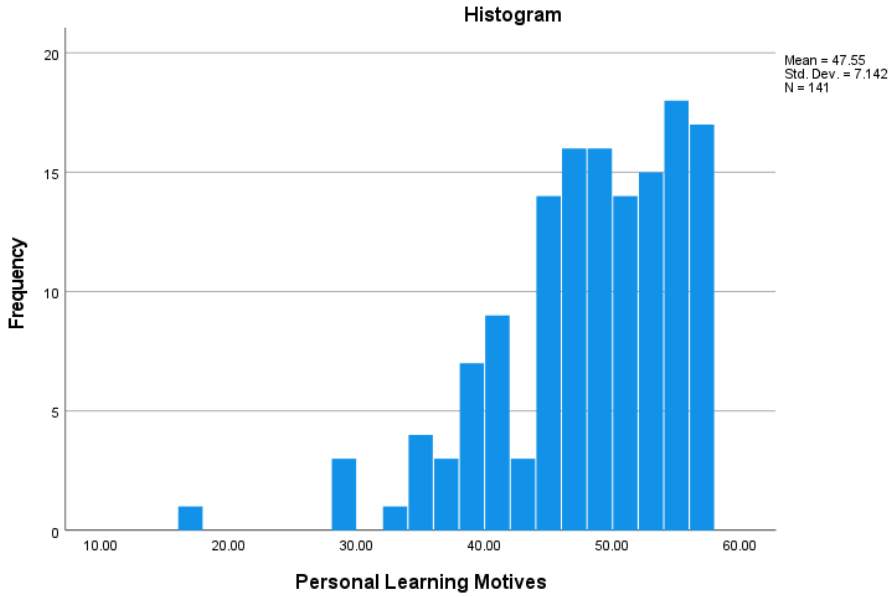

Figure 6.3. Distribution of personal learning motive scores.

The other mentor teachers' mentoring motives under the MMS is generative outcome motives and there are 11 items to calculate the participant mentors' generative outcome motives scores. The mean, standard deviation, maximum and minimum scores were calculated regarding to 141 mentor teachers scores (M=64.7, SD=9.83). The maximum score of generative outcome motives that mentor teachers may get is 77 and some mentor teacher got the maximum score. The calculated minimum generative outcome motives score is 37. The distribution of participant mentor teachers' generative outcome motives scores was illustrated in Figure 6.4.

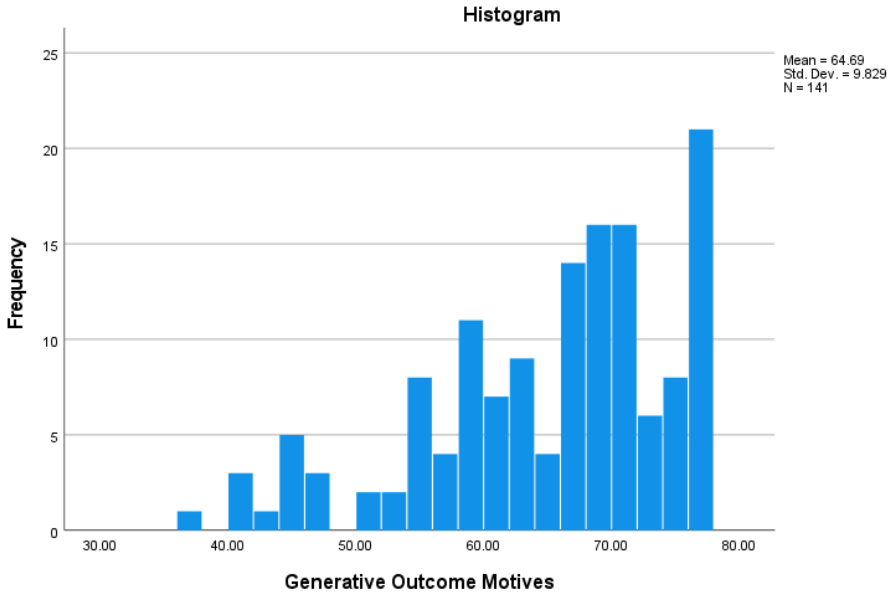

Figure 6.4. Distribution of generative outcome motive scores.

6.1.4. Comparing Motivation Factors

As with conception factors, the significancy of differences between mean scale scores for mentoring motivation factors was checked, respectively. Due to the fact that mentor teachers mentoring motivation scores were not normally distributed, non-parametric statistical testing alternative of Paired-Samples t Test which is Wilcoxon Signed-Rank Test was used. The descriptive statistics based on mean scores of motivation factors were given in Table 6.2.

Table 6.2. Descriptive statistics for motivation factors.

	Mean	SD	Min.	Max.
Personal learning motives	5.94	0.89	2.13	7.00
Generative outcome motives	5.88	0.89	3.36	7.00

A Wilcoxon Signed-Rank Test results revealed that there was no statistically significant difference among mentor teachers' motivation factors (*z=-1.28, p=0.22*). Mentor teachers reported almost equal agreement on a personal learning motive (*M=5.94, SD=0.89*) and a generative outcome motive (*M=5.88, SD=0.89*).

6.2. Relationship between Mentoring Conception and Motivation Factors

This part of the study aims to explain the relationship between mentor teachers' conception factors and motivation factors. Therefore, correlation analysis was chosen to decide whether there is statistically significant relationship between motivation factors and conception factors and how strong these relationships. Correlation is a statistical method that is used to detect the relationship between two variables that they share common variance and what the degree and direction of this relationship (Creswell, 2012). If the data is distributed normally, Pearson r correlation coefficient is used to describe and measure the relationship between two variables. However, if data was not normally distributed, Spearman rho correlation coefficient which is a non-parametric alternative of Pearson r correlation coefficient, is used (Creswell, 2012). The value of r coefficient ranges from -1.00 to 1.00 and the degree of the relationship is decided by looking at the value of r coefficient. According to Guilford (1956), the rule of thumb for interpreting the degree of correlation coefficient was given in Table 6.3. Also, the direction of the relationship is decided by looking at the sign of the coefficient. If the sign of r coefficient is negative, then there is an opposite relationship between two variables and if the sign of r coefficient is positive, then there is the same-way relationship between two variables.

Table 6.3. The rule of thumb for interpreting the degree of r coefficient.

Interval	The degree of correlation
0.91 to 1.00	Very High
0.71 to 0.90	High
0.41 to 0.70	Moderate
0.21 to 0.40	Low
0.20 and below	Very Low
The same guidelines apply for negative values of r.	

In this study, the data was not normally distributed; therefore, Spearman rho correlation coefficient was used to conduct correlation analysis. The correlation coefficients between conception factors and motivation factors were presented in Table 6.4.

Table 6.4. The correlation coefficient between conception and motivation factors.

	Developmental Mentoring Conception	Instrumental Mentoring Conception
Personal Learning Motives	0.70**	0.54**
Generative Outcome Motives	0.63**	0.68**
**p < 0.001		

As seen from Table 6.4, all relationship between conception factors and motivation factors were statistically significant. The correlation between a developmental mentoring conception and personal learning motives was a moderate and positive (*r=0.70, p< .001*), with high level of developmental mentoring conception associated with high level of personal learning motives. Also, there was a moderate, positive correlation between a developmental mentoring conception and generative outcome motives (*r=0.63, p< .001*). When mentor teachers have high developmental mentoring conception score, they also tend to have high generative outcome motives scores. However, the strength of relationship between developmental mentoring conception and personal learning motives is bigger than the strength of relationship between developmental mentoring

conception and generative outcome motives.

The correlation between an instrumental mentoring conception and personal learning motives was a moderate and positive ($r=0.54,\ p< .001$), with high level of instrumental mentoring conception associated with high levels of generative outcome motive. Also, there was a moderate and positive correlation between an instrumental mentoring conception and generative outcome motive ($r=0.68,\ p< .001$). However, the strength of relationship between instrumental mentoring conception and personal learning motives is smaller than the strength of relationship between instrumental mentoring conception and generative outcome motives.

Even if there are positive and moderate relationship between mentoring conception and mentoring motivation factors, mentoring motivations remained incapable to explain mentoring conception factors. Therefore, mentoring conception factors were examined to see whether there is difference or not in terms of demographic variables, subject area groups, mentoring experience groups, school level (middle and high school), and school type (private and public school).

6.3. Mentor Teachers' Conception Differences according to Demographic Information

This part of the results aims to examine whether there is a statistically significant difference in conception factors in terms of subject area groups, mentoring experience groups, school level (middle and high school), and school type (private and public school), respectively. Since mentor teachers' conception factors scores were not normally distributed, their conception scores were compared according to demographic information by using nonparametric statistical testing methods which are Mann-Whitney U test and Kruskal Wallis test. A Mann-Whitney U test is the nonparametric alternative to Independent Sample t-test, and it allows to compare to the participants' scores for two groups. In this study, school level and school type have two categories; therefore, a Mann-Whitney U test was used to compare conception factors in terms of these

two categorical variables.

Kruskal Wallis test is a statistical testing method that allows to compare the participants' scores for three or more groups and the parametric alternative of the Kruskal Wallis test is the One-Way Analysis of Variance. In this study, subject area groups and mentoring experience groups have more than two categories; therefore, Kruskal Wallis test was used to compare conception factors in terms of these categorical variables.

Firstly, the comparison results of developmental mentoring conception scores in terms of demographic variables were given. Then the same comparison results for instrumental mentoring conception scores were stated.

6.3.1. Developmental Mentoring Conception

In this part of the study, mentor teachers' developmental mentoring conception scores were compared in terms of subject area groups, mentoring experience groups, school level, and school type by using nonparametric statistical methods, respectively.

6.3.1.1. Comparison according to Subject Area Groups. In this part of the study, participant mentor teachers' developmental mentoring conception scores were compared in terms of subject area groups. The data was collected from nine different subject areas and these subject areas were classified as three groups, Science subjects (Physics-Chemistry-Biology-Science), Mathematics (middle and high school), and Language and Social Science subjects (Turkish-English-History-Geography-Social Science). The descriptive statistics of participant mentor teachers' developmental mentoring conception scores in terms of three subject area groups were stated separately in Table 6.5.

Table 6.5. Descriptive statistics of developmental mentoring conception in terms of subject area groups.

Subject Area Groups	N	Mean	Median	SD	Min.	Max.
Science	44	148.2	152	16.4	102	168
Mathematics	49	148.1	150	16.8	87	168
Language and Social Science	48	156.2	160	13.4	113	168

To compare mentor teachers' developmental mentoring conception scores according to these subject area groups, a Kruskal-Wallis Test was used. A Kruskal-Wallis Test revealed that there is a statistically significant difference with small effect size in mentor teachers' developmental mentoring conception scores across three different subject area groups ((*Gp1, n = 44: Science, Gp2, n = 49: Mathematics, Gp3, n = 48: Language and Social Science*), $X^2(2, n = 141) = 11.41$, $p = .003$, $r = 0.26$).

Even if a Kruskal Wallis Test shows whether there is a statistically significant difference in developmental mentoring conception in terms of subject area groups, it does not state which of the groups are statistically significantly different from one another. Therefore, as a further step, a Post-hoc Mann-Whitney Test using a Bonferroni-adjusted level of 0.017 (0.05/3) was used between pair of groups (Science-Mathematics, Science-Language and Social Science, Mathematics- Language and Social Science).

Also, Error Bar Chart was given to depict the differences between three groups. Error Bar Chart is a visual representation of the variability of the data regarding to confidence intervals (95%) of subject area groups. This chart can be used to support the comparison results of Mann-Whitney U test by comparing the confidence intervals of Science, Mathematics, and Language and Social Science Groups.

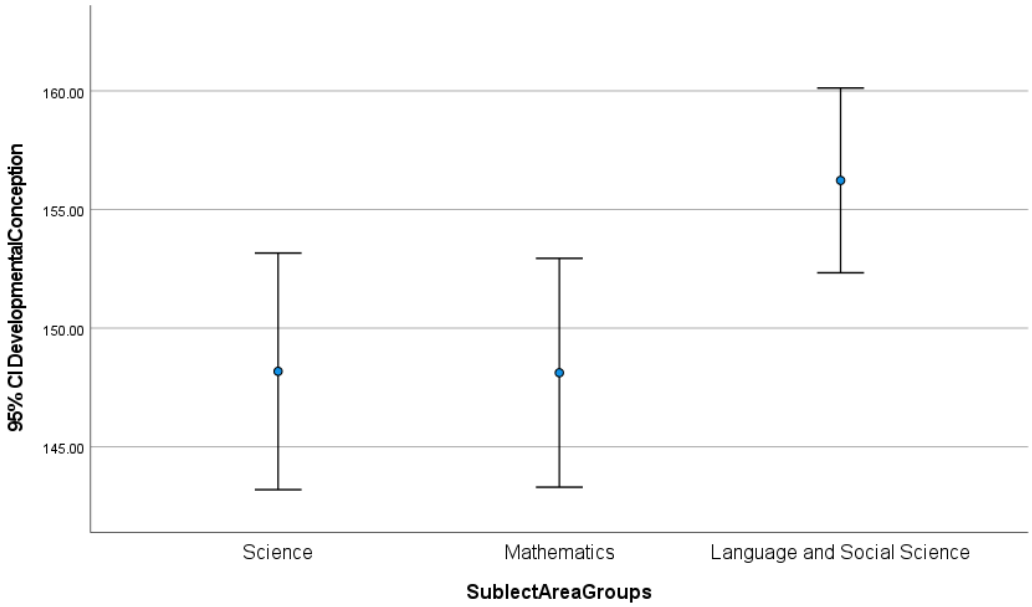

Figure 6.5. Confidence intervals of developmental mentoring conception scores in terms of subject area groups.

A Mann-Whitney *U* Test showed that there is no statistically significant difference in mentor teachers' developmental mentoring conception scores in Science (*Md = 152, n = 44*) and Mathematics (*Md = 150, n= 49*) groups (*U = 1073.5, z = -0.035, p = 0.97*). This result was also supported by the Error Bar Chart in Figure 6.5. The confidence intervals of Science group (95% CI [143.2, 153.2]) and Mathematics group (95% CI [143.3, 152.9]) overlap, therefore, there is no real difference between this participant mentor teachers' developmental mentoring conception scores.

However, according to Mann-Whitney Test results, there is a statistically significant difference with medium effect size in mentor teachers' developmental mentoring conception scores in Science (*Md = 152, n = 44*) and Language and Social Science (*Md = 160, n = 48*) groups (*U = 693, z = -2.84, p = 0.004, r = 0.3*). Mentor teachers whose subject area are in Language and Social Science group have high developmental mentoring conception scores (*Md = 160*) than mentor teachers whose subject area are in Science group (*Md = 152*). The Error Bar Chart in Figure 6.5 also supports the difference between two subject area groups because the confidence intervals for Science

(95% CI [143.2, 153.2]) and Language and Social Science (95% CI [152.3, 160.1] do not overlap.

Lastly, a Mann-Whitney Test showed that there is a statistically significant difference with medium effect size in mentor teachers' developmental mentoring conception scores in Mathematics (*Md = 150, n = 49*) and Language and Social Science (*Md = 160, n = 48*) groups (*U = 763.5, z = -2.98, p = 0.003, r = 0.3*). Mentor teachers whose subject area are in Language and Social Science group (*Md = 160*) have high developmental mentoring conception scores than mentor teachers whose subject area are in Mathematics group (*Md = 150*). The Error Bar Chart in Figure 6.5 also supported that there is a difference between these two subject area groups because the confidence intervals for Mathematics (95% CI [143.3, 152.9]) and Language and Social Science (95% CI [152.3, 160.1]) do not overlap.

6.3.1.2. Comparison according to Mentoring Experience Groups. In this part of the study, participant mentor teachers' developmental mentoring conception scores were compared in terms of the mentoring experience groups. Mentor teachers' years of mentoring experience were classified into 4 groups (0 to 3, 4 to 7, 8 to 11, and 12 and above). The descriptive statistics of developmental mentoring conception scores in terms of mentoring experience groups were stated in Table 6.6.

Table 6.6. Descriptive statistics of developmental mentoring conception in terms of mentoring experience groups.

Mentoring Experience Groups	N	Mean	Median	SD	Min.	Max.
0-3	43	148.8	151	17	102	168
4-7	47	152	158	16.5	87	168
8-11	21	151.7	153	13.2	112	168
12 and above	30	151.7	157.5	15.6	118	168

A Kruskal Wallis Test was used to investigate whether there is a statistically significant difference in mentor teachers' developmental mentoring conception scores in terms of these mentoring experience groups. A Kruskal-Wallis Test revealed that there is no significant difference in mentor teachers' developmental mentoring conceptions scores in terms of four different mentoring experience groups (*Gp1, n = 43: 0-3, Gp2, n = 47: 4-7, Gp3, n = 21: 8-11, Gp4, n=30: 12 and above), $X^2(3, n = 141) = 1.07$, $p = 0.78$*).

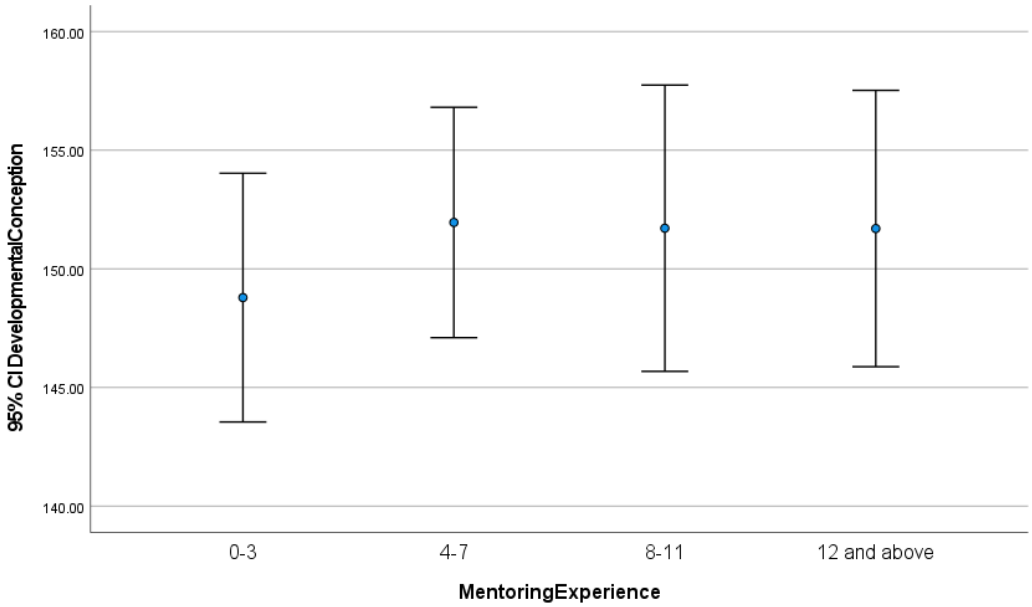

Figure 6.6. Confidence intervals of developmental mentoring conception scores in terms of mentoring experience groups.

Also, the Error Bar Chart was given in Figure 6.6 supports that there was no real difference between mentoring experience groups because the most part of the confidence intervals of each mentoring experience group overlap (95% CI [143.6, 154.0]: 0-3, 95% CI [147.1, 157.0]: 4-7, 95% CI [145.7, 157.7]: 8-11, and 95% CI [145.9, 157.5]: 12 and above).

6.3.1.3. Comparison according to School Level. Mentor teachers' developmental mentoring conception scores were compared in terms of school level of mentor teachers.

There were two different school level, middle school, and high school. Mean, median, standard deviation, number of participants, minimum scores, and maximum scores for each school level were calculated and stated in Table 6.7.

Table 6.7. Descriptive statistics of developmental mentoring conception in terms of school level.

School Level	N	Mean	Median	SD	Min.	Max.
Middle School	62	153.6	159	16.1	87	168
High School	79	148.8	152	15.6	102	168

A Mann-Whitney Test results stated that there is a statistically significant difference with small effect size in mentor teachers' developmental conception scores across school level (*Gp1, n = 62: middle school, Gp2, n = 79: high school; X2(1, n = 141) = -2.353, U = 1883, p = 0.02, r = 0.2*). The mentor teachers who work at middle school recorded a higher median score (*Md = 159.5*) than the mentor teachers who work at high school (*Md = 152*).

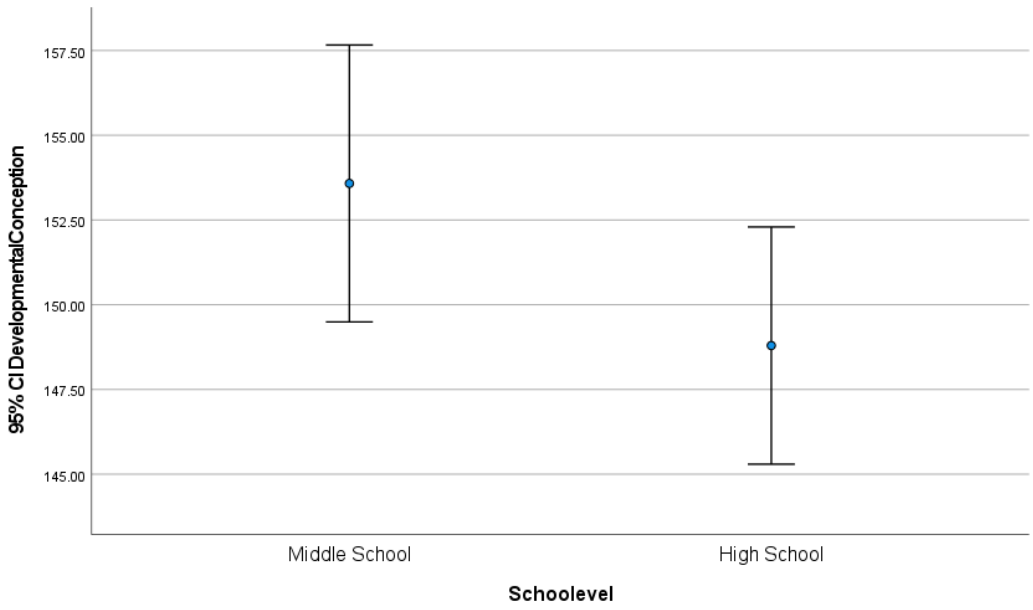

Figure 6.7. Confidence intervals of developmental mentoring conception scores in terms of school level.

According to the Error Bar Chart in Figure 6.7, the result of Mann-Whitney Test was also supported because the confidence intervals for middle school (95% CI [149.5, 157.7]) and high school (95% CI [145.3, 152.3]) do not overlap totally. This means that there was a difference in the participant mentor teachers' developmental mentoring conception scores according to their school level.

6.3.1.4. Comparison according to School Type. Lastly, mentor teachers' developmental mentoring conception scores were compared in terms of school type. There are two types of school that participant mentor teachers work, a private school, and a public school. The descriptive statistics were given in Table 6.8.

Table 6.8. Descriptive statistics of developmental mentoring conception in terms of school type.

School Type	N	Mean	Median	SD	Min.	Max.
Public School	86	151.3	157	16.3	87	168
Private School	55	150.2	152	15.5	102	168

A Mann-Whitney Test was used to investigate whether there is a statistically significant difference in mentor teachers' developmental mentoring conception in terms of school type. According to a Mann-Whitney Test, there is no statistically significant difference in mentor teachers' developmental mentoring conception scores according to their school type (*Gp1, n = 86: public school, Gp2, n = 55: private school; X2(1, n = 141) = -0.613, U = 2220, p = 0.54*).

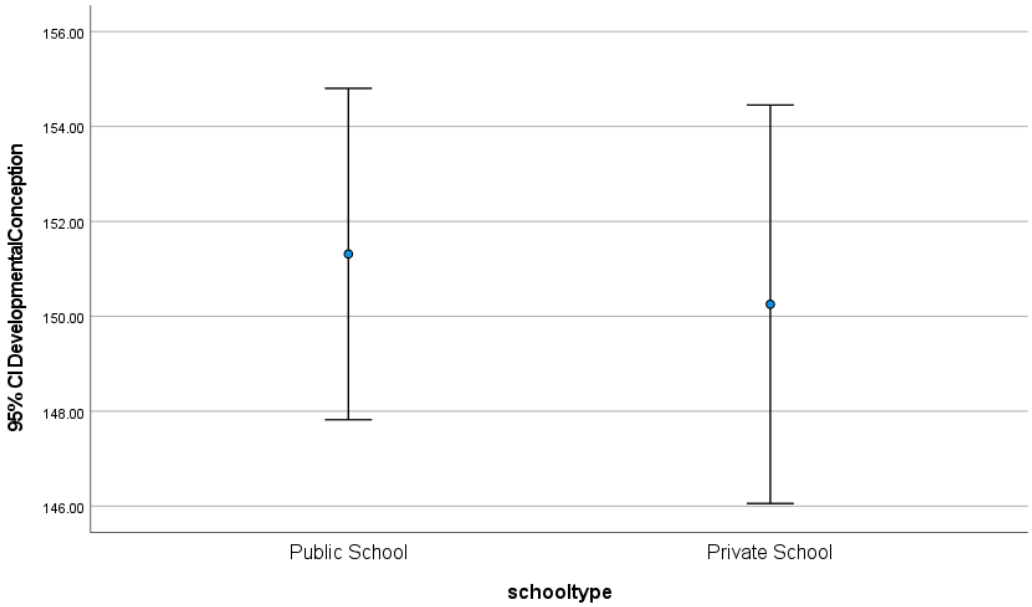

Figure 6.8. Confidence intervals of developmental mentoring conception scores in terms of school type.

The result of Mann-Whitney Test was also supported by the Error Bar Chart in Figure 6.8. The confidence intervals for public school (95% CI [147.8, 154.8]) and private school (95% CI [146.0, 154.4]) overlap, almost wholly. This means that there is no difference in the participant mentor teachers' developmental mentoring conception scores in terms of school type.

6.3.2. Instrumental Mentoring Conception

In this part of the study, instrumental mentoring conception scores were compared in terms of subject area groups, mentoring experience groups, school level, and school type by using nonparametric statistical method, respectively.

6.3.2.1. Comparison according to Subject Area Groups. Mentor teachers' instrumental mentoring conception scores were compared in terms of three subject area groups which are Science, Mathematics, and Language and Social Science by using a Kruskal-Wallis Test. The descriptive statistics of instrumental mentoring conception scores

were presented in Table 6.9.

Table 6.9. Descriptive statistics of instrumental mentoring conception in terms of subject area groups.

Subject Area Groups	N	Mean	Median	SD	Min.	Max.
Science	44	134.5	136.5	23.5	78	168
Mathematics	49	129.8	131.0	21.7	82	168
Language and Social Science	48	143.8	146.0	18.2	93	168

A Kruskal-Wallis Test revealed that there is a statistically significant difference with small effect size in mentor teachers' instrumental mentoring conception scores according to three different subject area groups (*Gp1, n = 44: Science, Gp2, n = 49: Mathematics, Gp3, n = 48: Language and Social Science), X2(2, n = 141) = 9.97, p = 0.007, r = 0.24*).

As a further step, a Post-hoc Mann-Whitney Test using a Bonferroni-adjusted level of 0.017 (0.05/3) was used to state which of the groups are statistically significantly different from one another (Science - Mathematics, Science - Language and Social Science, Mathematics - Language and Social Science).

Also, Error Bar Chart was given to depict the differences between three subject area groups. Error Bar Chart is a visual representation of the variability of the data regarding to confidence intervals (95%) of subject area groups. This chart can be used to support the comparison results of Mann-Whitney U test by comparing the confidence intervals of Science, Mathematics and Language and Social Science Groups.

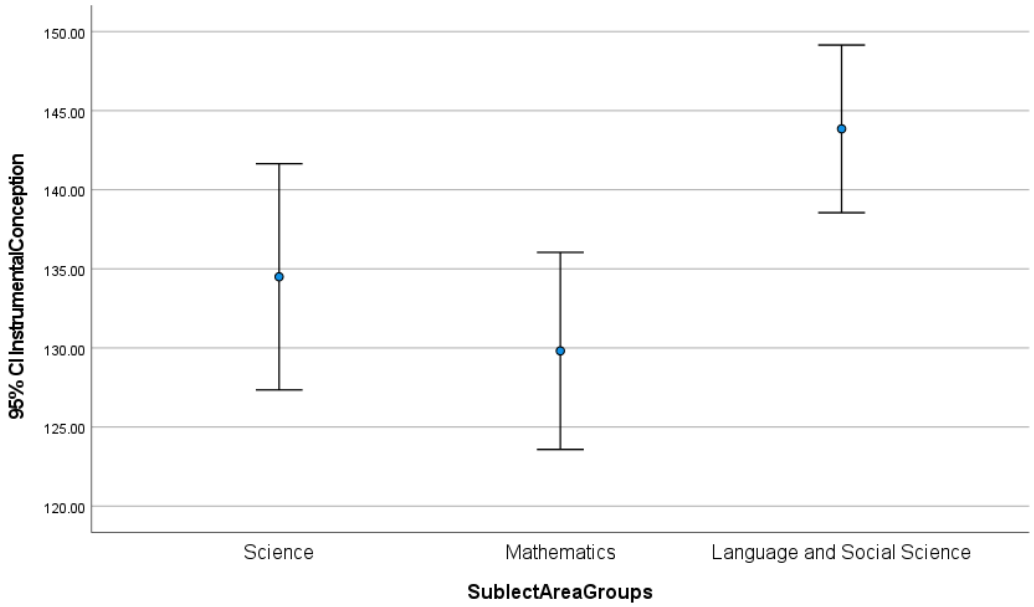

Figure 6.9. Confidence intervals of instrumental mentoring conception scores in terms of subject area groups.

According to a Mann Whitney Test results, there is no statistically significant difference in mentor teachers' instrumental mentoring conception scores in Science (*Md = 136.5, n = 44*) and Mathematics (*Md = 131, n= 49*) groups (*U = 924, z = -1.185, p = 0.24*). According to the Error Bar Chart in Figure 6.9, it can be seen that the most part of the confidence intervals of Science group (95% CI [127.4, 141.6]) and Mathematics group (95% CI [123.6, 136.0]) overlap; this would suggest that there is no real difference between instrumental mentoring conception scores of these two subject area groups.

A Mann Whitney Test showed that there is no statistically significant difference in mentor teachers' instrumental mentoring conception scores in Science (*Md = 136.5, n = 44*) and Language and Social Science (*Md = 146, n= 48*) groups (*U = 822.5, z = -1.828, p = 0.07*). This comparison result is also supported by the Error Bar Chart in Figure 6.9 because there is an overlapping area between the confidence intervals of Science (95% CI [127.4, 141.6]) and Language and Social Science (95% CI [138.5, 149.2].

However, a Mann-Whitney Test revealed that there is a statistically significant difference with medium effect size in mentor teachers' instrumental mentoring conception scores in Mathematics (*Md = 131, n = 49*) and Language and Social Science (*Md = 146, n= 48*) groups (*U = 739.5, z = -3.15, p = .002, r = 0.3*). Mentor teachers whose subject area is in Language and Social Science group (*Md = 146*) have high developmental mentoring conception scores than mentor teachers whose subject area is in Mathematics group (*Md = 131*). The Error Bar Chart in Figure 6.9 also supports that there is a significant difference between mentor teachers' instrumental mentoring conception scores in terms of these two subject area because the confidence intervals of Mathematics (95% CI [123.6, 136.0]) and Language and Social Science (95% CI [138.5, 149.2]) do not overlap.

6.3.2.2. Comparison according to Mentoring Experience Groups. In this part of the study, mentor teachers' instrumental mentoring conception scores were compared in terms of four mentoring experience groups (0 to 3, 4 to7, 8 to 11, and 12 and above) by using a Kruskal-Wallis Test. The descriptive statistics were presented in Table 6.10.

Table 6.10. Descriptive statistics of instrumental mentoring conception in terms of mentoring experience groups.

Mentoring Experience Groups	N	Mean	Median	SD	Min.	Max.
0-3	43	129.8	132.0	23.9	82	168
4-7	47	137.3	139.0	22.8	78	168
8-11	21	141.6	144.0	18.6	104	168
12 and above	30	139.4	136.0	18.1	111	168

A Kruskal-Wallis Test showed that there is no statistically significant difference in mentor teachers' instrumental mentoring conceptions scores according to four different mentoring experience groups (*Gp1, n = 43: 0-3, Gp2, n = 47: 4-7, Gp3, n = 21: 8-11, Gp4, n=30: 12 and above), X2(3, n = 141) = 4.52, p = 0.21*).

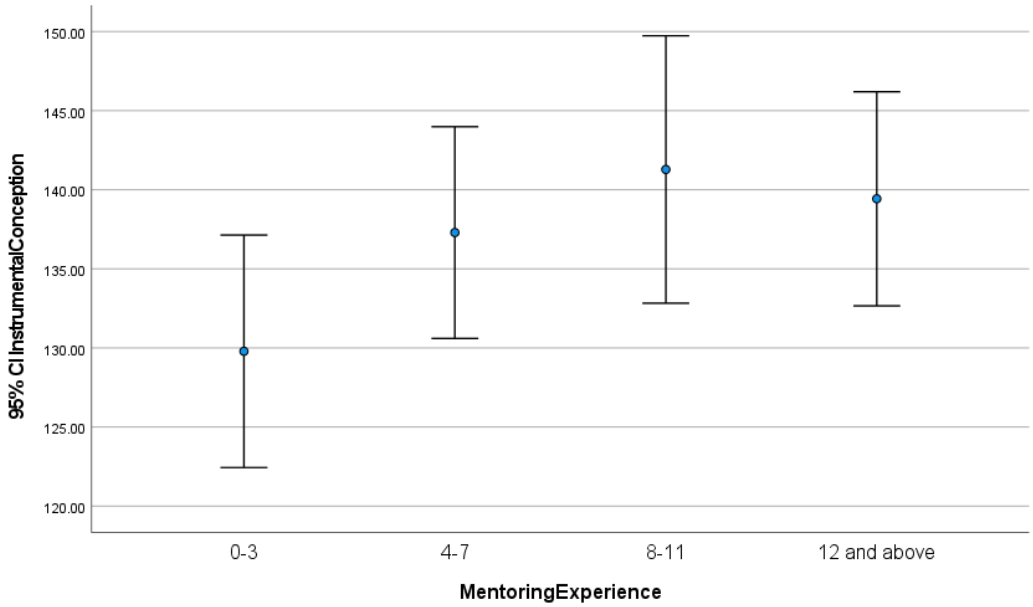

Figure 6.10. Confidence intervals of instrumental mentoring conception scores in terms of mentoring experience groups.

The Error Bar Chart given in Figure 6.6 also supports the comparison result of a Kruskal-Wallis Test. According to this Error Bar Chart, there is no real difference between mentoring experience groups because the most part of the confidence intervals of each mentoring experience group overlap (95% CI [122.4, 137.1]: 0-3, 95% CI [130.6, 144.0]: 4-7, 95% CI [132.8, 149.7]): 8-11, and 95% CI [132.7, 146.2]: 12 and above).

6.3.2.3. Comparison according to School Level. Participant mentor teachers' instrumental mentoring conception scores were compared in terms of two school levels, middle school, and high school by using a Mann-Whitney Test. The descriptive statistics were given separately in terms of school level in Table 6.11.

Table 6.11. Descriptive statistics of instrumental mentoring conception in terms of school level.

School Level	N	Mean	Median	SD	Min.	Max.
Middle School	62	138.2	143	23.3	84	168
High School	79	134.4	135	20.6	78	168

A Mann-Whitney Test showed that there is no statistically significant difference in mentor teachers' instrumental mentoring conception scores according to school levels (*Gp1, n =62: middle school, Gp2, n =79: high school; z = -1.297, U = 2137, p= .195*).

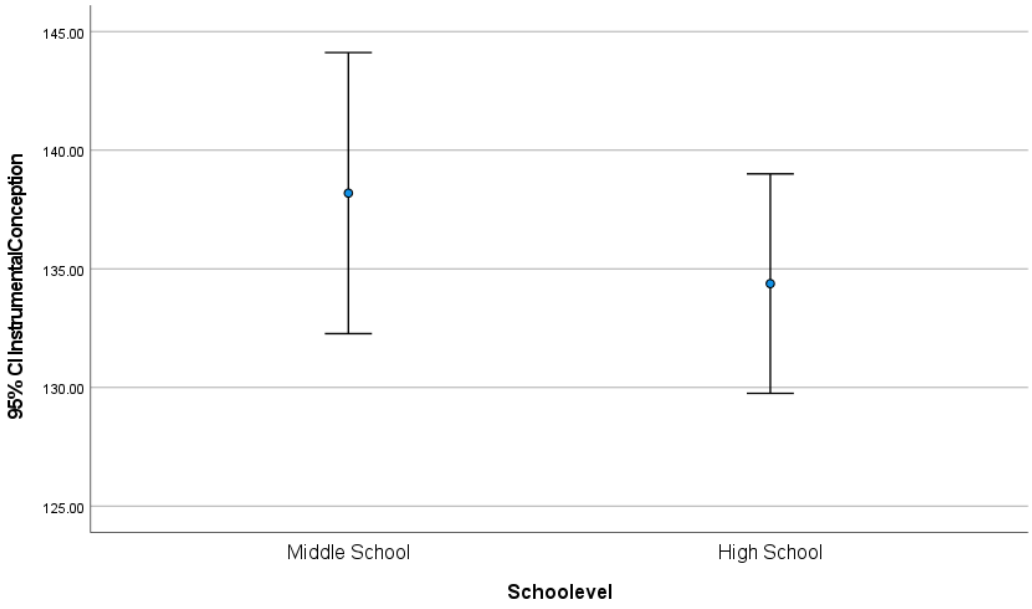

Figure 6.11. Confidence intervals of instrumental mentoring conception scores in terms of school level.

The result of a Mann-Whitney Test is also supported by the Error Bar Chart in Figure 6.11. according to this chart, it can be seen that there is no real difference between mentor teachers' instrumental mentoring conception scores in terms of school level because the most part of the confidence intervals of middle school group (95% CI [132.3, 144.1]) and high school group (95% CI [129.8, 139.0]) overlap.

6.3.2.4. Comparison according to School Type. Participant mentor teachers' instrumental mentoring conception scores were compared in terms of two school type, public school, and private school by using a Mann-Whitney Test. The descriptive statistics were given separately in terms of school level in Table 6.12.

Table 6.12. Descriptive statistics of instrumental mentoring conception in terms of school type.

School Type	N	Mean	Median	SD	Min.	Max.
Public School	86	138.8	141.5	20.2	84	168
Private School	55	131.8	132	23.8	78	168

A Mann Whitney U Test stated that there is no statistically significant difference in mentor teachers' instrumental mentoring conception scores according to school type (*Gp1, n = 86: public school, Gp2, n = 55: private school; z = -1.772, U = 1946, p = 0.076*).

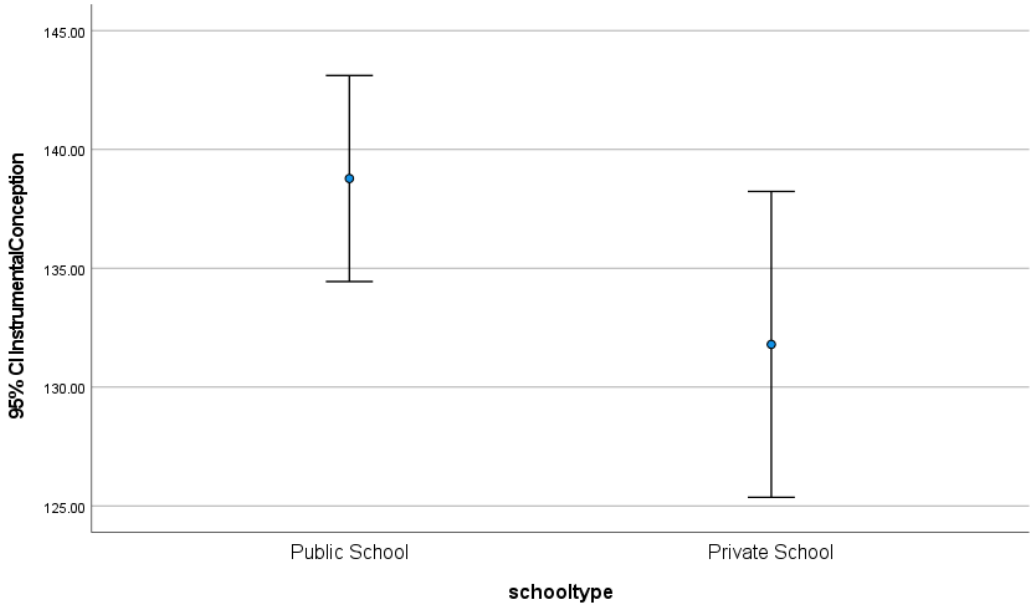

Figure 6.12. Confidence intervals of instrumental mentoring conception scores in terms of school type.

According to the Error Bar Chart in Figure 6.12, there is overlapping area in the confidence intervals of public school group (95% CI [134.4, 143.1]) and private school group (95% CI [125.4, 138.2]). This supports the comparison results of Mann Whitney U Test is that there is no real difference in mentor teachers' instrumental mentoring conception scores in terms of these two groups.

6.4. Mentor Teachers Motivation Differences according to Demographic Information

This part of the results aims to examine whether there is a statistically significant difference in motivation factors in terms of subject area groups, mentoring experience groups, school level (middle and high school), and school type (private and public school), respectively. Since mentor teachers' motivation factors scores were not normally distributed, their motivation scores were compared according to demographic information by using nonparametric statistical testing methods, Mann-Whitney U test and Kruskal Wallis test. School level and school type have two categories; therefore, a Mann-Whitney U test was used to compare motivation factors in terms of these two categorical variables. Subject area groups and mentoring experience groups have more than two categories; therefore, Kruskal Wallis test was used to compare motivation factors in terms of these categorical variables.

Firstly, the comparison results of personal learning motives scores in terms of demographic variables were given. Then, the same comparison results for generative outcome motives scores were stated.

6.4.1. Personal Learning Motives

In this part of the study, mentor teachers' personal learning motives scores were compared in terms of subject area groups, mentoring experience groups, school level, and school type by using nonparametric statistical method, respectively.

6.4.1.1. Comparison according to Subject Area Groups. Mentor teachers' personal learning motive scores were compared to decide whether there is a statistically significant difference in terms of subject area groups by using Kruskal-Wallis Test. The descriptive statistics were presented in Table 6.13.

Table 6.13. Descriptive statistics of personal learning motives in terms of subject area groups.

Subject Area Groups	N	Mean	Median	SD	Min.	Max.
Science	44	45.7	48.0	8.74	17	56
Mathematics	49	46.2	47.0	6.41	29	56
Language and Social Science	48	50.6	52.0	5.06	36	56

According to Kruskal Wallis Test results, there is a statistically significant difference with medium effect size in mentor teachers' personal learning motive scores according to three different subject area groups (*Gp1, n = 44: Science, Gp2, n = 49: Mathematics, Gp3, n = 48: Language and Social Science), X2(2, n = 141) = 13.92, p = .003, r = 0.3*). To decide which group is statistically significantly different from one another, a Post-hoc Mann-Whitney Test using a Bonferroni-adjusted level of 0.017 (0.05/3) was used between pairwise groups (Science - Mathematics, Science - Language and Social Science, Mathematics - Language and Social Science).

Moreover, Error Bar Chart in Figure 6.13 was given to depict the differences between three subject area groups. Error Bar Chart is a visual representation of the variability of the data regarding to confidence intervals (95%) of subject area groups. This chart can be used to support the comparison results of Mann-Whitney U test by comparing the confidence intervals of Science, Mathematics, and Language and Social Science Groups.

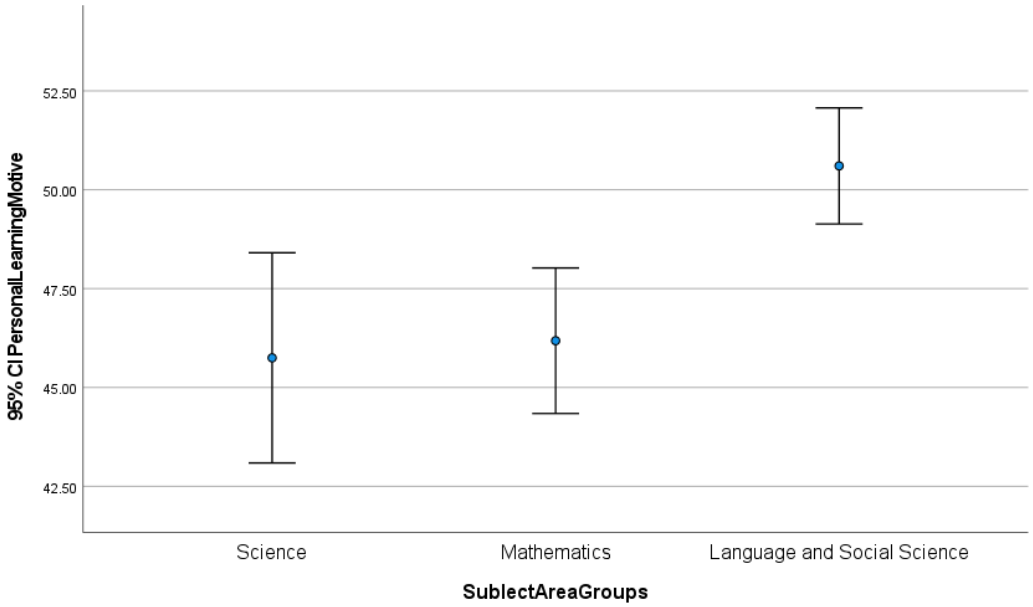

Figure 6.13. Confidence intervals of personal learning motives scores in terms of subject area groups.

A Mann Whitney Test showed that there is no statistically significant difference in mentor teachers' personal learning motive scores in Science (*Md = 48, n = 44*) and Mathematics (*Md = 47, n= 49*) groups (*U = 1052.5, z = -0.197, p = 0.84*). The Chart in Figure 6.13 also supports that there is no difference between the mentor teachers' personal learning motive scores in terms of two subject area groups because the confidence intervals of Science group (95% CI [43.1, 48.4]) and Mathematics group (95% CI [44.3, 48.0]) overlap, totally.

However, there is a statistically significant difference with medium effect size in mentor teachers' personal learning motive scores in Science (*Md = 48, n = 44*) and Language and Social Science (*Md = 52, n= 48*) groups (*U = 704.5, z = -2.757, p = 0.006, r = 0.3*). Mentor teachers whose subject area is in Language and Social Science group (Md = 52) have high personal learning motives scores than mentor teachers whose subject area is in Science (*Md = 48*). The difference between two subject groups can be also seen by looking at the Chart in Figure 6.13. The confidence intervals of Science group (95% CI [43.1, 48.4]) and Language and Social Science group

(95% CI [49.1, 52.1]) do not overlap.

Additionally, there is a statistically significant difference with medium effect size in mentor teachers' personal learning motives scores in Mathematics (*Md = 47, n= 49*) and Language and Social Science (*Md = 52, n= 48*) groups (*U = 679, z = -3.595, p = .00, r = 0.4*). Mentor teachers whose subject area is in Language and Social Science group (*Md = 52*) have high personal learning motives scores than mentor teachers whose subject area is in Mathematics (*Md = 47*). The Chart in Figure 6.13 presents this difference between two groups by comparing their confidence intervals. According to this chart, the confidence intervals of Mathematics group (95% CI [44.3, 48.0]) and Language and Social Science group (95% CI [49.1, 52.1]) do not overlap, this suggests that there is a real difference between two groups in terms of their personal learning motive scores.

6.4.1.2. Comparison according to Mentoring Experience Groups. In this part of the result, mentor teachers' personal learning motives scores were compared according to mentoring experience groups (0-3, 4-7, 8-11, and 12 and above) by using Kruskal Wallis Test. The descriptive statistics were given in Table 6.14.

Table 6.14. Descriptive statistics of personal learning motives in terms of mentoring experience groups.

Mentoring Experience Groups	N	Mean	Median	SD	Min.	Max.
0-3	43	46.8	48	7.55	17	56
4-7	47	48.5	50	6.62	32	56
8-11	21	46.7	47	7.32	28	56
12 and above	30	47.8	49	7.37	29	56

According to the result of Kruskal-Wallis Test, there is no statistically significant difference in mentor teachers' personal learning motive scores according to four different

mentoring experience groups (*Gp1, n = 43: 0-3, Gp2, n = 47: 4-7, Gp3, n = 21: 8-11, Gp4, n=30: 12 and above), X2(3, n = 141) = 1.88, p = 0.599*).

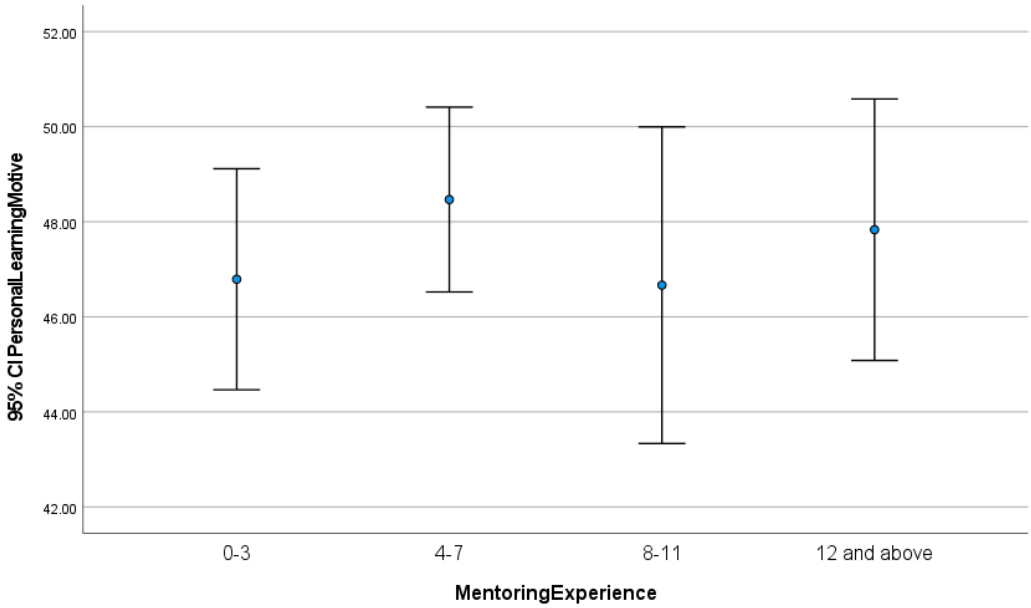

Figure 6.14. Confidence intervals of personal learning motives scores in terms of mentoring experience groups.

To support the result of comparison analysis, the graphical representation of the variability of data was given in Figure 6.14. According to the Chart, there is no difference between four mentoring experience groups because the confidence interval of each group overlaps with each other (95% CI [44.5, 49.1]: 0-3, 95% CI [46.5, 50.4]: 4-7, 95% CI [43.3, 50.0]): 8-11, and 95% CI [45.1, 50.6]: 12 and above).

6.4.1.3. Comparison according to School Level. Also, mentor teachers' personal learning motives score were compared as a function of their school level, middle school, and high school. The mean, median, standard deviation, minimum and maximum scores were given in Table 6.15.

Table 6.15. Descriptive statistics of personal learning motives in terms of school level.

School Type	N	Mean	Median	SD	Min.	Max.
Middle School	62	48.7	50	6.64	29	56
High School	79	46.6	48	7.43	17	56

As a result of comparison analysis, there is no statistically significant difference in mentor teachers' personal learning motive scores in terms of school level (*Gp1, n =62: middle school, Gp2, n =79: high school; z = -1.834, U = 2008.5, p =0.067*).

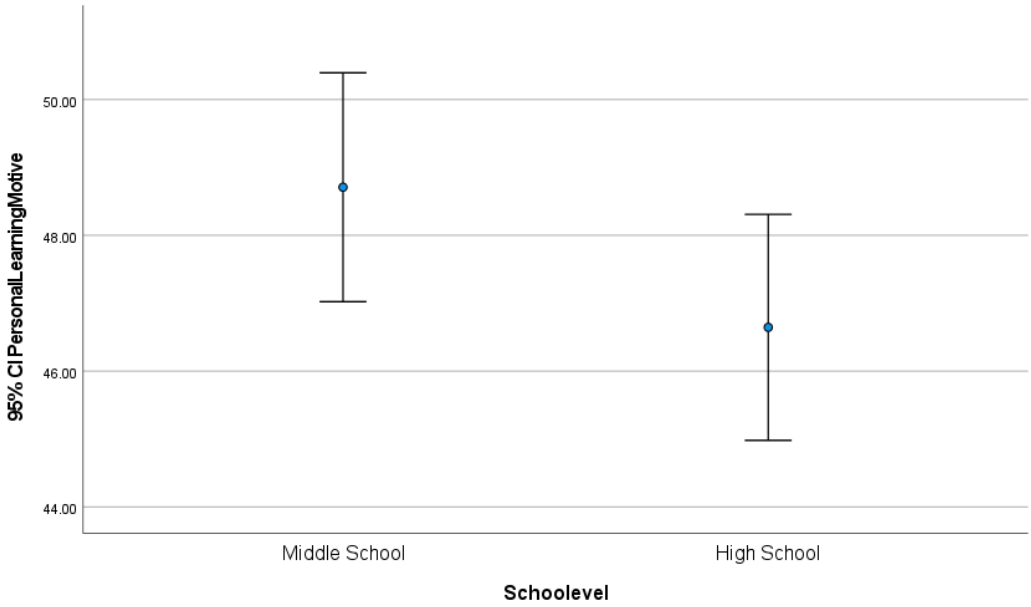

Figure 6.15. Confidence intervals of personal learning motives scores in terms of school level.

The Error Bar Chart was also given in Figure 6.15 in order to support the result of Mann-Whitney U test by comparing the confidence intervals for middle and high school. There is an overlapping area of the confidence intervals of middle school group (95% CI [47.0, 50.4]) and high school group (95% CI [45.0, 48.3]); therefore, there is no real difference in mentor teachers' personal learning motive scores in terms of two school level groups.

6.4.1.4. Comparison according to School Type. Lastly, mentor teachers' personal learning motives scores were compared in terms of school type, private school, and public school. The descriptive statistics were presented in Table 6.16.

Table 6.16. Descriptive statistics of personal learning motives in terms of school type.

School Type	N	Mean	Median	SD	Min.	Max.
Public School	86	48.1	49.5	19.3	17	56
Private School	55	46.7	47	13.4	29	56

A Mann Whitney U Test showed that there is no statistically significant difference in mentor teachers' personal learning motive scores according to school type (*Gp1, n = 86: public school, Gp2, n = 55: private school; z = -1.209, U = 2079.5, p =0.227*).

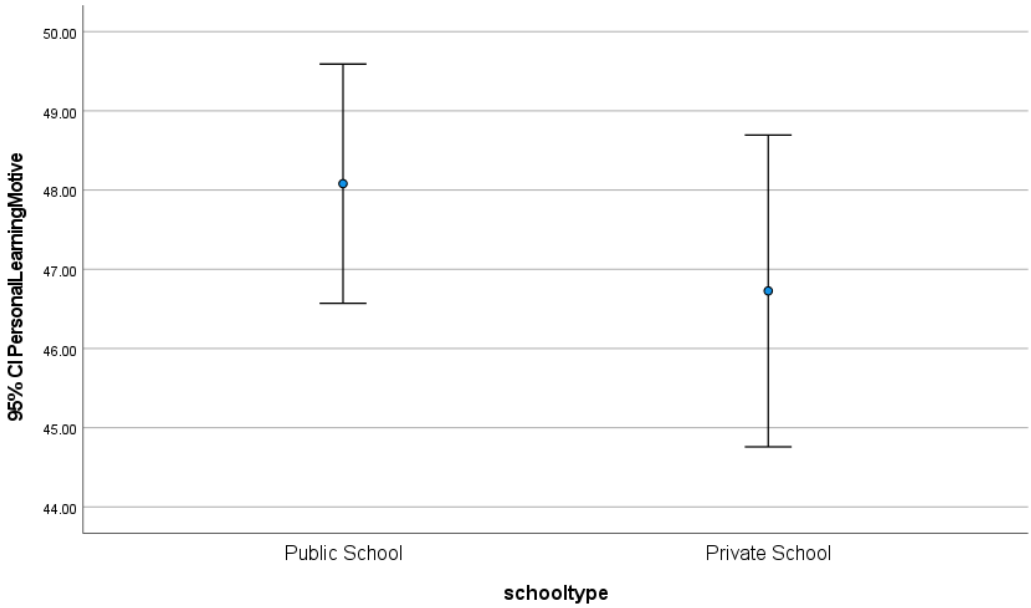

Figure 6.16. Confidence intervals of personal learning motives scores in terms of school type.

In Figure 6.16, the Error Bar Chart was given to support the result of Mann Whitney U Test. According to this chart, there is a substantial overlapping between the confidence intervals of public school group (95% CI [46.6, 49.6]) and private school

group (95% CI [44.8, 48.7]); therefore, there is no real difference in mentor teachers' personal learning motive scores in terms of school type.

6.4.2. Generative Outcome Motives

In this part of the study, generative outcome motives scores were compared in terms of subject area groups, mentoring experience groups, school level, and school type by using nonparametric statistical methods, respectively.

6.4.2.1. Comparison according to Subject Area Groups. Mentor teachers' generative outcome motives scores were compared by using a Kruskal-Wallis Test to decide whether there is statistically significant difference between three subject area groups, Science, Mathematics, and Language and Social Science. The descriptive statistics about generative outcome motives scores were presented in Table 6.17.

Table 6.17. Descriptive statistics of generative outcome motives in terms of subject area groups.

Subject Area Groups	N	Mean	Median	SD	Min.	Max.
Science	44	62.5	65.5	11.4	40	77
Mathematics	49	63.0	63.0	9.08	37	77
Language and Social Science	48	68.4	68.5	7.93	45	77

As a result of Kruskal-Wallis Test, there is a statistically significant difference with small effect size in mentor teachers' generative outcome scores in terms of subject area groups (*Gp1, n = 44: Science, Gp2, n = 49: Mathematics, Gp3, n = 48: Language and Social Science), X2(2, n = 141) = 9.61, p = 0.008, r = 0.23*).

Even if the result of Kruskal- Wallis test states that there is a statistically significant difference between three subject area groups, it does not give information about which of subject area groups are different from one another. Therefore, a Post-hoc Mann-Whitney Test using a Bonferroni-adjusted level of 0.017 (0.05/3) was used to compare subject area groups as a pairwise (Science - Mathematics, Science - Language and Social Science, Mathematics - Language and Social Science).

Moreover, Error Bar Chart in Figure 6.17 was given to present the differences between three subject area groups. Error Bar Chart is a visual representation of the variability of the data regarding to confidence intervals (95%) of subject area groups. This chart can be used to support the comparison results of Mann-Whitney U test by comparing the confidence intervals of Science, Mathematics and Language and Social Science Groups.

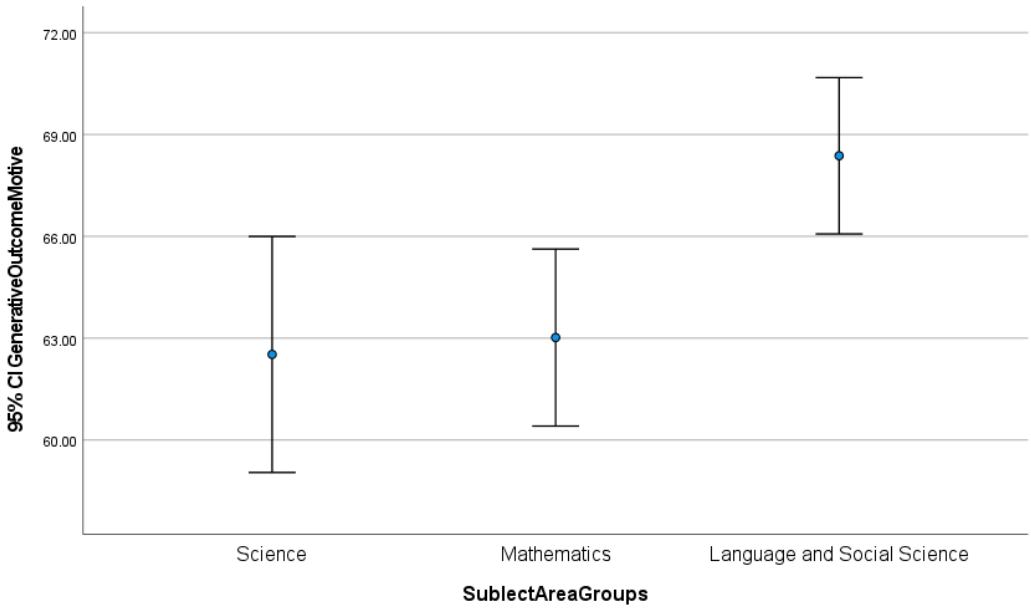

Figure 6.17. Confidence intervals of generative outcome motives scores in terms of subject area groups.

Mann Whitney U test showed that there is no statistically significant difference in mentor teachers' generative outcome motives scores in Science ($Md = 65.5$, $n = 44$)

and Mathematics (*Md = 63.0, n = 49*) groups (*U = 1042.5, z = -0.274, p = 0.784*). The Error Bar Chart in Figure 6.17 also supports the result of Mann-Whitney U test. According to this Chart, the confidence intervals of Science group (95% CI [59.0, 66.0]) and Mathematics group (95% CI [60.4, 65.6]) overlap totally, this would support that there is no real difference in mentor teachers' generative outcome motives scores in terms of two subject area groups.

However, based on the result of Mann Whitney U test, there is a statistically significant difference with small effect size in mentor teachers generative outcome motives scores in Science (*Md = 65.5, n = 44*) and Language and Social Science (*Md = 68.5, n = 48*) groups (*U = 755.5, z = -2.36, p =0.018, r =0.2*). Mentor teachers whose subject area are in Language and Social Science group have high generative outcome motives scores (*Md = 68.5*) than mentor teachers whose subject area are in Science group (*Md = 65.5*). The difference in mentor teachers' generative outcome motives scores between Science and Language and Social Science groups can be also seen in the Error Bar Chart in Figure 6.17. The confidence intervals of Science group (95% CI [59.0, 66.0]) and Language and Social Science group (95% CI [66.1, 70.7]) do not overlap.

Lastly, Mann Whitney U test showed that there is a statistically significant difference with small effect size in mentor teachers generative outcome motive scores in Mathematics (*Md = 63.0, n = 49*) and Language and Social Science (*Md = 68.5, n = 48*) groups (*U = 770.0, z = -2.94, p =0.003, r =0.25*). Mentor teachers whose subject area are in Language and Social Science group have high generative outcome motives scores (*Md = 68.5*) than mentor teachers whose subject area are in Mathematics group (*Md = 63*). According to the Error Bar Chart in Figure 6.17, the confidence intervals of Mathematics (95% CI [60.4, 65.6]) and Language and Social Science (95% CI [66.1, 70.7]) groups do not overlap, so this would support that there is a real difference between two subject groups based on their generative outcome motive scores.

6.4.2.2. Comparison according to Mentoring Experience Groups. In this part of the result section, mentor teachers' generative outcome motives scores were compared in terms of mentoring experience groups, 0-3, 4-7, 8-11, and 12 and above, by using Kruskal Wallis test. The descriptive statistics of generative outcome motives scores were presented in Table 6.18.

Table 6.18. Descriptive statistics of generative outcome motives in terms of mentoring experience groups.

Mentoring Experience Groups	N	Mean	Median	SD	Min.	Max.
0-3	43	63	65	10.6	40	77
4-7	47	65	67	10.1	37	77
8-11	21	64.9	68	10.1	42	77
12 and above	30	66.5	67.5	7.87	45	77

According to Kruskal Wallis Test, there is no statistically significant difference in mentor teachers' generative outcome motive scores in terms of mentoring experience groups (*Gp1, n = 43: 0-3, Gp2, n = 47: 4-7, Gp3, n = 21: 8-11, Gp4, n=30: 12 and above), X2(3, n = 141) = 1.99, p =0.575*).

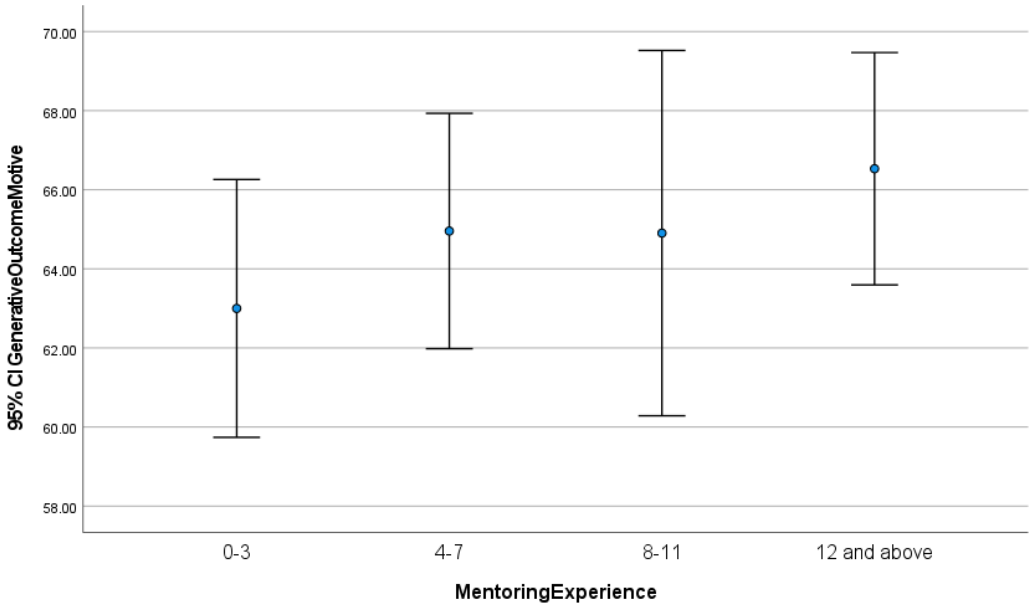

Figure 6.18. Confidence intervals of generative outcome motives scores in terms of mentoring experience groups.

Moreover, Error Bar Chart was given to support the result of Kruskal Wallis Test. According to the Error Bar Chart in Figure 6.18, the most part of the confidence intervals of each mentoring experience group overlap with each other's (95% CI [59.7, 66.3]: 0-3, 95% CI [62.0, 67.9]: 4-7, 95% CI [60.3, 69.5]): 8-11, and 95% CI [63.6, 69.8]: 12 and above); therefore, mentor teachers' generative outcome motives scores are not differentiated according to these groups.

6.4.2.3. Comparison according to School Level. Mentor teachers' generative outcome motives scores were compered according to their school level, middle school, and high school by using a Mann Whitney U Test. The descriptive statistics were presented in Table 6.19.

Table 6.19. Descriptive statistics of generative outcome motives in terms of school level.

School Type	N	Mean	Median	SD	Min.	Max.
Middle School	62	66.1	68.5	9.78	37	77
High School	79	63.6	66	9.79	40	77

Mann Whitney U Test result indicated that there is no statistically significant difference in mentor teachers' generative outcome motive scores in middle school (*Md = 68.5, n = 62) and high school (Md = 66.0, n = 79) groups (U = 2052.5, z = -1.65, p =0.1*).

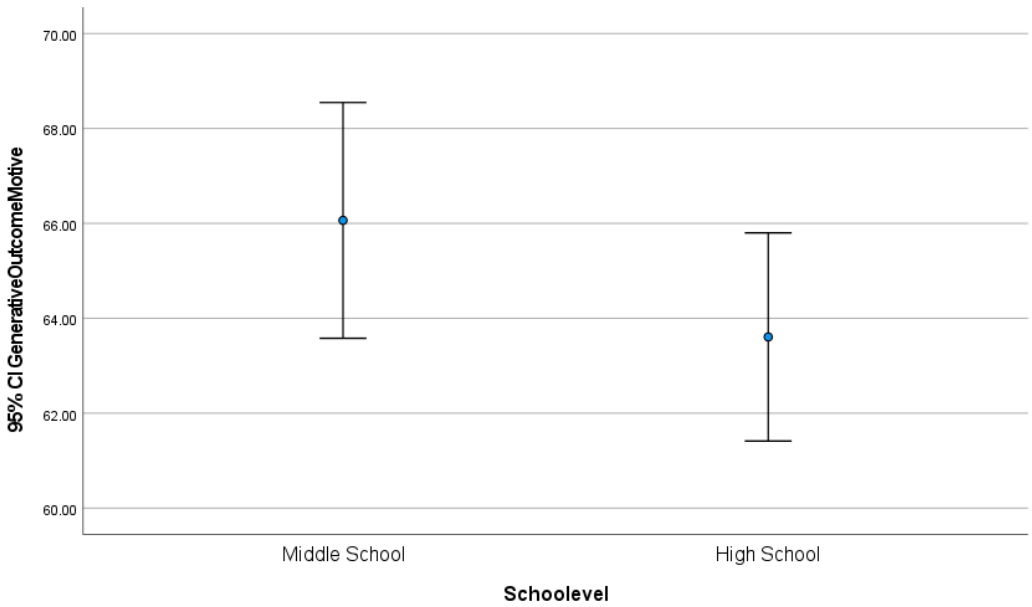

Figure 6.19. Confidence intervals of generative outcome motives scores in terms of school level.

The comparison result of Mann Whitney U Test was also supported by the Error Bar Chart in Figure 6.19. According to this Error Bart Chart, there is a substantial overlapping of the confidence intervals of middle school group (95% CI [63.6, 68.5]) and high school group (95% CI [61.4, 65.8]).

6.4.2.4. Comparison according to School Type. Mentor teachers' generative outcome motives scores were compared according to their school type, public school, and private school, by using Mann Whitney U Test. The descriptive statistics were given in Table 6.20.

Table 6.20. Descriptive statistics of generative outcome motives in terms of school type.

School Type	N	Mean	Median	SD	Min.	Max.
Public School	86	65.3	67	9.37	40	77
Private School	55	63.8	65	10.5	37	77

As a result of Mann Whitney U Test, there is no statistically significant difference in mentor teachers' generative outcome motive scores in public school (*Md = 67.0, n = 86) and private school (Md = 65.0, n = 55) groups (U = 2200, z = -.699, p =0.485*).

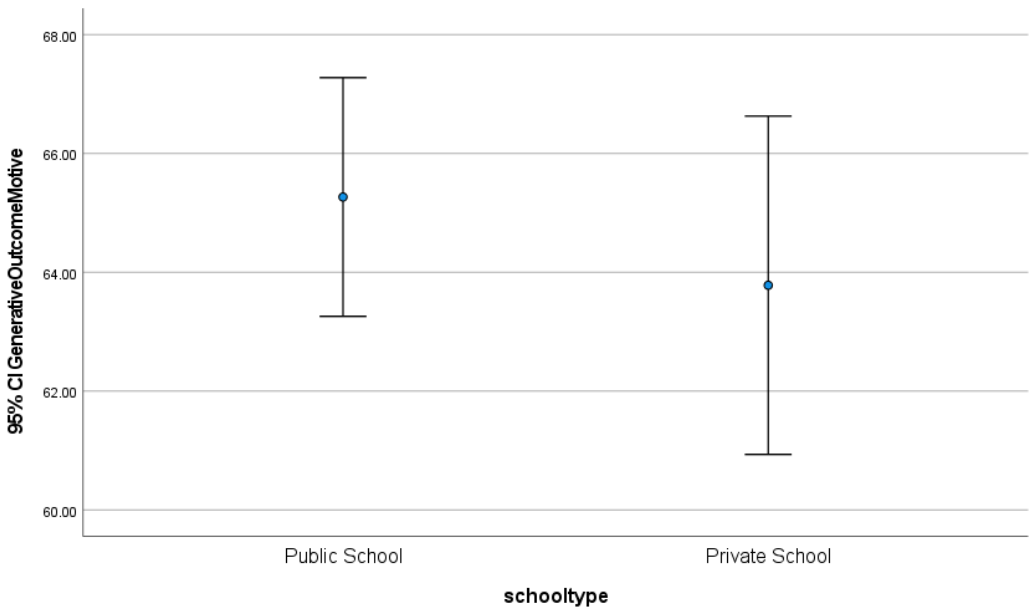

Figure 6.20. Confidence intervals of generative outcome motives scores in terms of school type.

Also, the Error Bar Chart in Figure 6.20 was given to present the difference between school types by focusing the confidence intervals. The most part of the confidence intervals of public school group (95% CI [63.3, 67.3]) and private school group (95% CI [60.9, 66.6]) overlap; mentor teachers' generative outcome motive scores are not differentiated according to these two school type groups.

7. DISCUSSION AND CONCLUSION

The main aim of this current study is to describe the secondary school mentor teachers' conception factors (developmental and instrumental mentoring conception) and motivation factors (personal learning and generative outcome motives) in preservice teacher education. Also, the relationship between mentor teachers' mentoring conception factors and mentoring motivation factors were investigated to examine how much variance in mentoring conceptions and motivations can be explained by each other. Lastly, the study aimed to examine whether mentor teachers' mentoring conception and motivation factors are differentiated in terms of some demographic variables, mentor teachers' subject areas, the years of mentoring experience, school levels, and school types in order to see which variables can be used to explain these mentoring conception and motivation factors.

In this part of the study, the results will be discussed within two sections. Firstly, the descriptive statistics of the participant mentor teachers' demographic information and motivation factors will be discussed. In the second part of the discussion, the descriptive statistics of the participant mentor teachers' conception factors with comparison results of each factor based on demographic variables, and the relationship results of conception and motivation factors will be discussed.

7.1. Turkish Secondary School Science, Mathematics, Language and Social Science Mentor Teachers

The participants of this current study were 141 mentor teachers (94 female, 47 male) in Istanbul. The participant mentor teachers' subject areas were Mathematics (*n=49*), Science (Science, Physics, Chemistry, and Biology) (*n=44*), and Language and Social Science (Turkish, English, History, Geography, and Social Science) (*n=48*). The ages of the participant mentor teachers were in between 24 and 61 (*M=42.3, SD=4.96*). Even if young mentor teachers participated in the study, ages of the participant mentor

teachers were generally above 40. Due to the fact that their ages were generally high, most of the participant mentor teachers also had high years of teaching experience. The participant mentor teachers' the year of teaching experience ranged from 2 to 35 (*M=18.7, SD=7.48*), and the participant mentor teachers' the year of mentoring experience ranged from 1 to 25 (*M=7.23, SD=5.89*). Even though mentor teachers with high mentoring experience years participated the study, it was seen that the mentoring experience years of them were not as high as the teaching experience years. When the participant mentor teachers' demographic information is investigated, their ages, the years of teaching experience, and mentoring experience generally show similarities. The reason behind this similarity may arise that universities and supervisors generally have similar expectations from mentor teachers such as high teaching experience or working at high profile schools. In other words, supervisors' definition and practices of ideal mentor teacher show similarities and universities generally tend to send their preservice teachers to certain and high-profile practicum schools that work with good teachers. For this reason, the participant mentor teachers' profiles showed similarity in this study.

7.2. Mentoring Motivation of Mentor Teachers

In this study, to describe the participant mentor teachers' mentoring motivation factors, the Mentoring Motivation Scale (MMS) developed by van Ginkel *et al.* was implemented. According to van Ginkel *et al.* (2016), mentoring motivation was defined as a "the reason mentor teachers give for engaging in the mentor role" (van Ginkel *et al.*, 2016, p. 103) and why they consider being a mentor teacher is crucial for preservice teachers. Being mentor teacher is mostly a voluntary activity and it depends on the decision of teacher. According to literature, there are some main motives why teachers want to be mentor teacher. These reasons can be classified into two groups, personal learning motives and generative outcome motives (van Ginkel *et al.*, 2016). A teacher may have different kind and number of motives to be a mentor teacher (Sinclair *et al.*, 2006). Although they hold one of them as a dominant one, the reason behind why they want to be mentor teacher may be originated from both personal learning motives and

generative outcome motives.

As a result of this current study, it was estimated the participant mentor teachers would report high generative outcome motives than personal learning motives. This expectation was based on the previous empirical studies and the relationship between instrumental mentoring conception and generative outcome motives by considering the participants to have instrumental mentoring conception. van Ginkel *et al.* (2016) found that the relationship between instrumental mentoring conception and generative outcome motives ($r=0.38,\ p<0.01$) is higher than the relationship between instrumental mentoring conception and personal learning motives ($r=0.11,\ p<0.01$). Since the estimated dominant mentoring conception of the participant mentor teachers of this study was instrumental mentoring conception, it was estimated the participant mentor teachers to hold generative outcome motive as a dominant one. However, van Ginkel *et al.* (2016) found that the relationship between two motivation factors and instrumental mentoring conception were not too high. Therefore, it was also estimated for the current study that the participant mentor teachers may be not differentiated in terms of these two motivation factors.

According to result of this current study, there is no statistically significant difference among participant mentor teachers' motivation factors ($z=-1.28,\ p=.224$). The participant mentor teachers reported almost equal agreement on a personal learning motives ($M=5.94,\ SD=0.89$) and generative outcome motives ($M=5.88,\ SD=0.89$). Even if the participant mentor teachers' personal learning motives scores were little higher than generative outcome motives scores, they tended to give high and almost equal scores for both motivation factors. As stated by Sinclair (2006), mentor teacher adopted both mentoring motives to be a mentor teacher as a dominant one. That is to say, the participant mentor teachers both want to share their experiences and knowledge with the next generation to keep traditions alive, and they also want to improve their professional development by using the reciprocal mentoring relationship with preservice teachers.

There are limited number of studies about mentoring motivations in the literature. Regarding these empirical studies, researchers got different results about motivations to be a mentor teacher. According to some empirical studies, teachers hold personal learning motives as they give importance to improve their professional development in teaching (Koerner, 1992; Lopez-Real & Kwan, 2005). Due to the fact that being a mentor teacher has a voluntary nature, "personal motives are likely to have a high influence on the decision to become a mentor" (van Ginkel *et al.*, 2016, p. 103). However, according to Merriam (1983), mentor teachers generally hold generative outcome motives which aim to guide the next generation. The most important sources for being mentor teacher are desiring to share knowledge of teaching and ensuring better quality beginning teachers (Sinclair *et al.*, 2006).

The similar result of this current study was also found by van Ginkel *et al.* (2016). According to the result of the study, Dutch mentor teachers reported more agreement on generative outcome motives (M=5.53, SD=0.71) than personal learning motives (M=5.45, SD=0.89) but with very small effect size. Because of the small effect size, they stated that Dutch mentor teachers almost have equal agreement on personal learning motives and generative outcome motives (van Ginkel *et al.*, 2016). According to van Ginkel *et al.* (2016), the reason why Dutch mentor teachers were not differentiated in terms of their mentoring motivation factors may be related to their mentoring conception preference. The same mentor teachers tended to hold high developmental mentoring conception and van Ginkel *et al.* (2016) found that the relationship between developmental mentoring conception and personal learning motive was higher than the relationship between developmental mentoring conception and generative outcome motives. Therefore, contrary to the literature, Dutch mentor teacher had also high personal learning motives. The same result about preference of conception factors was also found in this current study. The participant mentor teachers tended to hold high developmental mentoring conception than instrumental mentoring conception.

Even if being a mentor teacher is a separate profession from being a teacher (Achinstein & Athanases, 2005), it is still seen as a part of being a teacher (van Ginkel

et al., 2016). Therefore, the reasons behind teachers' motivations to be a mentor teacher may relate to their reasons for joining the teaching profession. The nature of motivation for choosing to be a teacher is not unidimensional, it is multidimensional (Brookhart & Freeman, 1992). In other words, there are lots of factors that affect preservice teachers' choice to join the teaching profession. Based on the literature, preservice teachers' motivations to join the teaching profession are classified into three categories: intrinsic reasons, altruistic reasons, and extrinsic reasons (Moran *et al.*, 2001). Intrinsic reasons comprise job-related factors such as job satisfaction, sense of achievement and development in profession, enjoyment of teaching, and working with children (Hao & Guzman, 2007; Reid & Caudwell, 1997; Richardson & Watt, 2006). Altruistic reasons can be defined as a social motivation such as making differences in the life of young people, being a good role model, a desire to contribute society to improve, gaining social status, and prior teaching and learning experiences (Kyriacou, 1998). Based on the definition of each motivation factor, the factors behind intrinsic, and altruistic reasons to be a teacher show similarities with the factors behind personal learning motives, and generative outcome motives for being a mentor teacher respectively.

In Turkey, Boz and Boz (2008) conducted the study by working with science and mathematics preservice teachers to describe their motivations to be a teacher, and they found that the most effective factor to join the teaching profession for preservice teacher is intrinsic reasons. According to this study, preservice teachers want to improve their professional development in teaching, and they also want to be satisfied their job by feeling achievement. Hence, the reasons behind why the participant mentor teachers gave high scores for personal learning motives may originate from their intrinsic reasons for being a teacher. Besides the effect of the participant mentor teachers' teaching motivations on holding personal learning motives to be a mentor teacher, the fact that being a mentor teacher in Turkey have a limited financial return for teachers may also explain why the participant mentor teachers gave high scores for personal learning motives. Additionally, it should be noted that universities tend to select practicum schools among high profile ones, the ones with high student achievement with positive relationship between students and teachers. This may mean that the mentors teachers

had been working in a favorable school context. So, teachers in Turkey generally do not get any extra benefit from being a mentor teacher except their own professional development and feeling satisfaction.

As the same with similarities between intrinsic reasons and personal learning motives, the reasons behind why the participant mentor teachers gave high scores for generative outcome motives may originate from their altruistic reasons for being a teacher. Turkish study with 1577 early childhood, primary and secondary preservice teachers found that one of the most effective factors to be a teacher is altruistic reasons such as making social contribution, shaping the future of next generation, gaining social status, and transferring their learning and teaching experiences (Kılınç *et al.*, 2012). These factors are very similar with the factors under generative outcome motives to be a mentor teacher. The participant mentor teachers may be affected their altruistic teaching motivations and they may give high scores for generative outcome motives in this study.

In a short, the participant mentor teachers in this study had both personal learning motives and generative outcome motives to be a mentor teacher and the reason behind this result may be related to their motivations for teaching. Because preservice teachers generally have both high intrinsic and altruistic reasons to join the teaching profession (Hao & Guzman, 2007; Reid & Caudwell, 1997; Richardson & Watt, 2006) and they do not have to have one motivation type as a dominant one for being a teacher as in mentoring motivations.

7.3. Mentoring Conception of Mentor Teachers

In this study, to describe the participant mentor teachers' mentoring conception factors, the Mentoring Conception Scale (MCS) developed by van Ginkel *et al.* was implemented. Mentoring conception can be defined as "a set of beliefs about the goals, sources and nature of mentored learning to teach" (van Ginkel *et al.* 2016, p. 104). Mentor teachers' conceptions about mentoring shape their practices in mentoring

process. Based on the definition of mentoring conception, it can be said that there are different types of mentoring conception because mentor teachers have different sets of beliefs about what learning to teach is. According to the literature, there are two main types of mentoring conception, a developmental mentoring conception and an instrumental mentoring conception (Orlan-Barak & Klein, 2005). Due to the fact that the idea behind these conception types is originated from mentor teachers' sets of beliefs about learning to teach, mentor teachers do not have to have only one type of mentoring conception (Franke & Dahlgren, 1996). Mentor teachers can draw on different mentoring conceptions contemporaneously, but they tend to emphasize one or two of them as a dominant one in their mentoring process (van Ginkel *et al.*, 2016). The distinction between developmental mentoring conception and instrumental mentoring conception is parallel to the distinction between teacher-centered/content-oriented and student-centered/learning-oriented conception of teaching (Donche & Van Petegem, 2011).

Regarding mentoring conception types, for this study it was estimated that the participant mentor teachers report higher instrumental mentoring conception than developmental mentoring conception. This expectation stems from the literature and mentor teachers' conceptions about learning and teaching in Turkish context. In the literature, it was found that mentor teachers generally emphasize an instrumental mentoring conception instead of a developmental mentoring conception (Crasborn *et al.*, 2008; Kroeze, 2014; Wang & Odell, 2002). Besides, Turkish mentor teachers' conceptions of teaching may affect their mentoring conceptions based on the similarities between mentoring conception factors and conceptions of teaching and teacher-centered/content-oriented conception of teaching is still adopted for many teachers in Turkey as a dominant conception of teaching.

However, the result of this current study disconfirmed the expectation. As a result of the current study, there is statistically significant difference with large effect size among the participant mentor teachers' conception factors (z=-9.02, $p<0.001$, r=0.54). The participant mentor teachers reported stronger agreement with a devel-

opmental mentoring conception (*M=6.29, SD=0.66*) than with an instrumental mentoring conception (*M=5.67, SD=0.91*). Mentor teachers mostly tend to see the nature of mentoring relationship as collaborative (Orland-Barak & Klein, 2005), symmetric, and reciprocal (Hall & Davis, 1995). They see themselves as creative cooperators for guiding preservice teachers to develop their understanding about reciprocation between teaching and learning. Even if participant mentor teachers' developmental mentoring conception scores were higher than instrumental mentoring conception scores, they also tended to give high scores for an instrumental mentoring conception. This means that they also see themselves as a maestro in asymmetrical mentoring relationship to provide correct and effective routines for preservice teachers. As stated by Franke and Dahlgren (1996), the participant mentor teachers hold more than one mentoring conception to shape their practices in mentoring process.

When the literature about mentoring conceptions is examined, different studies which were conducted to different cultures and different samples reported different results. Some of them found a developmental mentoring conception as a dominant conception (e.g. van Ginkel *et al.*, 2016), but some of them reported an instrumental mentoring conception as a dominant one for mentor teachers (e.g. Crasborn *et al.*, 2008; Kroeze, 2014; Wang & Odell, 2002). The same result of this current study was also found by van Ginkel *et al.* (2016). According to result of that study, Dutch mentor teachers tended to hold higher developmental mentoring conception than instrumental mentoring conception with a large effect size. However, unlike result of the study of van Ginkel *et al.* (2016), Kroeze (2014) found that Dutch mentor teachers were in tendency to have higher an instrumental mentoring conception than a developmental mentoring conception. Also, the study which was conducted by Wang and Odell (2002) in Anglo-Saxon countries, showed that mentors had more an instrumental mentoring conception than a developmental mentoring conception.

The reason for obtaining different results from different studies may be that the studies were applied at different times, at different countries, or to different participants. Therefore, it is important to evaluate the results of mentoring conception

studies by considering the education systems in countries. Teacher training programs in many countries differ due to the characteristics of their own education systems (Sarıboğa-Alagöz, 2006). In Netherlands, preservice teacher education carries out in three different ways in terms of three level, preservice teacher education at primary school level, preservice teacher education at secondary school level for first period teachers (12-16 ages), and preservice teacher education at secondary school level for second period teachers (16-18 ages). Preservice teachers at primary school level and at secondary school level for first period teachers (12-16 ages) have to complete four-year teacher training programs to be a teacher. Preservice teacher education at secondary school level for second period teachers (16-18 ages) have to complete both four-year undergraduate and one-year graduate teacher training program to be a teacher. In Netherlands, teaching practices constitute an important and large part of preservice teacher education. In every year, preservice teachers do teaching practices and the amount of teaching practice is increasing year by year. The amount of teaching practice in preservice teacher education makes up the biggest difference between preservice teacher education in Netherlands and in Turkey. In Turkey, preservice teachers do only teaching practices at their last years. In Netherlands, preservice teachers spend almost half of their four-year education at practicum school with their mentor teachers; therefore, the roles and practices of mentor teachers have more effect on preservice teachers than in Turkey.

In addition to the different results between countries, different results were found in the same country. van Ginkel *et al.* (2016) explained the cause of these different results of Dutch mentor teachers' conceptions by emphasizing the reform movements in preservice teacher education in Netherlands. In the direction of the reform movements in Netherlands, mentor teachers' dominant mentoring conception may turn instrumental to developmental mentoring conception (van Ginkel *et al.*, 2016). The same reason might cause to get different result in Turkey from the expectation. In Turkey, reform movements in education generally comprise teaching not preservice teacher education or teaching training programs. The most comprehensive reform movements of education in Turkey have occurred since 2004 with emphasizing the constructivist approach

as an official philosophy of the Turkish Education System (Ünder, 2010). The Ministry of Education has started to prepare curriculums, textbooks, and teaching materials by emphasizing the constructivist approach and occurred seminars to introduce new educational philosophy, constructivist approach to teachers.

When the participant mentor teachers' ages (M=42.3, SD=4.96) and the years of teaching experience (M=18.66, SD=7.48) are checked, the most of them experienced these reform movements in education. With this new approach, teachers' conception of teaching and learning has changed, and they have started to emphasize student-centered conception of teaching (Gencel, 2013) and constructivist conception about teaching and learning (Aypay, 2011; Ekinci, 2016; Usta, 2019). Based on the similarities between developmental mentoring conception and student-centered conception of teaching, why developmental mentoring conception was adopted by the participant mentor teachers as a dominant mentoring conception may be explained. Because mentor teachers' approaches to preservice teachers generally show similarity to approaches to their students (Chan & Elliott, 2004). Therefore, contrary to expectation, the participant mentor teachers held developmental mentoring conception as a dominant one. Teachers' conceptions about teaching and learning may also shape their mentoring conceptions. As in the definition of mentoring conception, teachers' conceptions about teaching and learning "refer to the set of beliefs held by teachers about their preferred ways of teaching and learning" (Chan & Elliot, 2004, p. 896). Therefore, the ideas behind constructivist and traditional conception about teaching and learning show similarities with developmental mentoring conception and instrumental mentoring conception respectively. So, the reason behind why the participant mentor teachers in Turkey held developmental mentoring conception as a dominant one may come from the popularity of constructivist conception about learning and teaching. In addition, the fact that the participant mentor teachers adopted developmental mentoring conception in the study does not mean that these mentor teachers apply this conception during the mentoring process. According to previous studies, mentor teachers do not always put into practice adopted beliefs (Orland, 2001; Sinclair *et al.*, 2006).

Even if the reform movement in Turkey has caused to change teachers' conception of teaching and learning by emphasizing constructivist approach as a new educational philosophy, teachers in all branches have not affected by this new approach in the same way. The changes brought about by the new understanding of education differed from branch to branch, causing changes in mentor teachers' mentoring conception to subject area groups. According to Yılmaz and Bökeoğlu (2008), subject areas are one of the crucial factors to shape teachers' teaching beliefs. For this reason, mentor teachers' mentoring conceptions might be differentiated in terms their subject areas. As a result of this current study, both developmental and instrumental mentoring conceptions differentiated in terms of three subject area groups (Mathematics, Science, and Language and Social Science). However, mentor teachers whose branches are in Mathematics and Science groups did not differentiated. The reason why Mathematics and Science groups were not differentiated may originate mentor teachers' similar conception of teaching and learning for these two branches. However, Language and Social Science group differentiated from Mathematics and Science groups in terms of their both conception factors. Mentor teachers whose branches are in Language and Social Science group tended to give high scores for both conception factors. Especially, there is huge difference between Language and Social Science group with Mathematics and Science groups in terms of developmental mentoring conception. This result can be result of the nature of constructivist approach. In general, Social Science and Language teachers tend to have constructivist approach more than Mathematics and Science teacher. Studies about preservice teachers' conception about teaching and learning in Turkey showed that Social Science and Language preservice teachers tend to emphasize constructivist approach more than traditional approach (Tezci *et al.*, 2017). Because the nature of these subject areas provides opportunities to teachers to emphasize constructivist teaching approach (Tezci *et al.*, 2017). Similar results were also found for mentor teachers mentoring motivation factors. As a result of this study, both personal learning motives and generative outcome motives differentiated in terms of three subject area groups. While mentor teachers whose branches are in Mathematics and Science groups were not differentiated in terms of their mentoring motivation factors, Language and Social Science group differentiated from Mathematics and Science groups. Mentor

teachers whose branches are in Language and Social Science group tended to give high scores for both motivation factors.

Besides the reform movements in education and teaching, reform movements in preservice teacher education in Turkey are very limited, especially in teaching practices and training and selection of mentor teachers. The most important reform movement in preservice teacher education occurred in 1998 with the Faculty-Practice School Partnership Program. With this program, teaching practices were added at the last year of preservice teacher education to develop partnership between education faculties and practicum schools. Also, mentor teachers' roles were stated, and three-day mentor training program started. However, this three-day mentor training program was not applied effectively, and it would not provide enough training for teachers to be a mentor teacher (Yılmaz & Bıkmaz, 2020). Even if mentor teachers' conceptions about teaching and learning was shaped by reform movements in education, their mentoring conceptions may not change too much because of the limited reform movements in preservice teacher education. Therefore, the participant mentor teachers may give high scores for an instrumental mentoring conception too because their mentoring conceptions are still affected by their previous perspectives about learning to teach. They may hesitate to choose one mentoring conception as a dominant one.

Additionally, the limited reform movements in preservice teacher education and no further mentor teacher training program besides of three-day training program in Turkey may cause mentor teachers' conception and motivation factors to remain same in terms of their mentoring experience years. As a result of this current study, both developmental and instrumental mentoring conceptions were not differentiated in terms of mentoring experience years groups. This means that mentor teachers have initial mentoring conceptions and these conceptions do not change over the years. Because they do not get further training programs to shape their conceptions during the mentoring process. The same result was also found for mentoring motivation factors. Both personal learning motives and generative outcome motives were not differentiated in term of mentoring experience years groups. This means that mentor

teachers maintain their initial reason to why they want to be a mentor teacher even after years.

Lastly, the reason why some studies found different results from the current study may stem from using different methods and instruments (van Ginkel *et al.*, 2016). For example, Crasborn *et al.* (2008) and Kroeze (2014) did their studies about mentoring conceptions as a qualitative one and they found that mentor teachers hold an instrumental mentoring conception as a dominant one. However, the current study and the study of van Ginkel *et al.* (2016) were implemented as a quantitative and the same instruments were used at both study. Both studies found that mentor teachers hold a developmental mentoring conception as a dominant one. According to van Ginkel *et al.* (2016), the limitation is derived from the absence of the standard in the literature to describe mentoring conceptions.

In this study, the terms mentoring conception and motivation factors defined by van Ginkel *et al.* (2016) in Dutch context were used. Actually, these mentoring conception and motivation factors were defined in general terms without giving too much detail about mentoring in the Netherlands. The general definitions of these two mentoring terms made them to be used to examine Turkish mentor teachers' conceptions and motivations too. Nevertheless, it should be remembered that preservice teacher education in the Netherlands and inTurkey differs in many aspects. The amount of teaching practice in preservice teacher education makes up the biggest difference between preservice teacher education in Netherlands and in Turkey. Due to the fact that the amount of teaching practice in preservice teacher education in the Netherlands is higher than in Turkey, Dutch mentor teachers' roles and practices might also differ. Because of differences in preservice teacher education, barely acceptable model fit indices might have been found as a result of validity analysis of two instruments in this study. Especially for the MCS, some items under the instruments might not work well for the Turkish context because Turkish mentor teachers might assign different meaning to mentoring conception than Dutch mentor teachers. Therefore, it would be beneficial to define mentoring conception and motivation in detail according to Turkish mentor

teachers' perspectives.

Besides the describing the participant mentor teachers' conception and motivation factors, it was also aimed to examine the relationships between mentor teachers' mentoring conception factors and mentoring motivation factors to find out how much variance in mentoring conceptions and motivations can be explained by each other. As a result of this current study, it was estimated that the relationship between a developmental mentoring conception and personal learning motives will be higher than the relationship between a developmental mentoring conception and generative outcome motives. Also, it was estimated that the relationship between an instrumental mentoring conception and generative outcome motives will be higher than the relationship between an instrumental mentoring conception and personal learning motives. These estimated strong and weak relationships between mentoring conception factors and motivation factors were made according to the literature and the definition of each conception and motivation factor.

However, it was found that all relationships between conception and motivation factors were significant, moderate level, and positive. These results showed that both motivation factors can be used to explain the variance in conception factors vice versa, but the value of explained variance in conception factors by motivation factors showed difference. As estimated, the relationship between a developmental mentoring conception and personal learning motives ($r=0.70$, $p< .001$) is higher than the relationship between a developmental mentoring conception and generative outcome motives ($r=0.63$, $p< .001$). The reason behind this result might be that mentor teachers who hold a developmental mentoring conception perceives mentoring as a source of learning, and so they are motivated by own professional development (van Ginkel *et al.*, 2016).

Also, it was found that the relationship between an instrumental mentoring conception and generative outcome motives ($r=0.68$, $p<.001$) is higher than the relationship between an instrumental mentoring conception and personal learning motives ($r=0.54$, $p< .001$). The reason behind this result might be that mentor teachers who

hold an instrumental mentoring conception see themselves as a model to be copied by preservice teacher and source of knowledge. They do not perceive mentoring process and preservice teachers as a source of learning (van Ginkel *et al.*, 2016), so they are motivated by an idea which is guiding next generation. The relationship between mentoring conception and motivation factors were also investigated by van Ginkel *et al.* (2016). They found a similar result to the current study was that the relationship between an instrumental mentoring conception and generative outcome motives ($r=0.38$, $p<.001$) is higher than the relationship between an instrumental mentoring conception and personal learning motives ($r=0.11$, p¡.001). However, van Ginkel *et al.* (2016) found that the relationship between a developmental mentoring conception and personal learning motives ($r=0.50$, $p<.001$) was almost equal to the relationship between a developmental mentoring conception and generative outcome motives ($r=0.49$, $p<.001$).

Despite the fact that the relationships between mentoring conception and motivation factors are statistically significant and moderate level, the variances in conception and motivation factors explained by each other remained incapable. Therefore, more variables should be considered to provide in-depth understanding about mentoring motivation and conception factors besides of using mentoring motivation and conception factors to explain each other. According to the result of the study, one of the variable can be mentor teachers' subject areas because each conception and motivation factor were differentiated according to mentor teachers' subject areas.

As a results of this study, even if the participant mentor teachers reported stronger agreement with a developmental mentoring conception than with an instrumental mentoring conception, they tended to give high scores for an instrumental mentoring conception too. However, they reported almost equal agreement with both motivation factors. Considering that these conceptions and motivations shape mentor teachers' practices, it will be important to develop a mentoring approach that takes these mentor teachers' conceptions and motivations into account in order to make preservice teacher education more effective in Turkey. Therefore, policy makers should conduct study

about mentoring conceptions and motivations with large sample of mentor teachers to get more comprehensive perspectives about mentoring process in Turkey. As a results of this study, the participant mentor teachers have more than one conception and motivation factor about mentoring. Additionally, both mentor teachers' conception and motivation factors were differentiated in terms of their subject areas. Therefore, it would not make sense to try to understand mentoring practices shaped in line with mentor teachers' conceptions and motivations with a single approach. Therefore, policy makers should give importance to develop different models and approaches to understand mentor teachers' practices that shape preservice teacher education. Additionally, policy makers should give importance to mentor teachers' mentoring conceptions and motivations to create some criteria for selection of mentor teachers because rather than expected practices, mentor teachers shape their own mentoring practices in terms of their set of beliefs about mentoring. Actually, these implemented practices shape the whole mentoring process and for this reason it is crucial to examine mentor teachers' mentoring conceptions and motivations.

8. LIMITATIONS AND SUGGESTIONS

In this section, the limitations of this study and suggestions for further studies will be stated. During the study, some limitations occurred. The main limitation of the study might be the number of the participant mentor teachers. Due to the limited target population, Covid-19 pandemic, and mentor teachers' workloads, the sample size of this study might remain limited. The number of the participant is not enough to make inferences about mentor teachers in Turkey. An investigation of mentor teachers' conceptions and motivations should be conducted with higher number of mentor teachers in order to extend the results of this study.

Additionally, the number of participant has crucial role for conducting the CFA. For the current study, the CFA was conducted to check construct validity of two instruments, the Mentoring Conception Scale (MCS) and the Mentoring Motivation Scale (MMS). Even if there are lots of factors that affect proper number of participant for the CFA, recommended number of participant should be 200 at least (Kline, 2015). However, the number of participant for the current study was 141 mentor teachers. Although, the number of participant is low than the recommendation, the CFA results in this study were generally found acceptable to assume that instruments fit with mentoring conception and motivation factors. However, further studies can be conducted with large sample size to support the CFA results of this study. Also, all aims of the BAP Project (BU-BAP, 15961) starting point of this study might be extended to mentor teachers whose subject areas are not just Mathematics but also others (Science, Physics, Chemistry, Biology, English, Turkish, History, Geography, Social Science) in Turkey.

Another limitation of this study was that the participant mentor teachers generally tended to give high scores for both instruments. The reason behind of this tendency might be that the participant mentor teachers consider the practices that they think are right to do, not their own practices when giving points to the items. That means,

the participant mentor teachers might tend to give socially desirable answers for the items in the instruments. Additionally, mentor teachers do not always put into practice adopted beliefs (Orland, 2001; Sinclair *et al.*, 2006). Therefore, interviews with mentor teachers and observation of their mentoring practices can be used as a data collection method for the further studies to support quantitative data about their mentoring conceptions and motivations. Since, mentor teachers' conceptions and motivations shape their mentoring practices, especially observation of mentoring process might provide more comprehensive results.

Actually, this study is a survey research that aims to describe mentor teachers' mentoring conceptions and motivations in general terms. As a further step, more comprehensive studies might be conducted to get a theory about mentoring conceptions and motivations in Turkey. Additionally, conception and motivation factors that used in this study were defined in Dutch context in terms of Dutch mentor teachers' sets of beliefs about mentoring. Therefore, it might be useful to conduct further studies in Turkey to define conception and motivation factors in detail by emphasizing Turkish mentor teachers' voices.

In addition, further studies about the relationship between mentoring conceptions and conceptions of teaching and learning might be conducted in order to show how teachers' beliefs about teaching and learning shape their beliefs about learning to teach. Because mentor teachers' approaches to preservice teachers generally show similarity to approaches to their students (Chan & Elliott, 2004). Also, the relationship between mentoring motivations and motivations to be teacher might be studied as a further studies in order to show the reasons behind being teacher might cause to be a mentor teacher. With these further studies, mentoring conceptions and motivations might be described in detail.

Lastly, in the direction of the results of this study, which factors explain mentoring conceptions and motivations might be studied as a further study. Because the results of this study provide theoretical background for choosing factors in order to

explain mentoring conceptions and motivations. To decide which factors might explain mentoring conceptions and motivations is important because it might provide new perspective for choosing mentor teachers (van Ginkel *et al.*, 2016). Due to the fact mentoring practices are shaped by mentoring conceptions and motivations, these factors might have crucial role to choose mentor teachers.

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APPENDIX A: INFORMED CONSENT

T.C.
BOĞAZİÇİ ÜNİVERSİTESİ
SOSYAL VE BEŞERI BILIMLER İNSAN ARAŞTIRMALARI ETIK KURULU
KATILIMCI BİLGİ ve ONAM FORMU

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi Bilimsel Araştırma Projeleri

Araştırmanın adı: Matematik Öğretiminde Etkin Mentörlük (MöEM): Öğretmen Adayları ve Öğretmenlik Uygulaması Mentörlerinin Algılarının İncelenmesi

Proje Yürütücüsü/Araştırmacının adı: Doç. Dr. Fatma Aslan Tutak

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Sayın öğretmen,

Boğaziçi Üniversitesi Matematik ve Fen Bilimleri Eğitimi Bölümü öğretim üyesi Dr. Fatma Aslan Tutak "*Matematik Öğretiminde Etkin Mentörlük (MöEM): Öğretmen Adayları ve Öğretmenlik Uygulaması Mentörlerinin Algılarının İncelenmesi*" adı altında bilimsel bir araştırma projesi yürütmektedir. Bu çalışmanın amacı öğretmenlik uygulaması yapan öğretmen adaylarının ve onların uygulama (mentör) öğretmenlerinin etkili mentörlük algılarını ve arasındaki ilişkiyi incelemektir. Çalışmanın yürütülmesi için İl Milli Eğitim Müdürlüğünden gerekli izinler alınmıştır. Bu araştırmada bize yardımcı olmanız için siz mentör öğretmenleri de projemize davet ediyoruz. Kararınızdan önce araştırma hakkında sizi bilgilendirmek istiyoruz. Bu bilgileri okuduktan sonra araştırmaya katılmak isterseniz lütfen bu formu imzalayıp kapalı bir zarf içinde bize ulaştırınız.

Bu araştırmaya katılmayı kabul ettiğiniz takdirde öğretmenlik uygulaması kapsamında gerçekleştirmiş olduğunuz uygulama stajı üzerine açık uçlu sorulara cevap vermenizi rica edeceğiz. Ayrıca öğretmenlik uygulaması kapsamında gerçekleştirmiş olduğunuz mentörlük hakkında 34 maddelik bir anket, mentör olmak için motivasyonlarınız hakkında 19 maddelik bir anket ve mentörlük anlayışınıza ilişkin 48 maddelik bir anket doldurmanızı rica edeceğiz. Her bir anketi doldurmanız yaklaşık 15 dakikanızı alacaktır. Bu araştırmaya katılmayı kabul ettiğiniz takdirde, doldurmayı kabul ettiğiniz açık uçlu sorular ve anketler sizinle online link olarak paylaşılacak olup yüz yüze herhangi bir çalışma yapılmayacaktır.

Bu araştırma bilimsel bir amaçla yapılmaktadır ve katılımcı bilgilerinin gizliliği esas tutulmaktadır. Verinin analizi ve farklı ortamlarda paylaşılmasında katılımcıların isim, okul vb. belirleyici bilgileri paylaşılmayacaktır. Toplanan elektronik ve basılı veri, araştırma projemiz süresince kilitli bir dolapta muhafaza edilip, araştırma sona erdiğinde silinecektir. Seçilmiş veri ve veri analizi sonuçları katılımcıların kimliği belirtilmeden öğretmen eğitiminde veya bilimsel nitelikte yayın ve sunumlarda kullanılabilir.

Bu araştırmaya katılmak tamamen isteğe bağlıdır. Katıldığınız takdirde çalışmanın herhangi bir aşamasında herhangi bir sebep göstermeden onayınızı çekmek hakkına da sahipsiniz. Araştırma projesi hakkında ek bilgi almak istediğiniz takdirde lütfen Boğaziçi Üniversitesi Matematik ve Fen Bilimleri Eğitimi Bölümü Öğretim Üyesi Doç. Dr. Fatma Aslan Tutak ile temasa geçiniz (Telefon: +90-212-359-4610 Adres: Boğaziçi Üniversitesi, Eğitim Fakültesi, No:510, 34342 Bebek, İstanbul). Araştırmayla ilgili haklarınız konusunda Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler İnsan Araştırmaları Etik Kurulu'na(sbinarek@boun.edu.tr)danışabilirsiniz.

Figure A.1. Informed Consent.

Ben, (katılımcının adı) ....., yukarıdaki metni okudum ve katılmam istenen çalışmanın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları tamamen anladım. Çalışma hakkında soru sorma imkânı buldum. Bu çalışmayı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi ve bıraktığım takdirde herhangi bir olumsuzluk ile karşılaşmayacağımı anladım.

Bu koşullarda söz konusu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum.

Formun bir örneğini aldım / almak istemiyorum (bu durumda araştırmacı bu kopyayı saklar).

Katılımcının Adı-Soyadı:.....
İmzası:.....
Adresi (varsa Telefon No, Faks No):.....
.....
Tarih (gün/ay/yıl):...../...../.....

Araştırmacının Adı-Soyadı: Doç. Dr. Fatma Aslan Tutak

İmzası:

Tarih (gün/ay/yıl):...../...../.....

Figure A.2. Informed Consent (cont.).

APPENDIX B: DEMOGRAPHIC INFORMATION

Demografik Bilgi Anketi

Adınız-Soyadınız:

Yaşınız:

Cinsiyetiniz:

Mezun Olduğunuz Üniversite ve Bölüm/Program:

Çalıştığınız Okulun Adı:

Çalıştığınız Okul:

- Devlet Okulu
- Özel Okul
- Diğer:……

Öğretim Vermekte Olduğunuz Branşın Düzeyi:

Kaç yıldır öğretmenlik yapıyorsunuz?

Kaç yıldır mentör (stajda uygulama öğretmeni) öğretmenlik yapıyorsunuz?

Son 5 yılı düşündüğünüzde, bir dönemde ortalama kaç öğretmen adayına mentörlük yapıyorsunuz?

2020-2021 eğitim-öğretim yılında kaç öğretmen adayına mentörlük yaptınız?

Figure B.1. Demographic Information.

APPENDIX C: MENTORING CONCEPTION SCALE

Mentörlük Anlayışı Ölçeği

1. Mentörlük Amaçları ve Niyetleri

Aşağıda mentör olmadaki amaçları ve niyetleri içeren birtakım ifadeler verilmiştir. Bu ifadelere katılıp katılmadığınızı *(1) Kesinlikle Katılmıyorum*, *(2) Katılmıyorum*, *(3) Kısmen Katılmıyorum*, *(4) Kararsızım*, *(5) Kısmen Katılıyorum*, *(6) Katılıyorum*, *(7) Kesinlikle Katılıyorum* cevaplarından bir tanesini işaretleyerek belirtiniz.

	1	2	3	4	5	6	7
1. Mentorlük toplantılarında, öğretmen adaylarının iyi bir dersin arkasındaki ilkeleri keşfetmelerine izin vermeye çalışırım.							
2. Öğretmen adaylarının sürekli olarak kendi gelişimlerini yansıtmasını sağlamaya çalışırım.							
3. Öğretmen adaylarının nasıl bir öğretmen olmak istediklerini keşfetmelerine yardımcı olmaya çalışırım.							
4. Öğretmen adaylarının derslerini öğrencinin perspektifinden görmelerini sağlamaya çalışırım.							
5. Öğretmen adaylarını öğretimle ilgili farklı görüşler hakkında başkalarıyla tartışmaya teşvik etmeye çalışırım.							
6. Öğretmen adaylarının ders üzerine tartışmak için dersten birkaç dakika seçmelerine izin vermek benim için önemlidir.							
7. Öğretmen adaylarına öğrencilerin kendi çalışmalarını değerlendirmelerini sağlamayı öğretmeye çalışırım.							
8. Öğretmen adaylarına mesleğin bir parçası olduklarını hissettirmeye çalışırım.							
9. Benim için, öğretmen adayları ile danışmanlık görüşmeleri için belirli zamanlar planlamak önemlidir.							
10. Öğretmen adaylarına ders hazırlamanın temel kurallarını öğretmeye çalışırım.							
11. Öğretmen adaylarına sınıfta sıkı bir kontrol sağlamayı öğretmeye çalışırım.							
12. Öğretmen adaylarının derslerini yapılandırmasını sağlamaya çalışırım.							
13. Öğretmen adaylarına temel ders rutinlerini öğretmeye çalışırım.							
14. Öğretmen adaylarına ihtiyaç duydukları becerileri öğretmeye çalışırım.							
15. Öğretmen adaylarının belirli bir ders yapısı kullanmalarını sağlamaya çalışırım.							
16. Dersin gidişatını öğrencilerin değil, öğretmen adaylarının belirlemesinin önemli olduğunu düşünürüm.							
17. Ders değerlendirirken dersi baştan sona gözden geçirmeye çalışırım.							
18. Benim için ders gözlemine dayanarak öğretmen adaylarıyla konuşmak ve dersi değerlendirmek önemlidir.							

Figure C.1. Mentoring Conception Scale.

2. Öğretmeyi Öğrenme Kaynakları Hakkındaki İnanışlar

Aşağıda öğretmeyi öğrenme kaynakları hakkındaki inanışları içeren bir takım ifadeler verilmiştir. Bu ifadelere katılıp katılmadığınızı *(1) Kesinlikle Katılmıyorum*, *(2) Katılmıyorum*, *(3) Kısmen Katılmıyorum*, *(4) Kararsızım*, *(5) Kısmen Katılıyorum*, *(6) Katılıyorum*, *(7) Kesinlikle Katılıyorum* cevaplarından bir tanesini işaretleyerek belirtiniz.

	1	2	3	4	5	6	7
1. Öğretmen adaylarının birbirlerini iyi destekleyebileceğini düşünürüm.							
2. Öğretmen adaylarının birbirlerine yaptıkları yorumların onlar için çok faydalı olduğunu düşünürüm.							
3. Öğretmen adaylarının birlikte analiz ettikleri zaman öğretmenlik uygulamalarını daha iyi yorumlamayı öğrendiklerini düşünüyorum.							
4. Diğer öğretmen adayları ile birlikte ders gözlemi yapmanın, öğretmen adayları için faydalı olacağını düşünürüm.							
5. Daha az tecrübeli öğretmenlerin derslerini gözlemlemenin öğretmen adayları için faydalı olacağını düşünürüm.							
6. Birbirlerinin hatalarını görmenin, öğretmen adayları için çok eğitici olduğunu düşünürüm.							
7. Meslektaşlarının sorunlarını görmenin, öğretmen adaylarının kendi performanslarını geliştirmelerine yardımcı olduğunu düşünürüm.							
8. Öğretmen adaylarının, öğretmenlik deneyimi elde edebilmeleri için deneyimli öğretmenlerin yardımına ihtiyaçları olduğunu düşünürüm.							
9. Mentör olmak için öncelikle iyi bir öğretmen olmak gerektiğini düşünürüm.							
10. Öğretmen adaylarının performanslarını arttırmak için mentörlerin yorumlarına ve değerlendirmelerine ihtiyaçları olduğunu düşünürüm.							
11. Öğretmen adaylarına mentörlük yapmak için, ortalamanın üzerinde iyi ders veren bir kişi olmanın şart olduğunu düşünürüm.							
12. Öğretmenlik uygulamalarını öğrenmek için başkalarının açıklamalarını anlamak öğretmen adayları için önemlidir.							
13. Bence, yaptıkları şeyle yargılandıkları hissi, öğretmen adaylarının derslerinde daha iyi olmalarına yardımcı olur.							
14. Öğretmen adaylarının derslerinde karşılaştıkları sorunlara iyi çözümler geliştirebilmeleri için mentörlüğün çok gerekli olduğunu düşünürüm.							

Figure C.2. Mentoring Conception Scale (cont.).

3. Öğretmen Bilgi ve Öğreniminin Doğası ve Süreci Hakkındaki İnanışlar

Aşağıda öğretmen bilgi ve öğrenimin doğası hakkındaki inanışları içeren bir takım ifadeler verilmiştir. Bu ifadelere katılıp katılmadığınızı *(1) Kesinlikle Katılmıyorum, (2) Katılmıyorum, (3) Kısmen Katılmıyorum, (4) Kararsızım, (5) Kısmen Katılıyorum, (6) Katılıyorum, (7) Kesinlikle Katılıyorum* cevaplarından bir tanesini işaretleyerek belirtiniz.

	1	2	3	4	5	6	7
1. Öğretmeyi öğrenmek, bence, kendinizi nerede geliştirebileceğinizin giderek daha iyi farkına varmaktır.							
2. Öğretmeyi öğrenmek, bence, öğrencilerle neyi başarmak istediğinizin giderek daha fazla farkına varmaktır.							
3. Öğretmeyi öğrenmek bence kendi mesleğinize ilişkin anlayışınızın sürekli olarak derinleşmesidir.							
4. Öğretmeyi öğrenmek bence öğretmek için gerekli olan farklı çeşitlerdeki bilgileri gittikçe daha iyi bir şekilde kullanmaktır.							
5. Öğretmeyi öğrenmek bence dersin içeriğini daha iyi anlamayı öğrenmektir.							
6. Öğretmeyi öğrenmek bence çalışma yöntemleri ve öğretim yöntemleri hakkında giderek daha fazla bilgi sahibi olmaktır.							
7. Öğretmeyi öğrenmek bence aşama aşama mesleğin farklı yönlerini anlamaktır.							
8. Öğretmeyi öğrenmek bence öğrencileri daha iyi tanımaktır.							
9. Bazı insanların öğretmenlik için yetenekli olduğunu, bazı insanlarda ise bu yeteneğin bulunmadığını düşünürüm.							
10. Bence, öğretmen adaylarının öğretmenlik mesleğine olan yatkınlığı hemen anlaşılabilir.							
11. Öğretme becerilerimi geliştirebilirim ancak öğretmenlik mesleğine olan yatkınlığımı değiştiremem.							
12. Öğretmenlikte yetenekli olan öğretmen adayları, daha hızlı ve daha iyi öğretir.							
13. Bence, herkes bir miktar öğretme becerisine sahiptir ve onu değiştirmek zordur.							
14. Öğretmeyi öğrenmek, bence, sınıftaki düzeni koruyarak başlar.							
15. Öğretmeyi öğrenmek, bence, öğretmenlikle ilgili her türlü rutini otomatik olarak uygulamayı öğrenmektir.							
16. Öğretmeyi öğrenmek, bence, deneyimlerin yardımıyla daha hızlı bir şekilde karar alabilmektir.							

Figure C.3. Mentoring Conception Scale (cont.).

APPENDIX D: MENTORING MOTIVATION SCALE

Mentörlük Motivasyonu Ölçeği

Neden öğretmen adaylarına mentörlük yapıyorum?	1	2	3	4	5	6	7
1. Mesleki alandaki güncel gelişmelerden haberdar olmak için.							
2. Dersimin iyi eğitimli ve yetkin öğretmenler tarafından öğretildiğinden emin olmak için.							
3. Gelecek için eğitimde yeni insanlara ihtiyaç olduğu için.							
4. Çünkü mentörlüğün zorlayıcı bir görev olduğunu düşünüyorum.							
5. Çünkü öğretmen olarak işimi daha derinlemesine anlamamı sağlıyor.							
6. Öğretmenlik eğitiminden mesleğe geçişi onlara kolaylaştırmak için.							
7. Çünkü beni kendi eğitim ve öğretim vizyonum hakkında düşünmeye itiyor.							
8. Bilgi ve tecrübelerimi aktarmak için.							
9. Çünkü kendi öğretim performansıma eleştirel bakmamı sağlıyor.							
10. Çünkü, bu mesleğe baslayanlarin okulda mentor öğretmen rehberliğinde tecrübe edinme hakkı olduğunu düşünüyorum.							
11. Çünkü öğretmen adaylarıyla çalışmayı seviyorum.							
12. Çünkü işimde çeşitlilik sağlıyor.							
13. Çünkü kendi öğretimim için bana yeni fikirler ve öneriler sunuyor.							
14. Çünkü öğretmenlik, pratik yapılarak en iyi şekilde öğrenilir.							
15. Öğretmenlik mesleğine karşı sahip olduğum heyecanı aktarmak için.							
16. Öğretmen adaylarına, bu mesleğin güzelliklerini göstermek için.							
17. Bu mesleğe yeni başlayanların meslekten ayrılmasını önlemek için.							
18. Öğretmen adaylarına kendilerini kanıtlamaları için bir şans vermek için.							
19. Eğitim ve öğretime bakış açımı aktarmak için.							

Aşağıda mentör öğretmenlerin mentör olmadaki motivasyonlarını içeren, *"Neden öğretmen adaylarına mentörlük yapıyorum?"* sorusuna cevap olabilecek bir takım ifadeler verilmiştir. Bu ifadelere katılıp katılmadığınızı *(1) Kesinlikle Katılmıyorum*, *(2) Katılmıyorum*, *(3) Kısmen Katılmıyorum*, *(4) Kararsızım*, *(5) Kısmen Katılıyorum*, *(6) Katılıyorum*, *(7) Kesinlikle Katılıyorum* cevaplarından bir tanesini işaretleyerek belirtiniz.

Figure D.1. Mentoring Motivation Scale.

APPENDIX E: THE FACTOR LOADINGS FOR ITEMS OF CONCEPTION FACTORS

		Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
DMC	BY				
	DC1	1.000	0.000	999.000	999.000
	DC2	0.990	0.043	23.017	0.000
	DC3	1.036	0.046	22.628	0.000
	DC4	1.007	0.041	24.847	0.000
	DC5	0.971	0.045	21.553	0.000
	DC6	0.912	0.050	18.270	0.000
	DC7	0.939	0.044	21.287	0.000
	DC8	1.016	0.047	21.723	0.000
	DC9	0.903	0.047	19.151	0.000
	DC10	1.001	0.041	24.579	0.000
	DC11	1.038	0.050	20.905	0.000
	DC12	1.011	0.042	24.118	0.000
	DC13	1.043	0.045	23.232	0.000
	DC14	1.078	0.042	25.452	0.000
	DC15	0.887	0.057	15.549	0.000
	DC16	0.796	0.059	13.555	0.000
	DC17	0.946	0.053	17.760	0.000
	DC18	1.003	0.053	18.928	0.000
	DC19	0.871	0.060	14.514	0.000
	DC20	0.946	0.051	18.427	0.000
	DC21	0.997	0.047	21.134	0.000
	DC22	1.050	0.047	22.342	0.000
	DC23	0.932	0.052	17.972	0.000
	DC24	1.114	0.048	23.412	0.000
IMC	BY				
	IC1	1.000	0.000	999.000	999.000
	IC2	0.908	0.049	18.501	0.000
	IC3	0.830	0.048	17.280	0.000
	IC4	0.955	0.044	21.846	0.000
	IC5	0.816	0.047	17.354	0.000
	IC6	0.915	0.047	19.536	0.000
	IC7	0.707	0.067	10.580	0.000
	IC8	0.987	0.038	25.940	0.000
	IC9	0.995	0.041	24.060	0.000
	IC10	0.998	0.037	27.093	0.000
	IC11	1.072	0.037	28.994	0.000
	IC12	1.028	0.038	26.811	0.000
	IC13	1.009	0.040	25.070	0.000
	IC14	1.063	0.038	27.903	0.000
	IC15	1.022	0.038	26.985	0.000
	IC16	1.020	0.040	25.307	0.000
	IC17	0.794	0.055	14.334	0.000
	IC18	0.867	0.049	17.738	0.000
	IC19	0.742	0.062	11.999	0.000
	IC20	0.849	0.051	16.611	0.000
	IC21	0.629	0.066	9.540	0.000
	IC22	0.762	0.054	14.061	0.000
	IC23	0.632	0.051	12.439	0.000
	IC24	0.602	0.059	10.115	0.000

Figure E.1. The Factor Loadings for Items of Conception Factors.

APPENDIX F: ETHICS COMMITTEE APPROVAL

Evrak Tarih ve Sayısı: 13.01.2022-47433

T.C.
BOĞAZİÇİ ÜNİVERSİTESİ REKTÖRLÜĞÜ
Sosyal ve Beşeri Bilimler İnsan Araştırmaları Etik Kurulu (SBİNAREK)

Sayı : E-84391427-050.01.04-47433 13.01.2022
Konu : 2021-58 Kayıt Numaralı Başvurunuz Hakkında

Sayın Doç. Dr. Fatma ASLAN TUTAK
Matematik ve Fen Bilimleri Eğitimi Bölüm Başkanlığı - Öğretim Üyesi

"Matematik Öğretiminde Etkin Mentörlük (MöEM): Öğretmen Adayları ve Öğretmenlik Uygulaması Mentörlerinin Algılarının İncelenmesi" başlıklı projeniz ile Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler İnsan Araştırmaları Etik Kurulu (SBİNAREK)'e yaptığınız 2021-58 kayıt numaralı başvurunuz 07.01.2022 tarih ve 2022/01 sayılı kurul toplantısında incelenmiş ve projenize etik onay verilmesi uygun bulunmuştur.

Bu karar tüm üyelerin toplantıya on-line olarak katılımıyla ve oybirliği ile alınmıştır. COVID-19 önlemleri nedeniyle üyelerden ıslak imza alınamadığından bu onam mektubu tüm üyeler adına Komisyon Başkanı tarafından e-imzalanmıştır.

Saygılarımızla, bilgilerinizi rica ederiz.

Doç. Dr. Osman Sabri KIRATLI
Başkan

Bu belge, güvenli elektronik İmza ile imzalanmıştır.
Doğrulama Kodu :BSF305LJ62 Pin Kodu :03432 Belge Takip Adresi : https://turkiye.gov.tr/ebd?eK=4787&eD=BSF305LJ62&eS=47433
34342 Bebek-İSTANBUL
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İnternet Adresi:www.boun.edu.tr
Kep Adresi:bogaziciuniversitesi@hs01.kep.tr
Bilgi için: Nurşen MUNAR
Unvan: Mühendis

Bu belge, güvenli elektronik imza ile imzalanmıştır.

Figure F.1. Ethics Committee Approval.