Devising A Structural Equation Model of Relations Between Teachers' Goal Orientations, Epistemological Beliefs And Self-Efficacy

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Differences, backgrounds, and characteristics of teachers are essential factors in the teaching and learning environments. Teachers are a vital factor in quality education and an influential component in improving the success of any educational system. The primary purpose of this study is to determine the relationship between the self-efficacy, goal orientations, and epistemological beliefs of teachers. A sample of 375 teachers participated in this study. Path analysis results indicate that their epistemological beliefs correlate with the ability to approach goals, mastery goals, and self-efficacy. The maximum effect of teachers' mastery goal is on the efficacy of instructional strategies and then on classroom management efficacy.

KEYWORDS: Epistemological Beliefs, Goal Orientations, Teachers, Self Efficacy

Introduction

Teaching-learning environments have some interrelated components such as teachers, learners, curriculum, environment, etc. In the teaching-learning environment, teachers are important and influential components of the educational outcomes of students. Therefore, it is important to understand and determine the congruence between teachers' behaviours, values, beliefs, philosophies, differences, backgrounds, and characteristics in the interaction between teachers and students in the teaching-learning (Heimlich & Norland, 2002).

Teachers' self-efficacy an important personal factor—plays an important role in their adoption of achievement goals (S. S. Shim et al., 2013). In general, it is an expected situation for teachers to have a strong self-efficacy and intrinsic

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goal orientation to be more open to new ideas (Pamuk, 2014). They try new methods to meet the needs of their students and especially use methods difficult to manage but effective in the classroom, such as inquiry-based or peer-led team learning methods; they prefer methods in which their students can learn better; they consider exceptional students' special needs; they set challenging and high learning objectives; they teach over and over again when necessary; and they are motivated in terms of students achieving goals (Deemer, 2004; Pamuk, 2014). According to Wolters and Daugherty (2007), teachers' self-efficacy affects their instructional practices and policies in the classroom.

Classrooms are usually discussed and described as the environments of achievement for students, yet Butler (2007) contends that classrooms also provide environments for teachers to attain success in their profession and develop their achievement goals for the teaching process. When the literature was searched for instances of relations between teachers' goal orientations and the other variables, the studies will be demonstrated the importance of their goal orientations. It was found in the relevant literature that teachers' goal orientations were associated with instructional practices (Dresel et al., 2013; Retelsdorf et al., 2010); job satisfaction (Papaioannou & Christodoulidis, 2007; Skaalvik & Skaalvik, 2013); help-related perceptions, preferences, and behaviour (Butler, 2007); teachers' classroom behaviour (Butler & Shibaz, 2008); and self-efficacy (Nitsche et al., 2011); teachers' turnover intention (Li et al., 2021). Briefly, it can be said that teachers' goal orientations affect all components in the learning process, that teachers have determining roles in the goal structures forming in the classroom environment, and that teachers are influential in determining students' goal orientations (Wolters & Daugherty, 2007).

Epistemological Beliefs

Epistemological beliefs are individuals' beliefs about what knowledge is and how knowing and learning occur (Schommer, 1990). Different individuals have different epistemological beliefs due to different belief contents and relative sophistication of beliefs (Schraw & Olafson, 2003). Epistemological beliefs can differ depending on academic contexts and cultural differences (Buehl & Alexander, 2001). Individuals with more sophisticated epistemological beliefs are more likely to have a successful academic career, adopt mastery goals and exhibit better learning and study strategies in their whole learning process (Schommer, 1990). Teachers' epistemological beliefs are generally related to knowledge acquisition and the nature of knowledge (Luft & Roehrig, 2007). Luft and Roehrig (2007) say that epistemological beliefs interact with teachers' beliefs about learning, understanding, and students' knowledge. Teachers having epistemologically strong relativist worldviews are more likely

to create student-centred classroom environments (Brownlee & Berthelsen, 2006; Hashweh, 1996). Brownlee (2001) states that teachers' epistemological beliefs can influence their approach to teaching.

Teachers' Self-Efficacy

Self-efficacy "refers to beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997). According to social cognitive theory, teachers' self-efficacy can be defined as teachers' beliefs about their capability in performing, organising, and planning the activities for educational goals to be attained (Skaalvik & Skaalvik, 2010). Self-efficacy is the most important belief influencing teachers' professional behaviours (Wolters & Daugherty, 2007). Self-efficacy influences the degree of teachers' efforts made in the learning-teaching process and the degree of their goals and demands (Tschannen-Moran & Hoy, 2001). In addition to influencing students' achievements and attitudes in positive ways, teacher self-efficacy is also influential in teachers' in-class behaviours, being open to new ideas, and developing positive attitudes towards teaching (Gibson & Dembo, 1984; Tschannen-Moran et al., 1998). Teachers' beliefs have guiding effects on their plans and decisions about classroom management and their teaching strategies (Woolfolk et al., 2009). Plourde (2001) states that teachers with high self-efficacy perceptions use student-centred strategies in their classes. Studies available in the literature also suggest that teachers with high self-efficacy use different strategies of teaching and classroom management (Goddard et al., 2000; F. Pajares, 1996; Woolfolk & Burke-Spero, 2005).

Achievement Goals

Although students' motivation is the basic subject of research in studies in educational psychology, it is surprising that the number of studies about teacher motivation is small (Butler, 2007; Papaioannou & Christodoulidis, 2007). However, the number of studies on teachers' achievement goal orientations is increasing (George & Richardson, 2019; Li et al., 2021; S. Shim et al., 2020). Despite the significant effects of achievement goals for teaching, little is known about the factors contributing to the development of teachers' achievement goals for teaching (S. S. Shim et al., 2013). Teachers' motivation should be taken into consideration as an important factor mediating the implementation and functioning of the curriculum effectively (Papaioannou & Christodoulidis, 2007).

The basic property of goal theory is the emphasis laid on how goals of differing types can influence behaviours in cases of achievement (Elliot, 2005;

Pintrich, 2003). Goal orientation can be defined as causes or reasons enabling individuals to be involved in academic tasks (Elliot & Mcgregor, 2001). Teachers' goal orientation for teaching is defined as various orientations of teachers' teaching competence such as improving or displaying teaching competence. Teachers have varying degrees of goal orientation, while some teachers, for instance, focus on developing their teaching skills (mastery goals for teaching), some others are concerned with showing or proving their superior teaching abilities (performance-approach goals teaching) to others, and still, others can have goals such as hiding their lack of teaching capacities (performance-avoidance goals for teaching) (S. S. Shim et al., 2013). Butler (2007) divides teachers' goal orientations for teaching into four categories labelled as mastery, ability approach, ability avoidance and work avoidance goals. This classification was made by Butler according to teachers' efforts to gain professional understanding and skills, their mastery and developing efforts (mastery orientation), their efforts to show their superior teaching skills, their efforts to display their inadequate teaching abilities (ability avoidance) and their efforts to spend the day with minimum effort (work avoidance).

In terms of goal orientations, this study is mainly concerned with teachers' mastery of goals and ability to approach goals. Because teachers determine higher levels of mastery and ability approach goals compared to ability avoidance and work avoidance goals for teaching (Butler, 2012). Besides, according to achievement goal orientation theory, mastery and ability approach goals enable positive gains and outputs whereas avoidance goals indicate mostly fruitless gains (Elliot, 1999). Teachers with mastery goals focus on mastery, development, and gaining professional skills. Conversely, teachers with ability approach goals focus on displaying their superior teaching abilities.

Purpose of the Study

In teacher professional development, determining teachers' beliefs are important for education researchers and teacher educators. Because teachers' views on teaching and learning are related to their beliefs (Chan & Elliott, 2004). In addition, teachers' epistemological beliefs affect the use of their teaching strategies (Hashweh, 1996). From this point of view, teachers' epistemological beliefs may also have positive contributions to their self-efficacy and goal orientations. In addition, the results to be obtained at the end of this study will contribute to the findings on the effects of teachers' beliefs on other cognitive and non-cognitive variables. Identifying these effects can also provide support for the claims that teachers' theoretical frameworks are based on beliefs (Chan & Elliott, 2004). However, there are not many studies in the literature that reveal the relations between teachers' epistemological beliefs, self-efficacy and goal orientations. The current paper intends to fill this gap. The primary pur-

pose of this study is to explore the relations between biology, chemistry, and physics teachers' epistemological beliefs, self-efficacy and goal orientations.

Specifically, the current study addresses the following research questions:

Q1. Is there a relationship between teachers' epistemological beliefs (i.e., beliefs about the certainty of knowledge, beliefs about the source of knowledge, beliefs about the development of knowledge, and beliefs about the justification of knowing) and their achievement goal orientations (i.e., mastery goals and ability-approach goals)?

Q2. Is there a relationship between teachers' epistemological beliefs (i.e., beliefs about the certainty of knowledge, beliefs about the source of knowledge, beliefs about the development of knowledge, and beliefs about the justification of knowing) and their teachers' sense of efficacy (i.e., efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement)?

Q3. Is there a relationship between teachers' achievement goal orientations (i.e., mastery goals and ability-approach goals) and their teachers' sense of efficacy (i.e., efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement)?

A theoretical model compatible with the literature was created. Hypotheses were shown with one-way arrows between variables in this model. The proposed structure of the model is shown in Figure 1.
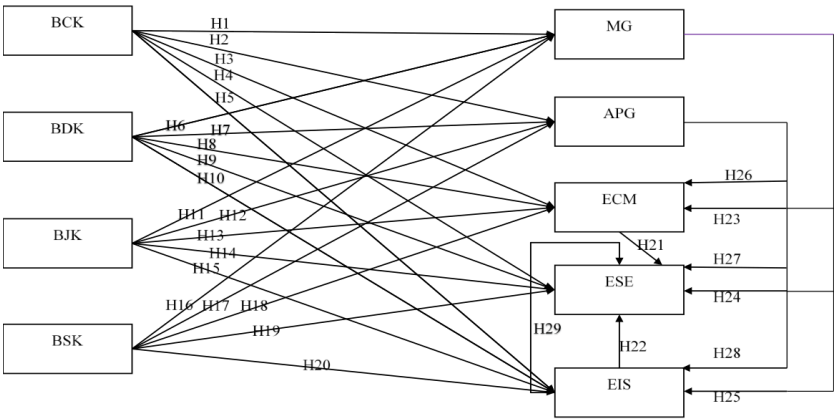
Figure 1. The Proposed Model of the Study

H1, H2, H3, H4, and H5: Beliefs about the certainty of knowledge (BCK) predict mastery goals (MG), ability-approach goals (APG), efficacy for class-

room management (ECM), efficacy for student engagement (ESE), and efficacy for instructional strategies (EIS), respectively.

H6, H7, H8, H9, and H10: Beliefs about the development of knowledge (BDK) predict MG, APG, ECM, ESE, and EIS, respectively.

H11, H12, H13, H14, and H15: Beliefs about the justification of knowing (BJK) predict MG, APG, ECM, ESE, and EIS, respectively.

H16, H17, H18, H19, and H20: Beliefs about the source of knowledge (BSK) predict MG, APG, ECM, ESE, and EIS, respectively.

H21: ECM predicts ESE.

H22: EIS predicts ESE.

H23, H24, and H25: MG predicts ECM, ESE, and EIS, respectively.

H26, H27, and H28: APG predicts ECM, ESE, and EIS, respectively.

H29: EIS predicts ECM.

SAMPLE FOR THE STUDY

A total of 375 teachers participated in the study. Participation by the teachers was voluntary. Of these teachers, 116 biology, 141 chemistry, and 118 physics teachers were included in the study; 206 were female and 169 were male. Further information about the participants is given in Table 1.

Table 1

Teachers' Characteristics.

Variables		f
	Biology	116
Discipline	Chemistry	141
	Physics	118
Gender	Female	206
	Male	169
	20-25	1
	26-30	22
Age	31-40	133
	41-50	199
	51 +	20
	0-5 Years	7
	6-10 Years	23
Experience		

Table 1 continued

	11-15 Years	56
	16-20 Years	178
	21 - +	111

Tools Used in the Study

Epistemological Beliefs Questionnaire (EBQ)

The Epistemological Belief Questionnaire (EBQ) was developed according to Hofer and Pintrich's (1997) framework by Conley et al. (2004). The scale was designed to define beliefs about the nature of knowledge and the nature of knowing. Responses were scored using a 5-point Likert-type scale, ranging from 1 (completely disagree) to 5 (completely agree). There are 26 items on the scale. The scale is composed of four subscales, namely beliefs about the certainty of knowledge (BCK), beliefs about the source of knowledge (BSK), beliefs about the development of knowledge (BDK), and beliefs about the justification of knowing (BJK). The BSK and BCK scales were reversed on certain items so that a high score represented a more sophisticated belief. The reliability coefficients for the subscales of the EBQ are presented in Table 2.

Teachers' Sense of Efficacy Scale (TSES)

The Teachers' Sense of Efficacy Scale (TSES) was developed by Tschannen-Moran and Hoy (2001). In this study, a short version of the scale was used, which was designed by Tschannen-Moran and Woolfolk Hoy (2001) by determining four items with a high factor load for each subscale. The short version of the scale consists of 12-item scales with a 9-point Likert-type response scale, ranging from 1 (nothing) to 9 (a great deal). The scale is composed of three subscales, namely efficacy for instructional strategies (EIS), efficacy for classroom management (ECM), and efficacy for student engagement (ESE). The reliability coefficients for the subscales of the TSES are presented in Table 2.

Achievement Goal Orientations Scale (AGOS)

The Achievement Goal Orientations Scale (AGOS) was developed by Butler (2007). The AGOS consists of 28-item scales with a 5-point Likert-type response scale, ranging from 1 (do not agree at all) to 5 (agree completely). The scale is composed of four subscales, namely mastery goals (MG), ability-approach goals (APG), ability-avoidance goals, and work-avoidance goals. In this study, the MG and APG subscales were used. The reliability coefficients for the two subscales of the AGOS are presented in Table 2.

Table 2

Reliability Coefficients for the Subscales .

	Scale	Cronbach Alpha
EBQ	Beliefs about the source of knowledge (BSK)	0.76
	Beliefs about the certainty of knowledge (BCK)	0.79
	Beliefs about the development of knowledge (BDK)	0.68
	Beliefs about justification of knowing (BJK)	0.80
TSES	Efficacy for Instructional Strategies (EIS)	0.81
	Efficacy for Classroom Management (ECM)	0.84
	Efficacy for Student Engagement (ESE)	0.83
AGOS	Mastery goals (MG)	0.81
	Ability-approach goals (APG)	0.61

In the present study, the EBQ, TSES, and AGOS were applied as paper-and-pencil versions. Teachers were informed of the purpose of the research before the administration of the data collection tools. Teachers participated in the study voluntarily. The participants were allowed 30 minutes for the application.

Results of the Study

Before the results of structural equation modelling (SEM), descriptive statistics were computed such as the mean, median, standard deviation (SD), minimum, and maximum for the continuous variables as given in Table 3. In addition, Pearson correlation coefficients between the variables of the study are also presented in Table 3. From the data, it can be seen that the correlation coefficients between the variables of the study are positive and significant.

SEM was used to test the hypotheses of the study. The fit indices found through analyses are shown in Table 4. It was found in consequence that the conceptual model formed based on the literature did not fit the data very

Table 3

**Descriptive Statistics and Pearson Correlation Coefficients for the Variables.**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) BCK	1								
(2) BDK	0.60**								
(3) BJK	0.89**	0.60**							
(4) BSK	0.56**	0.83**	0.64**						
(5) MG	0.68**	0.74**	0.65**	0.72**					
(6) APG	0.58**	0.62**	0.66**	0.58**	0.63**				
(7) ECM	0.42**	0.63**	0.44**	0.67**	0.79**	0.60**			
(8) ESE	0.29**	0.57**	0.29**	0.51**	0.59**	0.54**	0.82**		
(9) EIS	0.34**	0.53**	0.33**	0.51**	0.59**	0.54**	0.78**	0.86**	1
Mean	14.5	24.4	12.4	37.4	29.2	13.5	28.7	28.1	26.5
Median	14	25	12	37	29	14	28	28	27
SD	3.7	2.7	3.6	3.4	3.1	2.1	2.9	2.9	3.4
Minimum	5	8	5	18	7	8	14	14	12
Maximum	26	31	21	45	35	20	36	36	36

well. Apart from that, the analysis results also demonstrated that the path coefficients between some of the variables in the model were not significant. The non-significant paths were removed from the model and thus the analyses were done. As a result, the t-values for each path and the error variances were examined and eight non-significant paths in total were removed at the end of the analyses. The t-values for the paths between BCK and EIS (H5), BCK and ECM (H3), BDK and ECM (H8), BDK and EIS (H10), BJK and MG (H11), BSK and APG (H17), and APG and ESE (H27) were non-significant (t < 1.96; p > .05). Following the analysis, the non-significant paths were removed from the model and an alternate model instead of the conceptual model was created, and this new model was tested (see Figure 2). The goodness of fit indices for the alternate model is shown in Table 4.

On examining the fit indices for the alternate model, it was granted that the fit indices met the criteria for the goodness of fit indices (χ^2 = 29.01, χ^2/df = 1.93, RMSEA =0.05, GFI=0.98, AGFI =0.95, NFI =0.99, and NNFI =0.99) (Hu & Bentler, 1999; Kline, 2005).

Table 4

The Fit Indices of the Alternative Model.

χ^2	df	χ^2 /df	RMSEA	GFI	AGFI	NFI	NNFI	CFI	IFI	SRMR
62.39	25	2.49	0.06	0.97	0.92	0.99	0.99	0.99	0.99	0.03
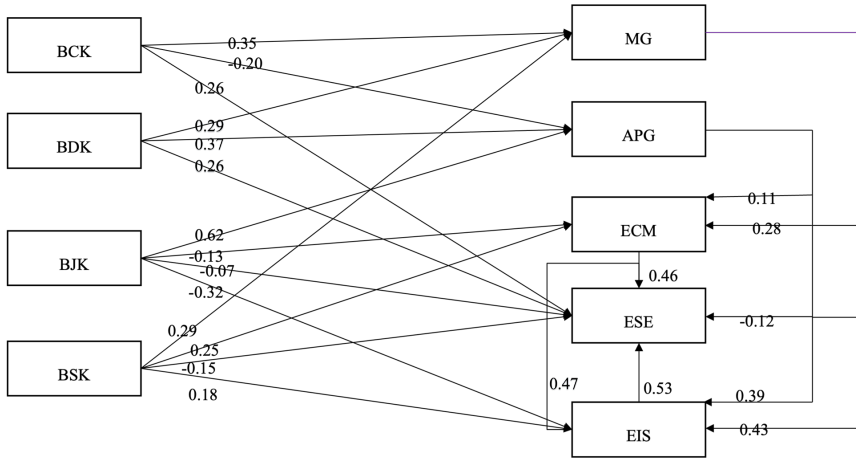
Figure 2. The Standardized Path Coefficients in Alternative Model

According to SEM analysis for the alternative model, the findings revealed, as hypothesised, that BCK had a significant effect on MG (β =0.35), APG (β =-0.20), and ESE (β =0.26). BDK was a significant positive predictor of MG (β =0.29), APG (β =0.37), and ESE (β =0.26). BJK had a statistically significantly positive effect on APG (β =0.62), ECM (β = -0.13), ESE (β = -0.07) and EIS (β = -0.32). As seen in Figure 2, BSK was statistically significantly associated with MG (β =0.29), ECM (β =0.25), ESE (β = -0.15), and EIS (β =0.18). Additionally, ECM was statistically and significantly correlated with ESE (β =0.46). In addition, EIS had a significant effect on ESE (β =0.53). The standardised path coefficients from MG to ECM (β =0.28), to ESE (β =-0.12), and EIS (β =0.43) were statistically significant. Additionally, the standardised path coefficients from APG to ECM (β= 0.11) and APG to EIS (β= 0.39) were found to be significant. EIS had a significant effect on ECM (β =0.47).

According to SEM analysis for the alternative model, 43% of the variance in EIS was explained by MG, APG, BJK, and BSK. Moreover, 82% of the variance in ESE was explained by MG, ECM, EIS, BCK, BDK, and BSK. In addition, MG,

APG, EIS, BJK, and BSK explained 74% of the variance in ECM. Additionally, 52% of the variance in APG was explained by BCK, BDK, and BJK. Finally, BCK, BDK, and BSK accounted for 65% of the variance in MG.

DISCUSSION AND CONCLUSION

In this study, the relations between biology, chemistry, and physics teachers' self-efficacy, goal orientations, and epistemological beliefs were examined with SEM. According to the SEM results, the greatest effect of teachers' mastery goals (MG) was found to be on the efficacy of instructional strategies (EIS) and then on the efficacy of classroom management (ECM). A teacher's self-efficacy is associated with mastery goals and is an important factor in ensuring students' development (Phillip, 2007). It was found in the literature that there were correlations between teachers' goal orientations for teaching and their instructional practice (Butler, 2012; Retelsdorf et al., 2010; Retelsdorf & Günther, 2011). For example, Wolters and Daugherty (2007) found that teachers' ESE, EIS and ECM were statistically correlated with their MG. Retelsdorf et al. (2010) found high and significant correlations between teachers' mastery goals and mastery approaches to instruction. M. F. Pajares (1992) suggests that teachers' belief in their abilities in teaching-related tasks is highly probable to affect their adoption of achievement goals for teaching. In addition, a negative relationship was found between MG and efficacy for student engagement (ESE). This result was different from the expectations of the study. This may be since teachers have problems ensuring the participation of students in crowded classrooms in public schools.

In this study, it was determined that there was a positive and significant relationship between teachers' ability-approach goals (APG) and ECM, APG and EIS. However, the effect of APG on EIS was found to be greater. Elliot and Harackiewicz (1996) state that teachers having the ability-approach goals directing them to display their superior abilities make more efforts in the process of teaching since those goals arouse an optimum sense of mission. It was also found in their study that there were positive relationships between the ability to approach goals and performance practice. Teachers with mastery goals aim to raise the quality of education and use student-centred teaching styles in the classroom (Retelsdorf & Günther, 2011). Retelsdorf and Günther (2011) found that MG had positive and indirect effects on comprehensive learning but indirect and negative effects on surface learning. The same study also found that ability approach goals had indirect effects on surface learning. Nitsche et al. (2011) found that teachers having mastery goal orientation had a high self-efficacy while teachers having performance goal orientation had a low self-efficacy. Pamuk (2014) found that teachers' ability-approach goals were positively correlated with students' perceptions of learning science.

The students of teachers who wanted to look more successful than other teachers felt more freedom in learning science. Pamuk (2014) states that teachers in Turkey explain why they set performance-displaying goals rather than MG with the fact that their students will take tests administered across the country and that they must be prepared to take those tests so that they can start university education. Thus, teachers will consider themselves more successful if their students can pass those tests and can enter a university.

In the current study, when the relation between teachers' self-efficacy related to student engagement, classroom management and instructional strategies was examined, the results showed that though EIS had the biggest impact on ESE, ECM also had a significant contribution. It was also found that EIS had a significant effect on ECM. Teachers' self-efficacy is closely correlated with their use of teaching strategies to increase students' achievements and with eagerness to put forward new ideas (Philipp, 2007). Individuals with a high self-efficacy set higher standards for themselves and that they are willing to take bigger risks than individuals with a low self-efficacy (Akbari et al., 2009). Akbari et al. (2009) further refer to teachers' self-efficacy as the most important factor affecting their performances. Teachers having low self-efficacy are worse at teaching, that they allocate less time to academic development, and that they spend less time on perceived inefficacy (Bandura, 1995). Indeed, teachers' self-efficacy plays important role in influencing important educational outcomes (Klassen et al., 2009). Tschannen-Moran and Hoy (2001) claim that teachers with high self-efficacy are reformists and are more inclined to take risks in teaching methods.

In this study, various significant relations between teachers' epistemological beliefs and self-efficacy were determined. Beliefs about the certainty of knowledge (BCK) were associated with ESE. In addition, the relationship between beliefs about the development of knowledge (BDK) and ESE was found to be significant. Beliefs about the justification of knowing (BJK) were negatively correlated with ECM, ESE and EIS. Moreover, beliefs about the source of knowledge (BSK) were positively correlated with ECM and EIS and were negatively correlated with ESE. According to the results of the study, it can be said that when teachers hold sophisticated epistemological beliefs, they have a greater self-efficacy. Similar and different results were presented by different researchers. In a study conducted in Turkey by Ozbay and Koksal (2021), it was found that secondary school students' beliefs about certainty and sources of knowledge were related to their achievement. In the literature, a significant and positive relationship was found between educational technology integration competency and BSK, BDK and BJK in a study (Bahcivan et al., 2019), while a significant relationship was found only between digital literacy skills and BDK and BJK in another study (Gunes & Bahcivan, 2018). It was pointed out in the literature that teachers' beliefs were

generally directly related to their behaviours in the classroom (Fang, 1996; Hashweh, 1996; Kang & Wallace, 2005). Teachers having tentative beliefs about configuring knowledge are more likely to create a better learning-teaching environment, which will enable them to provide materials, do experiments, use student-centred strategies, and offer better opportunities to learn (Hashweh, 1996). Teachers having student-centred views regulate themselves according to their student's interests, abilities, knowledge, and needs because such teachers believe that learning can only occur with teaching that is conducted to their students' needs (Hoy et al., 2008).

In this study, significant relations between teachers' beliefs about the certainty of knowledge (BCK) and MG and APG were determined. In addition, beliefs about the development of knowledge (BDK) were correlated with MG and APG. Beliefs about the justification of knowing (BJK) were associated with APG. Moreover, beliefs about the source of knowledge (BSK) were related to MG. However, when the literature is examined in detail, it is seen that no studies are supporting the results of the current study. However, previous studies revealed that beliefs differed according to academic disciplines (Buehl & Alexander, 2001; Hofer, 2001) and years of teaching experience (Woolfolk-Hoy et al., 2006). For this reason, teachers' goal orientations and self-efficacy might not have been predicted by their epistemological beliefs at the desired level in this study. A teacher's instructional practice in the classroom is affected by his/her individual beliefs rather than by his/her content knowledge or teaching strategies (M. F. Pajares, 1992; Tsai, 2006). For instance, teachers' epistemological beliefs also influence their teaching strategies (Brownlee & Berthelsen, 2006; Hofer, 2001; Yang, 2005). Teachers with sophisticated epistemological beliefs mostly prefer methods and strategies based on constructivist learning theory (Hofer, 2001; M. F. Pajares, 1992). Hashweh (1996) found that teachers having constructivist-oriented beliefs considered how students learnt more important, that they did not have misconceptions, that they used much more effective ways to make conceptual changes, and that they were knowledgeable about different teaching strategies. While teachers with naïve epistemological beliefs are more likely to conduct teaching under their control, teachers with sophisticated epistemological beliefs prefer teaching processes that are less under the teacher's control (Kirschner et al., 2006).

In conclusion, it may be said that teachers having sophisticated epistemological beliefs believe in their abilities in the process of teaching and that they set various mastery or ability approach goals. However, the fact that the epistemological beliefs in the model used in this study yielded different results regarding the self-efficacy and goal orientations makes it necessary to do further research about these variables. Factors such as age, gender, and occupational experience can also be included in the model. Another cause of differing results obtained in this study could be the country in which the study was

conducted. Differences in classroom structures, teachers' levels of welfare, and curricula might also have yielded such results. The need for students to take an exam to enter a university and students' perception of the teaching-learning process in high schools as a competition can also influence the goals that teachers set for themselves. Therefore, conducting such studies in different countries could contribute significantly to the literature.

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