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Analyzing the Relationship between Attitudes towards Teaching Profession, Reflective Thinking and Individual Innovativeness

Senol ORAKCI[1] Muhammed Emir RUZGAR[2]

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Abstract

In this study, the degree to which reflective thinking and individual innovativeness predicted student teachers' attitudes towards teaching profession was investigated. The relational survey model was conducted. The study was composed of 510 student teachers from seven different state universities in Turkey. "Reflective Thinking Scale (RTS)", "Individual Innovativeness Scale (IIS)" and "Attitude Towards Teaching Profession Scale (ATTPS)" were used as instruments to conduct the study. "Pearson Momentler Correlation Coefficient" and "Multiple Linear Regression Analysis" were conducted in the correlational and regression analysis. The findings revealed a strong positive meaningful correlation between attitudes towards teaching profession, reflective thinking and individual innovativeness of student teachers. The study also also found a strong positive meaningful correlation between reflective thinking and individual innovativenes.

Keywords: Atttitude, reflective thinking, individual innovativenes, teaching profession.

Introduction

The increase in the amount and spread of information, which is the most prominent feature of our age, enables us to reach information in a wide variety of highly impressive forms (Erdem & Akkoyunlu, 2002). This shows that the changes and developments in social sphere are effective in all spheres of life. In this context, individuals who make up society need to have an understanding of innovation that will adapt to the innovations arising as a part of these changes and developments. Innovation is the degree to which individuals or institutions within a social system adopt any innovation earlier than others (Rogers, 2003).

Goldsmith and Foxall (2003) describe the concept of "innovation" as individuals' reactions to innovations, while Break (2001) defines it as willingness to change and Hurt, Joseph and Cook (1977) define it as willingness to change or to try new things. Demirel and Seckin (2008) argue that innovation is based on knowledge and they define the concept of "innovation" as changing, taking risks, and more importantly, taking risks out of what is known. Based on the current definitions, Kılıcer and Odabasi (2010) define "innovation" as an umbrella concept that includes the features of concepts such as risk taking, openness to experience, creativity, and idea leadership. On the other hand, Turhan (2009) describes common definition of the word "innovation" based on the literature by emphasizing "people

[1] Corresponding author: Aksaray University, [0000-0003-1534-1310], senolorak@gmail.com
[2] Aksaray University, [0000-0001-6372-1233], memirruzgar@aksaray.edu.tr

differ in their reactions to new things". This means that individuals are at the center of innovation (Tabak, Erkus & Meydan, 2010).

Each individual involved in education is expected to know his/her own responsibility, investigate, question and produce in order to implement innovations in education and to use technology effectively. Considering that the most important individuals who bring innovation, change and shape education are student teachers (Bakkenes, Vermunt & Wubbels, 2010), student teachers need to produce creative ideas, learn new teaching techniques and update themselves to their fields (Pollock, 2008).

Reflective thinking skills are also important to be adopted by student teachers. It can be said that Dewey's (1933) study constitutes the basis of the concept of "reflective thinking". Dewey (1933) describes reflective thinking as an effective, consistent and careful way of thinking. Schon (1983) defines "reflection" as thinking about what is done during the action, questioning it and reaching a conclusion by analysing a situation. Lee (2005) explains it as a process of relating and using the existing knowledge to the new situation and future situations with regard to the situation faced by an individual. Norton (1994) defines it as systematic questioning of the applications in education with regard to objectives, results, methods and materials whereas Koksal and Demirel (2008) describe "reflective thinking" as the capacity to create rational solutions and take on these solutions. Unver (2007) states that reflective thinking requires discovering positive and negative situations regarding method and level in teaching and learning. Rodgers (2002) expresses it as a rotational process from application to theory and from theory to application. In the same direction, Semerci (2007) defines reflective thinking as a way of thinking, acting as a bridge between theory and practice.

According to Dewey (1933), a reflective teacher continually interrogates his/her aims, actions and considers the influence of his/her practices and their results on learners in short-term and long-term. Dewey (1933) emphasizes that existing information needs to be arranged, organized and effectively structured and then transformed into behaviour in a solution-oriented manner. Because it is obvious that teachers whose reflective thinking skills are sufficiently underdeveloped repeat their present or past teaching practices. A reflective-thinking teacher constantly renews himself/herself, and he/she is open-minded, transformative and open to improvement. He/she also observes his/her environment sensitively, tries to be aware of new situations, and looks at his/her environment, events and people with suspicion and curiosity. Then, he/she goes to the stage of recognizing, examining and evaluating all his/her observations. With all these features, reflective thinking that entails more reading, planning and thinking about teaching actually brings it along with critical, creative, metacognitive and scientific thinking (King, Goodson, & Rohani, 2009; Unver, 2003; Unver, & Yurdakul, 2020). In addition, teachers or student teachers that assess their innovative practices are expected to utilize reflective thinking skills for the purpose of improving present activities or developing them better in the future (Ekiz, 2006; McLeod, Vaughan, Carey, Shannon, & Winn, 2019). In fact, reflective thinking can be said to be necessary for teachers, as it has a principal role in advancing their professional development by helping them to interrogate themselves continually and identify their strengths and weaknesses. As reflective thinking allows teachers to constantly monitor, evaluate and correct their own practices, teachers or prospective teachers with reflective thinking are expected to creatively organize their learning and teaching activities, which is expected to increase the quality of education (Dilekli, & Orakci, 2019; Orakci, Dilekli, & Erdag, 2020; Orakci, 2021a; Orakci, 2021b).

In addition to supplying teachers with adequate knowledge and skills, their affective attitudes to teaching are also significant (Basbay, Unver & Bumen, 2009). Attitude is a phenomenon that belongs to an individual and this phenomenon that occurs as a result of individual experiences is in integrity and consistency (Kagıtcibasi & Uskul, 2006; Senturk, 2015; Tavsancil, 2006). According to Shepard and Houghland (1978), cognitive, affective and behavioral components are elements of attitude. An individual's attitudes towards his / her profession affect the performance of his / her job. This is especially true for teaching profession since teaching is a profession that entails patience and perseverance for a very long time. Gundersen (2004) stated that the longer the time it takes to wait for an action and its results to emerge, the more challenging the task will be. Some studies (e.g., Bilgin, 1996; Recepoglu, 2003; Terzi & Tezci, 2007; Ustun, Erkan & Akman, 2004; Ustun, 2007) also revealed that attitudes towards teaching

profession are influenced by the reasons to choose teaching and the people who choose teaching profession willingly have a more positive attitude towards the profession.

The Relationship Between "Attitudes Towards Teaching Profession", "Reflective Thinking" and "Individual Innovativeness"

Since reflective thinking is a mental and affective process, it can affect student teachers' mental and emotional attitudes to teaching during the teaching-learning processes besides the fact that it can promote student teachers to have individual innovativeness. According to Roskos, Vukelich and Risko (2001), reflective thinking is a tool in training teachers who are more skilled, open to critical thinking and new developments. It is also an emotion that helps teachers teach effectively and free from dogmatic thoughts and prejudices. Norton (1997) in her research determined a positive relationship between effective teaching and reflective thinking. In addition, it was also determined in her study that effective teachers are careful, devoted, creative, capable, reflective thinkers with strong internal control and attitudes in addition to that they form innovative teaching atmosphere by coming after contemporary information and technology. Choy, Yim and Tan (2017) discovered that student teachers' reflective thinking skills supported self-efficacy, self-assessment and teaching awareness, which are indicators of teacher competence. In addition, reflective thinking is also seen as a tool in raising teachers who think critically and love their profession (Roskos et al., 2001). In such a case, student teachers' reflective thinking skills, their attitudes towards teaching profession and their level of individual innovativeness can be said to be interrelated, and their reflective thinking skills can significantly affect their attitudes to teaching profession and their level of individual innovativeness. On the other hand, student teachers' attitudes to teaching profession can also affect their reflective thinking skills and individual innovativeness. Student teachers with high attitudes towards teaching profession are expected to make more effort for their professional development and so they can develop reflective thinking characteristics and their level of individual innovativeness whereas the opposite is also true. Therefore, it is also possible to say that the levels of reflective thinking skills, attitudes towards teaching profession, and individual innovativeness of student teachers can affect each other.

When the literature was investigated, it was found that some studies although not enough examined the relationship between reflective thinking and attitudes towards teaching profession (Gurbuz, 2020; Keskinkilic Yumusak, 2015; Kozikoglu, & Gonulal, 2020; Oruc, 2000; Tok, 2008; Yumusak, 2015; Zembat, Yilmaz, & Ilci Kusmus, 2019). When these studies were analyzed, it was revealed that reflective thinking affected attitudes to teaching profession and yet there is not any work in the literature that examines the relationship between attitudes towards teaching profession, reflective thinking and individual innovativeness. For that reason, the study is expected to contribute considerably to the literature in this context.

With reference to these facts above, the aim of the present study is to investigate whether reflective thinking and individual innovativeness predict students' attitudes towards teaching profession significantly. In this regard, the study is to answer the research questions below:

1. Is there a significant relationship between reflective thinking and attitudes towards teaching profession of student teachers?
2. Is there a significant relationship between the individual innovativeness levels and attitudes towards teaching profession of student teachers?
3. Is there a significant relationship between reflective thinking and the individual innovativeness levels of student teachers?
4. Are the levels of reflective thinking and individual innovativeness of student teachers the significant predictors of their attitudes towards teaching profession?

Research Method

Design

In this study, the degree to which reflective thinking and individual innovativeness predicted attitudes towards teaching profession of student teachers was investigated and the relationships among these variables were examined. "Relational survey model" was utilized to conduct the research. The researchers concentrated on the interaction of events with one another in the natural condition deprived of forming any experimental designs. It is undoubted that foundation of an experimental design encompassing a causal and controlled investigation is expected to be a more productive way. Nevertheless, for the purpose of exploring the natural environment of events and phenomena, relational research centered on the interaction of variables was utilized. Relational survey model researches that are fundamental to the interaction of variables make a contribution to science by presenting a point of view to potential researches. As a method, the choice of "descriptive-based relational comparison" limits the explanation of cause and effect despite the possibility that there are correlations and interconnections between variables.

Participants

510 volunteer student teachers from seven state universities in Turkey constituted the participants of the study. The Ethics Committee Approval numbered 2019/01-25 and dated 27.02.2019 was also obtained from "the Aksaray University Ethics Committee" in order to gather data from participants. The "purposeful sampling strategy" was selected because it is not difficult to gather information from participants that are reachable to the researchers with ease (Senol, 2012). In addition, the data were collected from seven state universities in 7 geographic regions of Turkey. In the data collection process, lecturers from different universities except for Aksaray University were asked via e-mail to enable their student teachers to participate in the research. Out of the student teachers participating in the study, 291 (57%) were female and 219 (43%) were male; 157 (30.8%) were from Aksaray University in the Central Anatolia Region, 82 (16.1%) from Bayburt University in the Black Sea Region, 63 (12.3%) from Adıyaman University in the Southeastern Anatolia Region, 61 (12%) from Manisa Celal Bayar University in the Aegean Region, 59 (11.6%) from Hatay Mustafa Kemal University in the Mediterranean Region, 49(9.6 %) from Kocaeli University in the Marmara Region and 39 (7.6 %) from Mus Alparslan University in the Eastern Anatolia Region. Of the student teachers according to their department they attend, 62 (12.2%) were from "Teaching Turkish", 58 (11.4%) from "Social Studies Teaching", 56 (11%) from "Teaching Science", 55 (10.8%) from "Primary School Teaching", 55 (10.8%) from "Primary School Mathematics Teaching," 53 (10.4%) from "Pre-School Teaching", 47 (9.2%) from "Counseling and Guidance", 45 (8.8%) from "Computer Education and Instructional Technologies", 40 (7.8%) from "English Language Teaching", 22 (4.3%) from "Teaching Music", and 17 (3.3%) from "Teaching Art" departments. Of the student teachers, 112 (22%) were in their 1st year, 183 (36%) were in their 2nd year, 97 (19%) in their 3rd year, and 118 (23 %) in their 4th year.

Data Collection Tools

"Attitude Towards Teaching Profession Scale (ATTPS)", "Individual Innovativeness Scale (IIS)" and "Reflective Thinking Scale (RTS)" were utilized as data collection instruments. In accordance with the research ethics regarding all three scales used in the study, permissions for scale use were obtained before the research.

Reflective Thinking Scale (RTS)

RTS composed of 27 items with a "five-point likert-type scale" was developed by Guney (2008) with the purpose of determining student teachers' reflective thinking. The scale with one dimension consisted of 21 negative and 6 positive items. The "Cronbach Alfa reliability" of the scale was measured as ".95". For this study, "Cronbach alpha reliability coefficient" of the scale was found .865. Some exemplary items from the scale are as follows: "I generate alternative solutions for problems" (Item 6) and "I do not follow the innovations regarding my profession" (Item 17).

Attitudes Towards Teaching Profession Scale(ATTPS)

ATTPS as a "five-point likert-type scale" was developed by Kahramanoglu, Yokus, Cucuk, Vural, and Siraz (2018) with the purpose of determining student teachers' attitudes to teaching profession. The scale composed of one-factor includes 12 items. "Conformity index values" related to ATTPS are "NFI = .96, IFI = .98, RMSEA = .065, SRMR = .050, PNFI = .67, and PGFI = .56". The "Cronbach alfa reliability" of the whole scale was measured as ".76". For this study, "Cronbach alfa reliability" of the scale was found .879. Some exemplary items from the scale are as follows: "I try to establish a relationship between daily life and education" (Item 4) and "The idea of being a teacher excites me" (Item 11).

Individual Innovativeness Scale (IIS)

IIS developed by Hurt, Joseph and Cook (1977) and adopted into Turkish by Kılıcer and Odabası (2010) were utilized for the study. The scale was composed of a total of 20 items and four dimensions named as "early adopter", "early majority", "late majority" and "laggard". Eight of items were negative, whereas 12 of them were positive. The "internal reliability coefficient" of the Turkish-version of whole scale was computed as "α=0.82". The "internal reliability" of four factors were also computed, respectively, as "α=0.81", "α=0.73", "α=0.77" and "α=0.62". The highest score to be acquired from the scale is 94 and the lowest score is 14. For this study, "Cronbach alfa reliability" of the scale was found .83. Some exemplary items from the scale are as follows: "I enjoy trying out new ideas" (Item 2) and "I often find myself skeptical of new ideas" (Item 20).

Data analysis

"Relation analysis" and "linear regression analysis" were conducted with regard to research questions. As a consequence of a normal distribution of the data, "Pearson Moments Multiplication Correlation Coefficient" and "Multiple Linear Regression Analysis" were used. "Kolmogorov Smirnov Normal Distribution Test" was conducted to the scores obtained on the scales of RTS, IIS and ATTPS (Buyukozturk, 2013).

The results of the "Kolmogorov Smirnov Normal Distribution Test" of the data acquired from 510 students are presented in table 1.

Table 1. The results of the "Kolmogorov-Smirnov Normal Distribution Test"

Scales	N	p
RTS	510	0,101
IIS	510	0,116
ATTPS	510	0,113

As shown in Table 1, the scores acquired from RTS, IIS and ATTPS had a normal distribution (p>.05). Centered on these results, "Pearson Momentler Correlation Coefficient" in the correlation analysis and "Multiple Linear Regression Analysis" in regression analysis were used.

Findings

The relationships among RTS, IIS and ATTPS

The relationships among levels of RTS, IIS and ATTPS of students teachers were examined. The results got are conveyed in table 2.

Table 2. The relationships among RTS, IIS and ATTPS

	ATTPS	RTS	IIS
ATTPS	1		
RTS	0.793**	1	
IIS	0.779**	0.983**	1

**p<.01, n=510

As seen in Table 2,

- A strong positive meaningful relationship between RTS and ATTPS (r=0.793, p<.05) was found. It can be inferred that when the level of RTS increases, ATTPS increases as well.
- A strong positive meaningful relationship between IIS and ATTPS (r=0.779, p<.05) was found. It can be inferred that when the level of IIS increases, ATTPS increases as well.
- A strong positive significant relationship between RTS and IIS (r=0.983, p<.05) was found. It can be inferred that when the level of IIS increases, RTS increases as well.

The Effect of the Levels of IIS and RTS on ATTPS

Whether the levels of IIS and RTS of students teachers were significant predictors or not was investigated. The model formed is as follows:

Equation 1

$$\dot{Y} = b_0 + b_{RTTS}X_{RTTS} + b_{IIS}X_{IIS}$$

This analysis was conducted by multiple linear regression analysis. The results are conveyed in table 3.

Table 3. The effect of the levels of IIS and RTS on ATTPS

Model	B	Std. Error	t	p	Collinearity Statistics (VIF)	F	df	p
Constant	27.819	4.149	6.589	0.000				
RTS	1.052	0.278	4.109	0.000	47.483	351.589	2	0.000
IIS	-0.037	0.282	-0.169	0.878	47.483			

As indicated in Table 3, it is obvious that the constant is significant. It can be inferred that other variables that were not formed other than explanatory variables (RTS and IIS) to be formed were meaningfully predictive of ATTPS. RTS is a meaningfully predictive of ATTPS (p<.05), but IIS is not a meaningfully predictive of it (p>.05).

"Variance Inflation Factor (VIF)" demonstrates multicollinearity among predictive variables. When VIF is "1", there is no multicollinearity between predictive variables. A multicollinearity among predictive variables exists in the act of 1≤VIF≤10. In the act of VIF>10, a strong multicollinearity among predictive variables exists, the model constructed is unacceptable and a regression model should be constructed with "nonparametric" or "biased estimation methods" (Ozdamar, 2013). The test results of "ANOVA Model test" demonstrate that the model is meaningful (F(2)=349.581, p<.05). Despite the fact that this result demonstrates that the model formulated is meaningful and convenient, the validity of the model constructed turns out to be disputable due to the fact that a strong level of autocorrelation between the variables exists in the "VIF" statistic. The model constructed was reestablished by dividing the model into two linear regression models in place of "multiple linear regression" to hinder deceptive and inflated correlation values owing to autocorrelation. The results are conveyed in table 4.

Table 4. The effect of RTS on ATTPS

Model	B	Std. Error	t	Sig.	R	R^2	F	df	p
Constant	28.385	2.060	13.289	0.000	0.789	0.686	700.887	1	0.000
RTS	1.019	0.037	26.475	0.000					

As indicated in Table 4, it is obvious that the constant is meaningful (p<.05). In conclusion, it can be inferred that other variables that are not modeled other than the level of RTS were predictive of ATTPS. The level of RTS has an influence on ATTPS and is a meaningful explanatory factor (p<.05). The regression model constructed as a consequence of "ANOVA test" is convenient and meaningful (F(1)=700.887, p<.05). The results of the analysis of the effect of the level of IIS on ATTPS are conveyed in table 5.

Table 5. The effect of IIS on ATTPS

Model	B	Std. Error	t	Sig.	R	R^2	F	df	p
Constant	43.385	1.589	26.395	0.000	0.789	0.618	653.355	1	0.000
IIS	0.875	0.038	24.659	0.000					

As indicated in Table 5, it is obvious that the constant is meaningful (p<.05). In conclusion, it can be inferred that other variables that are not modeled other than the level of IIS were predictive of ATTPS. The effect of the level of IIS is influential in ATTPS and a meaningful explanatory factor (p<.05). The regression model constructed as a consequence of "ANOVA test" is convenient and meaningful ($F_{(1)}$=653.355, p<.05).

Results and Discussion

According to the results of the study, "attitudes towards teaching profession" and "individual innovation" and "reflective thinking" are related variables. These are positively related. When "reflective thinking" decreases, "attitude towards teaching profession" decreases, and when "reflective thinking" increase, "attitude towards teaching profession" increases as well. When the literature is examined, there are a lot of studies analyzing the effects of reflective thinking skills and practices on students' achievement, performance, attitudes, persistence of learning, development of scientific process skills and problem solving skills (Bas & Beyhan, 2012; Bolukbas, 2004; Cisero, 2006; Ersozlu & Kazu, 2011; Gurbuz, 2020; Keskinkılıc, 2010; Keskinkılıc Yumusak, 2015; Kizilkaya, 2009; Kirnik, 2010; Koksal,

2006; Sahin, 2010; Tok, 2008a; Tok, 2008b; Yildirim & Pinar, 2015; Zembat, Yilmaz, & Ilci Kusmus, 2019). Tok (2008b) examined the effect levels of reflective thinking-based activities on attitudes of student teachers and used activities that develop reflective thinking in his research and found that these activities positively affected the attitudes and performances towards teaching profession of student teachers. Zembat, Yilmaz, and Ilci Kusmus (2019) determined a high level, positive and significant relationship between reflective thinking tendencies and attitudes towards the teaching profession of pre-school student teachers. However, there are not any researches examining the relationship between individual innovation levels, attitudes towards teaching profession and reflective thinking tendencies of student teachers. The fact that this study found a meaningful and positive relationship between "attitudes towards teaching profession" and "reflective thinking" appears to be an important data contribution towards increasing teacher competencies.

Although researches revealing the effect of reflective thinking on attitudes (Tok, 2008b; Oruc, 2010; Zembat, Yilmaz, & Ilci Kusmus, 2019) are found in the literature, it is seen that there is a need for studies that reveal the effect of attitudes on reflective thinking. The existence of a meaningful and positive relationship between attitude and reflective thinking in the study is also a meaningful data about the training of student teachers for teaching staff in educational environments. It can be ensured that student teachers can actively participate in teaching profession by developing positive attitudes towards it and improving themselves continuously by using reflective thinking in the professional practice.

The study also revealed that "attitude towards teaching profession" decreased when "individual innovation" decreased, and "attitude towards teaching profession" increased when "individual innovation" increased. "Individual innovation" is not a concept to be dealt with on its own but is closely related to individuals' attitudes towards learning. This is because of the fact that individuals who follow and adopt innovations in every field are expected to be optimistic towards learning (Adıguzel, 2012). This shows that individuals' innovative characteristics and attitudes towards teaching profession support each other. In this context, attitude is the result of the harmony and relationship between a person's mental state and the world around him/her. A positive attitude expresses not only appropriate thoughts, but also good feelings for being happy (Founder, 2011). An individual's positive experiences at school can help him/her to be successful in real life and to improve positive attitudes to teaching. Therefore, it is important for an individual to develop positive attitudes to teaching profession. Today, the latest developments in the field of information and technology have gained a very rapid acceleration. While adapting to these changes and developments is related to the innovation characteristics of an individual, reflecting the innovations brought by the change to real life is related to the attitudes of the individual towards teaching profession as well. The relationship level of these two features, which are thought to be related to each other, has been the subject of curiosity. Does a positive attitude of an individual towards teaching profession mean that he/she is closer to innovations and differences? Moreover, do positive attitudes lead to his/her ability to experiment with new things, adapt to innovations, and increase their adoption? In this research, the answers to these questions were found. Similarly, Adiguzel, Kaya, Balay and Gocen (2014) came to the conclusion that as student teachers' individual innovation levels increased, their attitude towards learning increased as well.

Finally, a positive relationship between "individual innovation" and "reflective thinking" was found. The fact that reflective thinking levels of student teachers are related to individual innovation characteristics is of great importance in terms of examining whether or not they are open to innovations. It is also vital to consider that reflective thinking levels bring important outputs for the outlook of education and training. In order for a society to develop and advance, individuals need to get rid of the traditionalism of the previous age and become the pioneer of the new age. In particular, instead of providing innovative educational services to the society, opposing innovations with a traditional attitude will lead to the raising of generations who cannot meet the needs of both present and future ages. It is important that teachers who have an important influence on shaping the personality profiles of future generations are trained in pre-service education within the framework of this awareness (Adıguzel, 2011).

Both "individual innovation" and "reflective thinking" are significant predictors / explanators of attitudes towards teaching. However, the established regression models showed that, apart from the

explanatory variables included in the model ("individual innovation" and "reflective thinking"), other variables that were not included in the model were also influential variables on the attitude towards teaching profession.

In fact, it can be said that positive attitudes towards teaching profession, high levels of reflective thinking and individual innovation of student teachers are important components that an ideal student teacher should have. Therefore, it can also be said that teachers with a high level of reflective thinking skills and individual innovation along with the growth of a positive attitude to teaching profession can reflect on teaching activities, care about problem solving processes, and develop themselves in terms of teaching skills in addition to that they are expected to be aware of their responsibility for learning, to be open to criticism and new developments, all of which is extremely important for the training of ideal student teachers.

The biggest limitation of study was that the data were obtained from student teachers in education faculty at only seven universities in Turkey, which minimizes the generalizability of the findings and results of the study.

Finally, there are not enough researches in the literature revealing the relationship between attitudes towards teaching profession and reflective thinking or to what extent attitudes towards teaching profession affect reflective thinking. More research is needed on this subject, which will advance the literature.

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