



## THE RELATIONSHIP BETWEEN GENDER ROLE ATTITUDES AND EPISTEMOLOGICAL BELIEFS OF UNIVERSITY STUDENTS

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### **Abstract:**

In this study, the relationships between university students and their perceptions of gender roles and epistemological beliefs were investigated. Gender roles are a phenomenon that are determined by culture, and begin to emerge at an early age, which may include some stereotypical behaviors along with a number of attitudes, duties and obligations that the individual is expected to perform as a woman or a man. Epistemological belief is seen as an individual feature of how knowing and learning take place. In this study, a mixed method was used. The quantitative study group consists of 517 students from both universities, while the qualitative study group consists of 85 people. Gender Role Attitudes Scale and Epistemological Beliefs Scale were used to collect quantitative data. In order to obtain qualitative data, participants were given a form consisting of open-ended questions. According to the analyses, it was determined that there was a significant relationship between the participants' epistemological beliefs and gender roles attitudes and, epistemological beliefs were a significant predictor of gender roles attitudes. The results obtained are discussed in line with the existing literature.

**Keywords:** gender, gender roles, gender role attitudes, epistemic beliefs

### **1. Introduction**

Gender roles refer to roles that are traditionally considered to be related to women and men. Definition of the gender role includes personality traits and behaviors (roles) culturally appropriate to men and women, and these are transformed into stereotypes by society (Basow, 1992; Dökmen, 2004; Lindsey, 2016; WHO, 1998; Zeyneloğlu, 2008). Gender stereotypes have gender traits and gender role aspects. Gender characteristics stereotypes define psychological traits that characterize gender, while gender roles

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stereotypes define the duties, responsibilities, and activities that culture imposes on gender. (Akin & Demirel, 2003; Bhasin, 1994; Dökmen, 2004; Lindsey, 2016). Gender stereotypes are grouped as feminine and masculine, and women are accepted as sensitive, warm, caring, compassionate, emotional while men perceived as independent, dominant, strong. Gender role stereotyping is classified in the literature as traditional and egalitarian.

Schommer (1990) defines epistemological beliefs as how the way of knowing and learning occurs, and personal beliefs about knowledge. Schommer-Aikins and Hutter (2002) stated that epistemological beliefs affect the way individuals think. They found that adults believing that the information has a complex structure consisting of mutual relations, which may change depending on the situation, are more tolerant towards different perspectives, evaluate all the information available, and develop multi-faceted and qualified thoughts.

### **1.1 Gender Roles in Youth**

Biological sex and gender, which are essential components of the self, are integral parts of each individual's feelings of self (Bee & Boyd, 2009). The terms, general gender roles, and social gender roles, are often used interchangeably to indicate the repertoire of feelings, attitudes, behaviors, and perceptions that are more related to both terms than one particular gender (Levesque, 2018). Attitudes regarding gender roles are mostly a phenomenon determined by culture. While nature determines biological sex, culture determines gender. Unlike biological sex, differences in gender occur as a result of socialization and thus can be changed (Öngen & Aytaç, 2013). Post-adolescent socialization is associated with the value system of the society and socialization depends on both the close social context and the long-term cultural context (Bugental & Grusec, 2006). In the process of growing up, the effect of the social environment becomes more evident in the self-development of individuals.

Gender roles are an integral part of almost every culture (Basow, 2018). From a social perspective, a child needs to learn behaviors that are acceptable for being a girl or a boy. In other words, the child must learn the gender roles that are considered appropriate for his gender in a culture. Gender roles include a set of behaviors, rights, attitudes, duties, and obligations that fit for the role of a "girl", "woman", "boy" or "man" (Bee & Boyd, 2009). Research reveals that the development of the concept of gender role emerges in the early stages and that socialization processes play an important role in the development of this concept (Basow, 2018; Ruble et al., 2006; Williams & Best, 1990). Following the development of language skills, Bussey and Bandura (1999) identified three sources of information about gender roles. These are; "direct education" by telling boys and girls what to wear and what to do; "modeling" by paying attention to the gender values, attitudes and actions of the women and men around, and "experience" as a result of the consequences faced by gender-related behaviors.

There are different opinions about the acquisition of gender roles in studies conducted on these roles. Evolutionary psychologists (Buss, 2019) argue that innate

differences in biological sex render women superior in domestic activities and men superior in aggressive and leadership activities, while social constructivists state that the causal relationship may actually be in the opposite direction (Bandura, 1986; Bussey & Bandura, 1999). In other words, adult roles differentiated by gender are expressed as an acquired feature, not an innate feature (Basow, 2018). According to Gender-Schema Theory, children develop gender schemes, which are mental representations that shape their understanding of the characteristics, and behavior of the two genders (Bem, 1981; Martin & Ruble, 2004). Gender schemes develop before gender-based preferences, behaviors and concepts (Hannover, 2000; Martin et al., 2002). There is little evidence to support the idea that men and women are inherently different from birth in their characteristics, and behaviors (Hyde, 2005). Although there are different views in the literature, all explanations point out the same point by saying that the acquisition of gender roles occurs in the developmental process.

## **1.2 Epistemological Beliefs in Youth**

Researchers state that individuals' epistemological development follows a predictable process due to growing up (e.g., Basseches, 1986; Baxter Magolda, 1992; Belenky et al., 1986; Chandler, 1987; King & Kitchener, 1994; Kuhn, 1991; Pintrich, 2002). Perry (1968) studied university students' beliefs about knowledge in their first and fourth years; in their early years the students believed that knowledge was simple, precise and to be given by an authority, and in their final years, many students began to believe that the knowledge was based on highly complex, provisional and empirical evidence. In studies on epistemological beliefs, researchers have proposed different numbers of dimensions of epistemological beliefs to explain what changes and the nature of change (e.g., Hammer & Elby, 2002; Hofer & Pintrich, 1997; Pintrich, 2002; Schommer, 1990). While Perry (1968) stated that epistemological beliefs are one-dimensional, later researchers have proposed five dimensions of knowledge as suggested by Schommer (1990) and four dimensions of Hofer and Pintrich (1997). The researchers (e.g., Conley et al., 2004; Schommer-Aikins, Unruh and Morphey, 2015) suggested that there are four general epistemological dimensions, including information certainty (i.e., stability), simplicity of information (i.e., structure), information source (i.e., source), and justification to know (i.e., evaluation of information requests). In the early stages, individuals have simple, two-dimensional views of knowledge; reasoning then becomes more complex and relative (Bendixen, 2002).

Research shows that more complex epistemological beliefs are associated with higher moral reasoning (Bendixen et al., 1998; Walker et al., 1991). In particular, Bendixen et al. (1998) report that students' beliefs about simple knowledge, specific knowledge, and all-knowing authority are significantly associated with low moral justification. It has been revealed that the development of epistemological beliefs in individuals is closely related to age, family, education and the culture in which the individual lives (Deryakulu & Büyüköztürk, 2002). Schommer (1998) also found that age and education level affected the epistemological beliefs of adults. Pintrich (2002) proposed that while attempting to

understand the relationship between epistemological reasoning and gender, one should look at gender orientation rather than a person's biological gender. Also, studies by Karabenick and Moosa (2005) and Tabak and Weinstock (2008) suggest further consideration of variables such as gender while examining cultural differences in epistemological beliefs. Gender roles affect beliefs about knowledge, although the two are influenced by culture (Ross-Gordon, 2009). For example, stereotypes that men are more successful in numerical fields such as mathematics and women are more successful in the verbal area is a gender role stereotype. Researches show that after adolescence boys turn to numerical fields and girls go to verbal fields. The expectation of gender roles is also intensified during adolescence. This is undoubtedly likely to affect epistemological beliefs (Cimpian, et al. [2016](#) ; Copur-Gençturk, et. Al., 2020; Husain & Millimet, [2009](#) ; Nosek, et al., [2009](#); Nosek & Smyth, [2011](#); Robinson & Lubienski, [2011](#); Spencer, Logel & Davies, [2016](#); Stoet & Geary, [2013](#)).

The fact that these roles being imposed on women and men in most areas of social life, creates discrimination against women, which often leads to women being in second-placed in social life and a pattern of inequality that values men more than women (Aydın, [2016](#); Bahadır-Yılmaz & Öz, 2018; Bugay et al. 2019; Çetinkaya, [2013](#); Dinç and Çalışkan, [2016](#); World Economics Forum, 2018; Öngen & Aytaç, [2013](#); Sakallı-Uğurlu et al., 2018; Seçgin & Tural, [2011](#); Seyitoğlu et al., [2016](#)). Gender roles attitudes and epistemological beliefs are influenced by the culture and the level of development of individuals. The purpose of this study is to determine the nature of the relationship between these variables and the gender perceptions of young people. In this research it is hypothesized that epistemological belief is a significant predictor of gender role attitudes.

## 2. Method

In this study “sequential explanatory strategy” was used as a mixed method. It is characterized by the collection and analysis of quantitative data in the first phase of research followed by the collection and analysis of qualitative data in a second phase that builds on the results of the initial quantitative results (Creswell, 2003). In mixed research, both quantitative and qualitative research methods are used together. One of the most important advantages of such studies is that the findings obtained from both methods complement each other (Gay, Mills & Airasian, 2012, p.483). In this study, qualitative data were used to determine the gender assessments of the participants. First quantitative data were collected then qualitative data were obtained from some of the participants.

### 2.1 Study Groups

There were two different study groups in this study and random sampling method was used; quantitative data was obtained from one group, and qualitative data from the other. Study groups were from two universities- a private and a state- located in the western part of Turkey, since private universities are paid and public universities are free, the

socio-economic structure of both university students is different. For this reason, one private and one state university were chosen to obtain data.

### **2.1.1 Quantitative Study Group**

In the first stage, quantitative data were collected from the 544 participants using measurement tools. After the extreme value analysis, the data from 27 participants were determined to be extreme values and hence removed from the study group. After this process, the sample was reduced to the 517 participants remaining in the study.

409 (79.1%) of the participants were women and 108 (20.9%) men. While 309 people (59.8%) studied at a public university, 208 people (40.2%) studied at a private university. The ages of the participants varied between 20 and 28 years old ( $X = 22.71$ ;  $sd = 2.21$ ). 178 participants (34.4%) were in the Guidance and Psychological Counselling program; 138 participants (26.7%) in the Classroom Teaching program; 77 participants (14.9%) in the Pre-School Education program; 67 participants (13%) in Special Education Teaching program; 37 participants (7.2%) were students in the English Language Teaching program and 20 participants (3.9%) were in the Primary Education Mathematics Education program. In addition, the participants' overall weighted average grade was 2.97 out of a maximum of 4.

### **2.1.2 Qualitative Study Group**

The qualitative data was collected from a study group which consisted of students studying in education faculties. This study group consisted of 85 people who voluntarily agreed to participate in the study from the group in which quantitative data were collected. 48 of the participants (56.5%) studied at the public university and 37 (43.5%) studied at the private university. 67 (77.8%) of the participants were women and 18 (21.2%) men. 48 of the participants (56.5%) are studying in the Guidance and Psychological Counselling program, 32 (37.7%) were studying in the English teaching program and 5 (5.7%) are studying in the Pre-School Education program. In the study, it was ensured that the group in which the qualitative data was collected was similar to the group in which the quantitative data was collected.

While analyzing qualitative data, each participant was given a code which helped us to identify the participant. Within this code, we coded the university where the participant was studying, the sequential number of participants and their gender. For example, the participant with the code "Pub14f" is a female participant studying at the public university, evaluated in the 14th rank. Similarly, the participant with the code "Pri34m" is a male participant studying at the private university, ranked 34th.

## **2.2 Data Collection Tools**

In order to collect quantitative data, participants were given a personal information form, the Gender Roles Attitude Scale and the Epistemological Beliefs Scale. To obtain qualitative data, a form with 5 open-ended questions was presented.

### 2.2.1 Personal Information Form

A personal information form was developed and presented to determine the socio-demographic characteristics of the participants. In the personal information form, the participants were asked about their ages, genders, the university and program they were attending, the grade they were in, and their general weighted grade point average.

### 2.2.2. Gender Roles Attitude Scale (GRAS)

GRAS is a 5-point Likert scale consisting of 38 items developed by Zeyneloğlu & Terzioğlu (2011). There are a total of 5 sub-dimensions in the scale. These five sub-dimensions explain 46% of the total variance. The scale's "the egalitarian gender role", "the female gender role", "gender roles in marriage" and "the traditional gender role" sub-dimensions consist of eight items, while the "male gender role" sub-dimension consists of six items. Items that express a traditional attitude are scored in reverse. The highest score that can be obtained from the scale is 190 and the lowest score is 38. The high score obtained from the scale indicates that the individual has an egalitarian attitude towards gender roles, while the low score indicates that they have a traditional attitude. Cronbach  $\alpha$  coefficient of the scale was calculated as 0.92 by the developers. In this study, the Cronbach  $\alpha$  coefficient of the scale was calculated as 0.91. The Cronbach  $\alpha$  coefficients of the sub-dimensions calculated by the developers are as follows: Female gender role as 0.80; egalitarian gender role, gender roles in marriage and traditional gender role as 0.78; 0.72 for the male gender role. Cronbach  $\alpha$  values calculated for sub-dimensions in this study are as follows: 0.67 for the egalitarian gender role; 0.80 for the female gender role; 0.65 for the gender roles in marriage; it was calculated as 0.82 for traditional gender role and 0.67 for male gender role.

### 2.2.3 Epistemological Beliefs Scale (EBS)

EBS is a 5-point Likert type scale consisting of 63 items and 4 dimensions developed by Schommer (1990). The adaptation of the scale for Turkey was done by Deryakulu & Büyüköztürk (2002); the number of items were appointed to be 35, and the number of dimensions were appointed to be 3. However, the validity and reliability analysis of the scale was performed by Aydın et al., (2017) and the number of items was decreased to 23. In this study, the 23-item form of the scale was used. The scale includes 3 sub-dimensions. These three dimensions explain 45% of the total variance. The "effort" sub-dimension consists of 10 items, the "ability" sub-dimension consists of 8, and the "one unchanged truth" sub-dimension consists of 5. "Effort" sub-dimension includes items related to the fact that knowledge can be obtained by making a certain effort, while the "ability" sub-dimension consists of items that reflect the belief that learning takes place based on ability, and a "one unchanged truth" sub-dimension consists of items that reflect beliefs about the existence of a single and unchangeable objective truth. The sub-dimensions of the scale are evaluated separately; a total score cannot be obtained from the scale. Cronbach  $\alpha$  coefficients of the three dimensions are calculated as 0.88 for the effort sub-dimension, 0.88 for the ability sub-dimension and 0.85 for the one unchanged truth sub-

dimension. In this study, Cronbach  $\alpha$  coefficients of sub-dimensions are calculated as 0.64 for the effort sub-dimension, 0.71 for the ability sub-dimension, and 0.67 for the one unchanged truth sub-dimension.

#### **2.2.4 Qualitative Questionnaire**

Within the scope of this study, a qualitative study was planned in order to complement the findings obtained to determine the attitudes of the participants towards gender roles. To collect qualitative data, participants were given a questionnaire consisting of 5 open-ended questions. These questions are as follows: 1) What do you think are the advantages of being a man? 2) What do you think are the disadvantages of being a man? 3) What do you think are the advantages of being a woman? 4) What do you think are the disadvantages of being a woman? 5) What did you notice when answering these questions?

### **2.3 Analysis of the Data**

The data obtained from the Personal Information Form, GRAS and EBS were transferred to a computer environment using the Statistical Package for Social Sciences (SPSS) program. Then, Pearson Correlation analysis, and Hierarchical Regression analysis were performed on these quantitative data.

Qualitative data obtained from the questionnaire were examined and content analysis was carried out. Content analysis is a qualitative research method that is carried out in order to identify, categorize and numerically quantify the words, concepts and characters in certain texts (Kızıltepe, 2017). As a result of the content analysis performed, the responses given by the participants were divided into various categories and coded. To verify the reliability of the analysis, another researcher also examined the data and created their own categories. In the examination, it was seen that the categories determined by both researchers overlapped to a large extent. Subsequently, the different evaluations were combined with the re-evaluation of the two researchers together.

## **3. Findings and Results**

### **3.1 Quantitative Analyses**

#### **3.1.1 Examining the scores of participants from GRAS and EBS in accordance with gender**

In this section, the results of the analysis conducted in accordance with gender, age, the scores obtained from the GRAS and EBS scales of the participants will be included. Before proceeding to the mentioned analyses, it was examined whether the scores obtained by the participants were normally distributed or not. For this, the skewness and kurtosis values of participant scores from the scales and sub-scales were examined. For distribution to be accepted as normal, when the sample size is more than 300, the skewness value should be less than 2 and the kurtosis value should be less than 7 (Hae-

Young, 2013: 52). Since the values obtained are determined to be within this range, the distribution is considered to be normal.

### 3.1.2 Descriptive statistics about the scores of participants on the scales

The minimum, maximum, average values and standard deviation values of the scores received by the participants from the subscales of the GRAS and EBS scales are presented in Table 1.

**Table 1:** Descriptive statistics of the participants' scores from GRAS and EBS

Scale	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
GRAS/Egalitarian	24.00	40.00	37.44	3.08	-1.361	1.443
GRAS/Female	10.00	40.00	31.75	5.73	-0.701	0.233
GRAS/Marriage	28.00	40.00	38.05	2.54	-1.543	1.969
GRAS/Traditional	12.00	40.00	33.02	5.55	-0.847	0.451
GRAS/Male	15.00	30.00	26.38	3.31	-0.744	-0.089
GRAS/Total	99.00	190.00	166.65	16.73	-0.897	0.642
EBS/Effort	10.00	29.00	17.77	3.81	0.130	-0.327
EBS/Ability	8.00	33.00	16.62	4.49	0.569	0.537
EBS/One unchanged truth	5.00	24.00	11.10	3.44	0.293	-0.094

Considering that the highest score that can be obtained from GRAS is 190 and the lowest score is 38, the gender perceptions of the participants can be placed at a medium and/or high level according to the data in Table 1 ( $\bar{x} = 166.65$ ;  $Sd = 16.73$ ). In other words, it is seen that the attitudes of the participants to gender roles are generally egalitarian. A similar situation is present when looking at the subscale scores of GRAS. When the EBS scores of the participants are analyzed, it can be said that their epistemological beliefs are also at a medium level.

### 3.1.3 Examining the relationship between participants' GRAS and EBS scores

To determine whether there was a significant relationship between the scores obtained from the GRAS and EBS subscales of the participants, a Pearson correlation analysis was performed on the scale scores of the participants and the results are presented in Table 2.

**Table 2:** Pearson correlation table showing the relationship between participants' GRAS and EBS subscale scores

	Egalitarian	Female	Marriage	Traditional	Male	Total
Effort	-0.241*	-0.085	-0.170*	-0.128*	-0.138*	-0.169*
Ability	-0.156*	-0.224*	-0.227*	-0.353*	-0.319*	-0.320*
One unchanged truth	-0.121*	-0.238*	-0.191*	-0.334*	-0.252*	-0.293*

\* $p < 0.01$

When the data in Table 2 are analyzed, it is seen that there is no significant relationship between the participants' EBS subscale "Effort" scores and GRAS subscale "Female"

scores, but there is a low and negative relationship between all EBS subscales and the rest of GRAS subscales. In other words, it can be said that the attitudes of the gender roles become more traditional as the scores of the participants increase in epistemological belief scale.

### 3.1.4 Predicting Effects of Epistemological Beliefs on the Perception of Gender Roles

Hierarchical Regression analysis was conducted on the data to determine whether the participants' ages, genders and epistemological beliefs had a significant predictive effect on gender role attitudes. 3 models were tested. In the first model age variable, in the second model gender variable and in the third one 3 subscale scores of EBS were entered together into the model. The results are presented in Table 3.

**Table 3:** Multiple regression analysis table showing the predictive effects of participants' Epistemological Beliefs on Gender Role Perceptions

Variable	B	Std. Error	$\beta$	t	p
<b>Model 1</b>					
Constant	180.089	7.575		23.773	0.000
Age	-0.591	0.332	-0.078	-1.782	0.075
R=0.078	R <sup>2</sup> =0.006	Adj. R <sup>2</sup> = 0.004			
F <sub>(1-515)</sub> =3.175	P=0.075				
<b>Model 2</b>					
Constant	154.119	7.269		21.203	0.000
Age	-0.067	0.304	-0.009	-0.219	0.826
Gender	17.763	1.655	0.432	10.730	0.000
R=0.434	R <sup>2</sup> =0.188	Adj. R <sup>2</sup> = 0.185			
F <sub>(2-514)</sub> =59.507	P=0.000				
<b>Model 3</b>					
Constant	186.893	8.047		23.226	0.000
Age	-0.231	0.286	-0.031	-0.808	0.419
Gender	15.766	1.575	0.384	10.008	0.000
Effort	-0.391	0.166	-0.089	-2.354	0.019
Ability	-0.815	0.155	-0.219	-5.264	0.000
One Unchanged Truth	-0.627	0.204	-0.129	-3.075	0.002
R=0.540	R <sup>2</sup> =0.292	Adj. R <sup>2</sup> = 0.285			
F <sub>(5-511)</sub> =42.060	P=0.000				

When the data in Table 3 are analysed, it is revealed that age is not a significant predictor for gender roles attitude (R=0.078; R<sup>2</sup>=0.006; Adj. R<sup>2</sup>=0.004; F<sub>(1-515)</sub>=3.175; p>0.05). When gender variable entered during the second step of the analysis, it's seen that gender variable has a significant contribution to the model, age and gender variables together predicted 18% of the gender roles attitude (R=0.434; R<sup>2</sup>=0.188; Adj. R<sup>2</sup>=0.185; F<sub>(2-514)</sub>=59.507; p<0.001). Additionally, according to the results, GRAS scores of female participants are significantly higher than male participants. Finally, subscales of EBS were entered to the model. According to the results, third model is significant, and all variables together

predicted 28.5% of gender roles attitude ( $R=0.540$ ;  $R^2=0.292$ ; Adj.  $R^2=0.285$ ;  $F_{(5-511)}=42.060$ ;  $p<0.001$ ).

### 3.2 Qualitative Analyses

Content analysis was carried out based on the responses given to the questions mentioned above by the participants. The responses were divided into categories and subcategories according to the results of the content analysis.

#### 3.2.1 Content Analysis of the Answers Given to the Question "What do you think are the advantages of being a man?"

The answers given to this question are gathered in 7 main categories. Response frequencies related to these categories and sub-categories are shown in Table 4 in supplementary material.

When the data regarding this question are analyzed, it is found out that the most answers are in the category of "Advantages related to behavioral freedoms" ( $f = 63$ , 35%). Two sub-categories have emerged under this category. The most dominant of these is the sub-category of "Doing what one wants/not being restricted". It can be seen that the answers given here are mostly about not imposing a social restriction on the behavior of men. For example, the participant coded Pub10f said, "*Social pressure on men is less. (the society) does not interfere with their clothes, where they go, with whom they travel with, as much as it interferes with women.*"; the participant coded Pub32f said "*Because they grow up more comfortably, they can come and go anywhere they want, and they are less restricted than women*"; the participant coded Pub33f said, "*They are not under social pressure. Whatever they do is perceived as 'man will be man'. But when women do what they want to do, society does not hesitate to exclude her*"; the participant coded Pub14m said "*We can make decisions more freely compared to female friends*"; the participant coded Pub42m said "*Man has more mobility in society. This is the case both in working life and in family life. As a man, I do not experience oppression for the most part. I do not have to get permission while I'm going out.*"; the Pri10f coded participant said "*One of the most important advantages is that they can be freer. In our society, men feel freer because women are restricted from many things. They can do whatever they want whenever they want*".

#### 3.2.2. Content analysis of the answers given to the question "What do you think are the disadvantages of being a man?"

The answers given by the participants to this question are gathered in 6 main categories. Response frequencies related to these categories and subcategories are shown in Table – 5 in supplementary material.

When the responses of the participants to the question "What are the disadvantages of being a man?" were examined, it was seen that most answers are in the category of "Social responsibility/economic disadvantages" ( $f = 67$ , 58.3%). When the responses in this category are analyzed, it is seen that the participants mainly mention the disadvantages related to "taking care of the house" and "excessive responsibilities".

For example, the participant with the code Pri13f said *"It is a disadvantage that men are asked more of economically"*; the participant with the code Pri35m said *"The responsibility falls unto the male, the obligation to earn a good income is also a disadvantage"*, the participant coded Pub10f said *"Economic pressure is applied to men. There is pressure (stemming from the fact) that the duty to support the house is entirely male"*; the participant with the code Pub25m said *"Taking on heavy responsibilities, always having to work"*; the participant coded Pub40f said *"After reaching a certain age, meeting the expectation of a material income by the family"*. It was found that the responses given in this category did not differ according to the university and the gender of the participants.

### **3.2.3 Content analysis of the answers given to the question "What do you think are the advantages of being a woman?"**

The answers of the participants to this question are gathered in 5 main categories. Response frequencies related to these categories and sub-categories are shown in Table – 6 in supplementary material.

When the responses to the question *"What do you think are the advantages of being a woman?"* are analyzed, it is seen that most answers are in the category of *"Social advantages"* (f = 53, 37.1%). Within this category, most responses are in the sub-categories of *"Being valued/protected"* and *"Positive discrimination"*. For example, the participant with the code Pub8f answered *"Having priority in some cases, being treated more politely"*; the participant with the code Pub17m answered *"Women have priority rights in some issues, they may encounter more finesse"*; the participant with the code Pub32f answered *"Women should be treated more politely and with privilege since they are of a more delicate nature"*; the participant with code Pri24f answered *"The advantage of being a woman is to be loved, protected and guarded by the opposite sex"*; the participant coded Pub15m responded as *"Most of the time they face positive discrimination"*. In these subcategories, there is no significant difference in the responses of participants of different genders. However, it was observed that most of the responses in the *"Positive discrimination"* subcategory came from students studying at the public university. In this sub-category, there were only two respondents studying at the private university, while there were 10 public university students who responded to this category. Although less striking, a similar difference in respondent universities is also noticeable in the sub-category of *"Being valued/protected"*. Among all subcategories, that the most responses were observed to belong to the *"Being a mother"* sub-category in the *"Physical advantages"* category. 30 participants responded directly as *"Being a mother"*, when asked about the advantages of being a woman.

### **3.2.4 Content analysis of the answers given to the question "What do you think are the disadvantages of being a woman?"**

The answers of the participants to this question are gathered in 4 main categories. Response frequencies related to these categories and sub-categories are shown in Table – 7 in supplementary material.

When the responses to the question “What do you think are the disadvantages of being a woman?” were analyzed, most answers were found to fall in the category of “Social disadvantages” (f = 127, 71.4%). Within this category, the most answers are in the sub-categories of “Being ignored/underestimated”, “Restricted Freedoms” and “Community (Social) Pressure”. For example, the participant with the code Pub11f said, “(Women) are not valued as much as men. Even though we have worked harder than men, we are always the second priority”; the participant coded Pub17m said, “They (women) cannot act as free as men. This situation largely restricts them. In our society, their views and feelings are not given much importance”; the participant coded Pub27f said “being perceived as weak”; the participant with code Pub29m answered “In society, restrictions on women are more than they are for men”; the participant coded Pub33f said, “I am happy to be a woman myself. But there are times the society says such things and they don’t care about us so much that I hate my gender. Our biggest disadvantage is definitely always being behind men”; the participant coded Pri13f said, “Women were often on the oppressed side. Their freedom is limited, they are not treated equally”; the participant with the code Pri19f stated “The establishment and restriction of moral issues on women”; the participant with the code Pri26f said “not to go out and travel freely”; the participant with the code Pub14m said “Lack of enough free decision-making”; the participant coded Pub34f said “(women) can be excluded by saying ‘You are a woman’. They are despised for their naive nature and are told that they cannot achieve anything. They restrict their freedom. They cannot easily spend as much time outside as they want, they cannot enter any environment they want”. In the “Social disadvantages” category, the excess number of participants from the public university is remarkable. Especially the male participants studying at the private university were found to respond significantly less to both the “social disadvantages” category and to this question in general.

### **3.2.5 Content analysis of the answers given to the question "What did you notice when answering these questions?"**

The participant answers to this question are gathered in 4 main categories. Response frequencies related to these categories and sub-categories are shown in Table – 8 in supplementary material.

When the responses to the question "What did you notice when answering these questions?" are analyzed, it was discerned that most answers fall into the category of “Social awareness” (f = 45, 47.9%). It was observed that most responses in this category are in the sub-category where there are responses related to awareness about “negative effects of the society”. For example, the participant coded Pub12f said, “While answering these questions, the sexism that existed in the society grabbed my attention. I have seen how much sexism is embedded in society”; the Pub29m coded participant said “Social perceptions are further fuelling the differences between men and women. The problems of formed roles emerge”; the participant coded Pub37f stated “I have noticed how the social structure determines the advantages and disadvantages of the impact of society on us. I realized how large women’s disadvantage is”; the participant coded Pri6f used expressions such as “I realized that the

*impositions created by society have great effects in all areas of our lives."* When the responses to this question were analyzed in general, it was observed that female participants responded more to this question, and participants attending the public university gave more and varied answers to this question compared to the participants studying at the private university.

#### 4. Discussion

According to the quantitative data obtained in this research, the gender roles attitudes of the participants were found to be different from the general average in the country and were egalitarian in line with the literature (World Economic Forum, 2018; Aydın et al., 2016; Bahadır - Yılmaz & Öz, 2018; Çetinkaya, 2013; Dinç & Çalışkan, 2016; Öngen & Aytacı, 2013; Seçgin & Tural, 2011; Seyitoğlu et al., 2016). This may be due to the programs in which the participants study, and universities located in metropolitan areas and a cohort effect. According to Helgeson (2017,134), young cohorts have more egalitarian attitudes than older cohorts. Considering the EBS scores of the participants, it can be said that their epistemological beliefs are also at medium level in accordance with the literature (Aslan, 2017; Aypay, 2011; Biçer et al., 2013).

Pearson Correlation analysis was performed to answer to the question "Is there a relationship between the participants' epistemological beliefs (effort, ability, one unchanged truth) and their attitudes towards gender roles (egalitarian, female, male, marriage, traditional)?" According to the findings, it is determined that there is no significant relationship between the participants' Effort, which is one of the EBS sub-dimensions, and the Female subscale (subscales of GRAS) scores, and a low and negative relationship between all of the EBS sub-dimensions and the rest of the GRAS sub-dimensions. In other words, it can be said that the attitudes of the gender roles become more traditional as the scores of the epistemological belief scale increase. Or, individuals with more developed and mature beliefs about learning depending on effort and ability, and more developed and mature beliefs about believing in one unchanged truth have more egalitarian gender roles attitudes.

In this study, it is hypothesized that epistemological belief is a significant predictor on gender role attitudes. It was seen that participants' epistemological beliefs, measured in subscales as belief that learning depends on effort, belief that learning depends on ability, and believing one unchanged truth, predict gender roles attitudes. In other words, it was found that the three predictive variables with age and gender variables together could explain 28.5% of the change in the gender roles attitudes score, while the remaining part could be explained by other variables. In the literature, epistemological beliefs, which are defined as the beliefs about the source, accuracy, and structure of knowledge, as well as the speed and control of learning, are known to be effective in individuals' thinking, learning and decision making processes (Arslantaş, 2016; Biçer et al., 2013; Hofer & Pintrich, 1997; Pintrich, 2002; Schommer, 1990). Students with developed epistemological beliefs are more successful in showing academic success and creating

complex thoughts (Deryakulu & Büyüköztürk, 2005; Pintrich, 2002). Pintrich (2002), suggested that while trying to understand the relationship between epistemological reasoning and gender, a person should look at gender orientation rather than biological sex. According to the results, the scores of the female participants from the gender roles attitude scale were statistically significantly different from the male participants. It was found that female participants were more egalitarian than male participants in terms of both the score they received from the subscales and the total score. This finding is consistent with the results of studies done with university students in Turkey (Aydin et al., 2016; Bahadır - Yılmaz & Öz, 2018; Çetinkaya, 2013; Dinç & Çalışkan, 2016; Öngen & Aytac, 2013; Seçgin & Tural, 2011; Seyitoğlu et al., 2016).

In this research, gender evaluations of university students studying at a public university and a private university located in western Turkey were analyzed with the qualitative data obtained. According to the findings, students studying at both universities –one is a public university and the other one is a private university- have been found to have gender stereotypes in their gender assessments. For example, while the advantages of being male were listed by male and female participants, they stated that men are freer in society, they move more comfortably than women, they are not exposed to social pressure, and that society does not interfere with their clothing choices. Participants at both genders and both universities reported that women are more disadvantaged when it comes to “freedom” than men. On the other hand, while listing the disadvantages of being a man, difficulties related gender-based division of labour were expressed. Difficulties such as waiting for men to take economic responsibility in the family and expectancies of good income were mentioned.

While the participants listed the advantages of being a woman, they stated more social advantages. Some female and male participants stated that women, who we think are result of gender stereotypes, should be treated politely because they are delicate and be loved and protected by the opposite sex. While the participants listed the advantages of being a woman, it was observed that there were “benevolent sexism” expressions defined by Glick and Fiske (1996). Although benevolent sexism reflects positive feelings towards women, it is a prejudice that women are weaker and at a lower level than men (Glick & Fiske, 1996). In addition, being mother was expressed as an advantage for women. This view may include an emotional, cultural and religious reference, because the motherhood model based on gender attitudes represents a devoted, and self-sacrificing parent (Sakallı-Uğurlu et al., 2018). At the same time, there is a sacred reference for motherhood within both cultural and religious aspects in Turkey. On the other hand, while the disadvantages of being a woman were listed by the participants, social disadvantages were mentioned. Disadvantages such as ignoring, underestimation, undervaluation, and subordination of women have been reported. When the participants' responses were analyzed to the question of "What did you notice when answering these questions?", it was noticed that most answers were in the category of “Social awareness”. Participants stated that sexism and social perceptions in the society worked up inequality

between women and men, and that there was an inequality against women. Accordingly, it can be said that participants have gender awareness in their assessment of gender.

It is revealed that both epistemological beliefs and gender roles perception are variables affected by culture. According to the qualitative data obtained the responses of the participants about the advantages and disadvantages of being men and women also reflect the culture. Also, qualitative research's last open-ended question, it is also seen that the answers to last open-ended question of "what are the things that they realize by doing this study", which is the last open-ended question of qualitative research, mostly included complaints about the existing cultural condition. This finding is also compatible with the quantitative data that the participants obtained from the GRAS scale. Considering that the GRAS and EBS scores are related to each other, it can be said that the same agreement is also found in the answers given to qualitative questions. In their answers to the last question, the participants also made some suggestions. When these suggestions are examined, it is seen that the participants emphasize the need to correct the existing perceptions and social situation with effort. At the same time, it is seen that they criticize the information about gender roles in their answers. This is also compatible with the scores the participants got from the EBS subscale.

## 5. Conclusion

This study explores the nature of the relationship between gender roles attitudes and epistemological beliefs. First of all, it was determined that the attitudes of the participants in regard to gender roles were egalitarian, their epistemological beliefs were at medium and high levels, and the relationship between gender was compatible with the literature. The relationship between gender roles attitudes and epistemological beliefs were examined, and it was found that there was a significant relationship between the two variables, and that epistemological beliefs were a significant predictor of social gender roles perception. Finally, the participants' evaluations on gender roles were examined. Accordingly, it is revealed that men are more free than women in Turkey and also men are more comfortable than women in social life and they have stereotypes about gender roles. Generally speaking, the participants stated that there are some gender inequalities against women, in line with the literature. With the result, it can be said that the participants have gender awareness.

In this study, data were collected from participants from two universities, one private and one public. This can be considered as one of the limitations of the study. It is recommended to collect data from different universities for further research. Another limitation of the study is the low generalizability of qualitative findings. Different studies can be conducted with different scales. The results of the study show that there is a relationship between epistemological beliefs and gender role perception. In this direction, it is recommended that researchers working in the field should conduct studies to develop their students' epistemological beliefs. This may also help individuals develop a more liberal perception of gender.

### **Ethics approval**

At the time of data collection, the university where I work did not ask for board approval and we did not obtain one. However, I can assure you that all ethical and legal measures have been taken to protect the participants and their data during and after the study.

*Dear Participant,*

*Before you agree to participate in the research, please take a few moments to carefully read the information below about the research. If you have any questions regarding the research, you can contact the researcher who has contact information below. Participating in this study is completely voluntary. This research is carried out by ..... The purpose of this study is to determine the nature of the relationship between these variables and the gender perceptions of young people. In this research it is hypothesized that epistemological belief is a significant predictor of gender role attitudes. The study will take up to maximum 30 minutes. Your participation in the study is not mandatory and you have the right to refuse to participate. You have the right to withdraw from study, at any time, without explanation. If you withdraw from the research, your answers will be destroyed and will not be used in the research. If you agree to participate and complete the research, the answers and surveys will be protected confidentially. The aim of the study is can be reached if you answer all the questions that are expected from you completely, without the pressure or suggestion of anyone and give the most appropriate answers sincerely. By reading and signing this form, you agree to participate in the research.*

*I agree to participate in this research and confirm that this work will be published. \_\_\_\_\_*

*Name*

*E mail*

*Tel*

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No potential competing interest was reported by the author.

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**Appendix: Content Analysis Tables**

**Table 4:** Categories of answers to the question  
"What do you think are the advantages of being a man?"

Category	Subcategory	f	%
Advantages related to behavioral freedoms	To be able to do whatever they want / Not being restricted	58	%35
	Romantic / Having unrestricted sexual relations	5	
	Total	63	
Social advantages	Having social acceptance / value	21	%30,6
	Being able to dress comfortably /Not wearing make-up	12	
	Not doing housework	8	
	To be able to have authority	6	
	Not facing with danger on the streets	3	
	Being able to socialise comfortably	2	
	Seeing service	1	
	Being more protective	1	
	Total	55	
Physical advantages	Being physically strong	24	%22,3
	Not being pregnant/ not having birth	6	
	Not having period	3	
	Not doing depilation	3	
	Becoming a father	2	
	Being able to urinate while standing	1	
	Not gaining weight easily	1	
	Total	40	
Emotional advantages	Being more fearless	2	%3,9
	Being emotionally strong	2	
	Not being timid	1	
	Being less stressful	1	
	Having self-confidence	1	
	Total	7	
Economic advantages	Being able to find a job easily	4	%3,3
	Getting more Money from the family	1	
	Being able to work on heavy jobs	1	
	Total	6	
Sexual advantages	Not being sexually harassed or raped	5	%3,3
	Being easily attracted by the opposite sex	1	
	Total	6	
Cognitive advantages	Being more ingenious	2	%1,6
	Being more knowledgeable	1	
	Total	3	
Total		180	%100

**Table 5:** Categories of answers to the question  
"What do you think are the disadvantages of being a man?"

Category	Subcategory	f	%
Social responsibility / economical disadvantages	Taking over the livelihood of the house	32	%58.3
	Excess of responsibilities	22	
	Burden of hard work	7	
	Obligation to go into the army	6	
	Total	67	
Emotional disadvantages	Not being able to express emotions	19	%21.7
	Anger management problems	2	
	Timidness	1	
	Being stressful	1	
	Lack of empathy	1	
	Being egocentric	1	
	Total	25	
Social disadvantages	People's prejudiced approach	9	%11.3
	Excess of societal expectations	2	
	Not getting the respect needed	1	
	Easily discredited	1	
	Total	13	
Behavioural disadvantages	Being prone to physical violence	2	%4.4
	Inability to rein sexual desire	1	
	Inability to act autonomously	1	
	Being prone to crime	1	
	Total	5	
Cognitive disadvantages	Inability to overthink	3	%2.6
	Total	3	
Physical disadvantages	Being circumcised	2	%1.7
	Total	2	
Total		115	%100

**Table 6:** Categories of answers to the question  
"What do you think are the advantages of being a woman?"

Category	Subcategory	f	%
Social advantages	Being appreciated / protected	17	%37.1
	Benevolent sexism	12	
	Not being obligated to work	6	
	Not having to do hard work	4	
	Not being in need of anyone	4	
	Being able to make men do what they want	3	
	Child rearing	2	
	Being able to wear manifolded / nice clothes	2	
	Being able to put make-up on	2	
	Not joining into the army	1	
	Total	53	
Physical advantages	Being a mother	30	%23.8
	Having a high pain threshold	1	
	Biological robustness	1	

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	Being more pretty	1	
	Being self sufficient	1	
	Total	34	
Emotional advantages	Being emotionally strong	10	%21.7
	Maturity	8	
	Being able to express emotions	6	
	Enhanced empathy ability	4	
	Being ambitious	2	
	Being understanding	1	
	Total	31	
Cognitive advantages	Being able to think in detail / multidimensional	14	%14.6
	Being rational	2	
	Problem-solving skills	2	
	Being open minded	1	
	Ability on multitasking	1	
	Total	21	
Behavioural advantages	Being polite	3	%2.8
	Better communication skills	1	
	Total	4	
Total		143	%100

**Table 7:** Categories of answers to the question  
"What do you think are the disadvantages of being a woman?"

Category	Subcategory	f	%
Social disadvantages	Being ignored / underestimated	35	%71.4
	Restriction of freedoms	27	
	Social pressure	22	
	Excess of responsibilities	15	
	Inability to be equal with men	7	
	The obligation to be constantly groomed	7	
	Exposure to violence	5	
	Dependence on someone	4	
	Difficulty on finding a work	3	
	Housework	2	
	Total	127	
Physical disadvantages	Birth	10	%16.9
	Having period	8	
	Physical weakness	5	
	Pregnancy	3	
	Depilation	2	
	Tendency to gain weight	2	
	Total	30	
Sexual disadvantages	Being seen as a sexual object	6	%7.3
	Being exposed to sexual harassment	5	
	The risk of rape	2	
	Total	13	
Emotional disadvantages	Emotional fragility / weakness	7	%4.4
	Being more nervous	1	

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	Total	8	
Total		178	%100

**Table 8:** Categories of answers to the question  
"What did you notice when answering these questions?"

Category	Subcategory	f	%
Social awareness	That the negative effects of society exist	19	%47.9
	The men are more privileged	10	
	Challenges of being a woman	10	
	Existence of inequalities	6	
	Total	45	
Neutral statements	Both genders has their difficulties	7	%26.6
	I questioned / thought	5	
	Haven't noticed anything	4	
	I had difficulty	4	
	Both sexes are equal	3	
	These are the truths	1	
	There is a perceptible difference between sexes	1	
	Total	25	
Suggestions	Something must be done to ensure equality	6	%14.9
	Mild judgments must change	5	
	Empathy must develop	1	
	Men should treat women properly	1	
	Women should not be treated as objects	1	
	Total	14	
Emotional statements	I realized that I had empathy	3	%10.6
	I got angry	2	
	Luckily I am a man	2	
	I felt happier	1	
	I wished to be a man	1	
	I had interiorised	1	
	Total	10	
Total		94	%100

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