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REAL

**Review of Education,
Administration and Law**

Journal homepage: <http://real.spcrd.org>

ISSN (Print): 2708-1788

ISSN (Online): 2708-3667

An Investigation of Pakistani University Students' Socioeconomic Classes, Gender and Dimensions in Epistemological Beliefs: Dependencies and Interlinks probed by Structural Equation Modeling Approach

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ARTICLE DETAILS

History:

Accepted 26 July 2021

Available Online September 2021

Keywords:

Naïve Epistemological Beliefs,
Sophisticated Epistemological
Beliefs, Certain Knowledge,
Omniscient Authority,
Quick Learning,
Innate learn-ability,
Structure Knowledge,
Equality in Education,
Socioeconomic Status

JEL Classification:

A13, B55, D60, D83, I24

DOI: 10.47067/real.v4i3.180

ABSTRACT

Epistemological beliefs impact all aspects of students' academic and learning behaviours. The different dimensions of epistemological beliefs comprise structure, source, certainty, ability to learn and speed to learn. The students' naïve and inadequate epistemological beliefs can have negative impacts on their regulation of learning, self-efficacy, interest in study, academic performance and persistence in studies. Likewise, the socioeconomic background can explain various differences in students' beliefs. Epistemological beliefs have social and cultural underpinnings as well. For these reasons, the researchers examined the impact of university students' socioeconomic classes on their epistemological beliefs. In survey research design, the data were collected from university students in an online survey. The structural equation modeling approach was chosen to detect significant regression paths in the model. The lower and upper lower socioeconomic classes were found to have significant impact on students' epistemological beliefs. The variable gender did not appear to make significant contribution to students' epistemological beliefs. The naïve beliefs can severely impact university students' academic behaviour, therefore epistemological beliefs of students from lower and upper lower socioeconomic backgrounds should be challenged and improved.

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1. Introduction

Generally, our beliefs regulate our actions and thoughts (Ali *et al.*, 2020), and the inadequate beliefs considerably impact our behaviour and psychological wellbeing (Ali *et al.*, 2018). Therefore, different aspects and dimensions of child education and development accept very powerful impact of these beliefs. If students' beliefs mismatch to the beliefs required for a specific type of education, the students face difficulties to learn and might develop poor educational and academic behaviours (Ali *et al.*, 2018). In this respect, the epistemological beliefs are fundamental and critical because these beliefs impact learning behaviours and define the quality of learning outcomes (Harris, 2003; McBeth, 2010). Epistemological beliefs are the beliefs of knowledge development, source, ability to acquire knowledge or learning, speed and process to acquire knowledge (Hofer, 2002).

Although, epistemological beliefs might have different dimensions, but these beliefs can be categorized into sophisticated or naive beliefs regardless of the dimensions involved. In this regard, the six different dimensions listed by Schommer-Aikins (2004) include beliefs about knowledge stability, structure of knowledge, source of knowledge, speed of knowledge and ability to learn. The naive poles of these six dimensions comprise beliefs that knowledge is stable, isolated or unorganized, and its acquisition is quick or sudden and is attained from authorities or experts in the field. On the other hand, the sophisticated end of the dimensions involve beliefs in knowledge is changeable, organized or well knitted integration of facts, based on empirical evidence, is created in step by step gradual manner, and ability to learn is improvable. Contrary, to Schommer-Aikins (2004), Hofer (2000) included four interrelated dimensions; certainty, simplicity, justification and source of knowledge beliefs to elaborate students' epistemological beliefs.

The students of a particular field of study might have definite epistemological beliefs. Therefore, the students of different domains or disciplines of study have different epistemological beliefs (Braten, 2010). Hence it is pertinent to mention that same epistemological measure might result in different number of dimensions or factors in different social, cultural and educational settings (Youn, 2000). Apart from having general, domain independent epistemological beliefs, the students might develop domain dependent or domain specific epistemological beliefs, however, the students' general epistemological beliefs support development of domain specific epistemological beliefs among students because domain specific epistemological beliefs develop over a period of time in learning a particular subject and having experience of domain specific teaching environments (Buehl *et al.*, 2002; Hofer, 2006).

For the reason, these beliefs involve all aspects of students' learning, therefore these can provide explanation of every learning behaviour in one way or the other (Schommer-Aikins, 2004). For example, these beliefs define students' aims and goals of learning in schools, and consequently, these learning goals decide what and how students learn (Harris, 2003). The students use memorization, organization and elaboration cognitive processing strategies to learn from the content. The epistemological beliefs underpin the use of these different learning strategies. The cognitive processing strategies mediate the links between students' epistemological beliefs and academic performance (Almahasneh, 2006). The students who use memorization strategies have naive epistemological beliefs (Phan, 2009). The stronger is the belief in simplicity of knowledge and certainty of knowledge, greater is the probability that students will use memorization strategies, and consequently, these will have negative impacts on their academic performance (Köller, 2001). Likewise, students' sophisticated epistemological beliefs seem like a condition for them to use deep cognitive processing strategies and to self-regulate their learning. The sophisticated epistemological beliefs such as beliefs in ability to learn is

changeable, learning is a gradual process, and knowledge is complex and well organised support for students to use deep learning strategies, and enhance their self-efficacy (Almahasneh, 2006; Chen & Usher, 2013; Metallidou, 2013). Literature available points out that academicians can elaborate students' poor academic performance, inability or failure to regulate learning, and procrastination in pretext of their naive epistemological beliefs (Boffeli, 2007; Cole, 1996; Monetti, 2001). Furthermore, the students' motivations and diligence to learn are interrelated to their epistemological beliefs. Sophisticated epistemological beliefs strengthen students' ability of diligence, desire to deeply understand content taught in classrooms, and deep interest in learning (Kizilgunes *et al.*, 2009; Köller, 2001).

Although, epistemological beliefs directly or indirectly affect almost all different aspects and scopes of human learning behaviour, but there are several factors that can inspire the development of sophisticated epistemological beliefs in students at different levels of education. In this regard, the important factors are age, amount of formal education (Schommer, 1998), extent of individualism and collectivism in any society, nature of teacher students interactions (Youn, 2000). The different social, cultural settings and values of society such as respect of elders, and authority versus freedom of expression, and academic cultures such as teacher-centered teaching approaches versus student centered teaching approaches can lead to dissimilar epistemological beliefs (Demir & Ellett, 2014; Youn, 2000). In any society, the students' independent self-construal versus interdependent self-construal is related to the development of sophisticated epistemological beliefs in individualistic versus collectivistic cultures and societies (Youn *et al.*, 2001).

However, within any society or culture socioeconomic status is the factor, which controls almost every personal and contextual factor related to children's education and development (Broer *et al.*, 2019; Gottfried *et al.*, 2003). Socioeconomic class or status is defined as the position of an individual within any society in reference to profession, education and income (American Psychological Association, 2019). The students' learning motivations (Khansir *et al.*, 2016; Tucker-Drob & Harden, 2012), cognitive processing strategies (Ali & Bakar, 2019), thinking styles and self-esteem (Zhang & Postiglione, 2001) learning orientations, regulation of learning (Kormos & Kiddle, 2013), choice of schools (Andrabi *et al.*, 2002; Siddiqui, 2017; Ullah & Ali, 2018), choice of subjects (Anders *et al.*, 2018; Klein *et al.*, 2016), psychological wellbeing and emotional intelligence (Ali *et al.*, 2021; Davis, 2012), personality (Ayoub *et al.*, 2017; Cheng & Furnham, 2014), and learning achievements (Ali *et al.*, 2019; Ananda, 2020; Bond, 1981) correlate with their parents' socioeconomic backgrounds.

Likewise, the epistemological beliefs have relationships with parents' socioeconomic backgrounds. Literature pertinent provides an evidence that epistemological beliefs may vary in respect to students' socioeconomic backgrounds. The students of superior socioeconomic backgrounds may have more sophisticated epistemological beliefs about source and certainty of knowledge than students of lower socioeconomic classes (Özkan & Tekkaya, 2011).

Moreover, gender is a factor that can explain differences among students' epistemological beliefs. Turkish female elementary school students were found to have more sophisticated epistemological beliefs in justification of knowledge than male students, whereas both genders were similar in rest of the dimensions of epistemological beliefs (Özkan & Tekkaya, 2011). In another study, Turkish elementary male students were found to have less sophisticated epistemological beliefs in quick learning and innate ability dimensions, whereas female students have less sophisticated beliefs in omniscient authority (Topçu & Yilmaz-Tüzün, 2009). In Malaysian secondary school sample, the male students scored higher in justification, certainty and source of knowledge dimensions, however, both male and female students were at equal level in development of knowledge beliefs (Abedalaziz *et al.*,

2013). In Canadian sample, secondary school girls were found to have more sophisticated level of epistemological beliefs than the male students in dimensions of fixed ability and quick learning and certainty of knowledge, whereas stability of knowledge dimension was not different in both genders (Lodewyk, 2007).

The contemporary literature provided a lead about the importance of students' epistemological beliefs in their learning and academic achievements. The impacts of epistemological beliefs are direct and indirect as well. However, the development of epistemological beliefs depends on various social, economic, psychological and educational factors. For example, gender, teaching methods, culture, socioeconomic background, subjects or disciplines of study, nature of the society such as collectivistic or individualistic orientations (Demir & Ellett, 2014; Youn, 2000). It is also noticeable that most of the research in students' epistemological beliefs has western populations and samples. There are studies from Asian cultures also, but most of these are from Chinese, Turkish and Malaysian origin. The studies from sub-continent and south Asian origin are scarce. The number of epistemological beliefs dimensions, their interrelationships differ in studies having sample from different cultures and populations. Moreover, there are limited studies that examine the Pakistani students' epistemological beliefs. Therefore, the current study was related to examine the impact of students' gender and different socioeconomic classes on students' epistemological beliefs. The study was limited to the objective that is to ascertain the impact of Pakistani university students' gender on epistemological beliefs and to find the impact of Pakistani university students' socioeconomic classes on their epistemological beliefs. The current study tested the following hypotheses:

Hypothesis 1: The students' gender will have significant impact on their epistemological beliefs.

Hypothesis 2: The students' socioeconomic classes will have significant impact on their epistemological beliefs.

2. Conceptual Framework

Keeping in mind the particular nature of Pakistani society, the current study was intended to explore the impact of gender and socioeconomic background on students' epistemological beliefs.

Figure 1: Conceptual Framework

The students' socioeconomic background was calculated on the base of their parental education and occupation. The scoring was used to identify students into different classes based on guidelines provided in updated Kuppuswamy's scale (Sharma, 2017). The epistemological beliefs' domain general approach was applied to identify students' epistemological beliefs across five dimensions of epistemological beliefs described by Schommer-Aikins (2004). Hence the adopted conceptual framework of the study is depicted in Figure 1.

3. Data Description

3.1. Population and Sample

The population of the study was confined to the students of the Islamia University of Bahawalpur, Bahawalnagar campus, Punjab, Pakistan. The total number of students in this campus registered at the time of data collection was more than 5000. The sample consisted of 995 voluntary university students, who provided information about their socioeconomic backgrounds and epistemological beliefs. The sample consisted of 55.5 % female and 44.5 % male students. The average age of 76.7 % students was in the range of 19 to 25 years. The sample constituted students from physical sciences, social sciences, management science, computer sciences, education, languages and religious studies.

3.2. Data Collection

The students' epistemological beliefs were measured by Epistemic Beliefs Inventory (EBI) developed by Bendixen *et al.* (1998). The original EBI had 32 items. The respondents provided their levels of agreement to these items by selecting an option provided on five points scale. This scale has labels of strongly disagree, disagree, undecided/neutral, agree and strongly agree. The strongly disagree has the minimum value of 1 and strongly agree has maximum value of 5. The 32 items measured five dimensions of epistemological beliefs; certain knowledge, quick learning, simple knowledge, omniscient authority and innate ability to learn.

The university students provided data about their parents' education and occupations, which were used to calculate their socioeconomic scores. The revised socioeconomic scoring key of Kuppuswamy (Sharma, 2017) was used to assign scores to different levels and categories of students' parental education and occupations. Later, these scores of socioeconomic backgrounds were transformed into their respective socioeconomic classes according to adapted Kuppuswamy' scale (Sharma, 2017).

3.3. Data Analysis

The partial least squares structural equation modeling (PLS-SEM) approach was chosen to test the study hypotheses. The data analysis involved two levels; the measurement model testing and the structural model testing. The socioeconomic scores were converted into socioeconomic classes. Each socioeconomic class (SEC) was taken as categorical variable with two levels 0 and 1. The students socioeconomic classes were converted into only three classes; lower SEC, upper lower SEC and lower middle SEC. Higher scores in different dimensions of epistemological beliefs indicated higher levels of naive beliefs and lower scores indicated higher level of sophisticated beliefs. The SPSS was used to calculate the mean scores of different dimensions of epistemological beliefs among male and female students of different socioeconomic classes whereas *smatpls2* was used for PLS-SEM analysis.

4. Results

The results of descriptive analysis are presented in Table No.1. In lower socioeconomic class, the statistics presented in Table No.1, Figure 2-A and Figure 2-B show that mean scores of female students in epistemological beliefs were apparently greater than the male students of this socioeconomic class. In case of upper lower socioeconomic class, the female students' epistemological beliefs in knowledge are certain and quick learning have mean values less than the male students. Whereas male students of upper lower socioeconomic class have lower mean values than female students of this class in dimensions of structure of knowledge, innate ability and omniscient authority. The female students of lower middle socioeconomic class have lower mean values in epistemological beliefs dimensions of quick learning and innate ability than males, however, the male students of lower middle socioeconomic class have slightly lower mean scores across epistemological beliefs dimensions of knowledge certainty, structure, and omniscient authority.

Table 1: Descriptive Analysis

SEC		CK	SK	OA	QL	IA
Lower SEC	Male	7.118	7.532	6.892	9.975	6.926
	Female	7.342	7.705	7.226	10.349	7.226
	Total	7.212	7.604	7.031	10.131	7.051
Upper Lower SEC	Male	7.203	7.377	7.007	10.014	7.08
	Female	7.038	7.671	7.028	9.695	7.099
	Total	7.102	7.555	7.019	9.820	7.091
Lower Middle SEC	Male	6.777	7.362	6.734	9.713	6.872
	Female	6.854	7.363	6.737	9.287	6.696
	Total	6.826	7.362	6.735	9.437	6.758
Total	Male	7.054	7.444	6.880	9.900	6.9594
	Female	7.023	7.576	6.967	9.697	6.9837
	Total	7.037	7.517	6.928	9.787	6.972
CK=Certain Knowledge, SK=Structure Knowledge, OA=Omniscient Authority, QL=Quick Learning, IA=Innate Ability						

Overall in reference to gender, the female students have slightly higher mean scores across epistemological beliefs dimensions in structure, omniscient authority and innate ability. On the contrary, the male students have slightly higher mean scores in epistemological beliefs dimensions of certainty of knowledge and quick learning. The Figures 2-A and 2-B and Table No.1 show an apparent inverse trend with regard to socioeconomic scores or socioeconomic classes and students' scores in naive epistemological beliefs. With increase in socioeconomic scores or increase in superiority of socioeconomic classes, there is somewhat corresponding decrease in students' scores in epistemological beliefs across different dimensions. Hence, it seems that students of superior socioeconomic classes may have sophisticated epistemological beliefs than students of lower socioeconomic classes.

Figure 2-A: Mean Scores of Each EBs Dimension

Figure 2-B: Total Scores SEC* Total Scores Naive EBs of Five Dimensions

The measurement model consisted of five latent variables to measure five dimensions of epistemological beliefs (Figure 3). In original epistemological beliefs questionnaire, there were 33 items to measure five latent variables. However, in our sample, 11 items measured five dimensions of certain knowledge, innate ability to learn, omniscient authority, quick learning and structure knowledge (Table 2).

Figure 3: Impact of Gender and SECs on Epistemological Beliefs

The average variance extracted (AVE) of five latent variables in this measurements model was above 0.5, the minimum acceptable value of AVE (Hair *et al.*, 2014). It means that these latent variables and their related items to measure these variables have convergent validity. All factor loadings are also significant and above 0.5 (Hair *et al.*, 2014) and these items and related dimensions have composite reliability above 0.7, which means these have sufficient reliability (Hair *et al.*, 2014).

Table 2: Measurement Model

Epistemological Beliefs Dimension	Items	Loadings	Composite Reliability	AVE
Certainty of Knowledge	EBS23CK	0.7254**	0.7835	0.6461
	EBS25CK	0.8752**		
Innate ability to learn	EBS26IA	0.7569**	0.7524	0.6033
	EBS5IA	0.7960**		
Omniscient Authority	EBS20OA	0.7986**	0.7199	0.5635
	EBS28OA	0.6994**		
Quick Learning	EBS16QL	0.6454**	0.7637	0.5200
	EBS21QL	0.7394**		
	EBS3QL	0.7725**		
Structure Knowledge	EBS13SK	0.7096**	0.7524	0.6048
	EBS22SK	0.8402**		

P < 0.001 = ***, P < 0.01 = **, P < 0.05 = *

The Table 3 shows the comparison of latent variables interrelationships and square root of their AVE values. The highlighted values in Table 3 are square root of AVE values of latent variables in measurement model. These highlighted values of respective latent variables are greater than their relationships with other latent variables in this measurement model. Thus according to Fornell-Larcker criterion, the latent variables in measurement model have discriminant validity (Henseler *et al.*, 2016).

Table 3: Discriminant Validity

		1	2	3	4	5	6	7	8	9
1	Certainty of Knowledge	0.803								
2	Gender	0.009	1							
3	Innate ability to learn	0.395	-0.010	0.776						
4	Lower SEC	0.077	0.201	0.037	1					
5	Lower Middle SEC	-0.078	-0.109	-0.087	-0.442	1				
6	Omniscient Authority	0.370	-0.027	0.406	0.052	-0.078	0.750			
7	Quick Learning	0.497	0.034	0.460	0.123	-0.095	0.433	0.721		
8	Structure Knowledge	0.330	-0.048	0.310	0.046	-0.072	0.285	0.288	0.777	
9	Upper Lower SEC	0.034	-0.077	0.060	-0.542	-0.444	0.044	0.000	0.022	1

The structural model shows the anticipated path coefficients and their significance (Table 4). In line with objectives, the main two hypotheses are further broken down into different sub-hypotheses to understand the impact of students' gender and their socioeconomic classes on five dimensions of epistemological beliefs. The male gender of lower socioeconomic class was significantly related to their status of university students. In case of upper lower, and lower middle socioeconomic classes, the male gender was negatively related to the status of university students. In simple words, there is more probability for males in lower socioeconomic class, and females in upper lower, and lower middle socioeconomic classes to be university students. In this way, the study hypothesis, University students' gender will be related to their socioeconomic classes is supported.

In case of gender's impact on university students' epistemological beliefs, the variable gender does not show significant contribution to students' different epistemological beliefs dimensions. The study hypothesis that students' gender will have significant impact on their epistemological beliefs is not supported in this study.

Table 4: Path Analysis

Hypotheses	Path Coefficient	T Statistics	Null Hypotheses Status
Gender -> Certainty of Knowledge	-0.012	0.3662	Not Rejected
Gender -> Innate ability to learn	-0.0229	0.5481	Not Rejected
Gender -> Lower SEC	0.2018	6.3485*	Rejected
Gender -> Lower Middle SEC	-0.1097	3.6143*	Rejected
Gender -> Omniscient Authority	-0.0446	1.2532	Not Rejected
Gender -> Quick Learning	0.0048	0.1274	Not Rejected
Gender -> Structure Knowledge	-0.0627	1.7652	Not Rejected
Gender -> Upper Lower SEC	-0.0773	2.4963*	Rejected
Lower SEC -> Certainty of Knowledge	0.3503	2.8059*	Rejected
Lower SEC -> Innate ability to learn	0.161	1.3137	Not Rejected
Lower SEC -> Omniscient Authority	0.2277	1.8807	Not Rejected
Lower SEC -> Quick Learning	0.3432	2.9552*	Rejected
Lower SEC -> Structure Knowledge	0.0687	0.4963	Not Rejected
Lower Middle SEC -> Certainty of Knowledge	0.2179	1.7676	Not Rejected
Lower Middle SEC -> Innate ability to learn	0.0579	0.5297	Not Rejected
Lower Middle SEC -> Omniscient Authority	0.113	0.9824	Not Rejected
Lower Middle SEC -> Quick Learning	0.1747	1.5758	Not Rejected
Lower Middle SEC -> Structure Knowledge	-0.0299	0.2244	Not Rejected
Upper Lower SEC -> Certainty of Knowledge	0.3209	2.4415*	Rejected
Upper Lower SEC -> Innate ability to learn	0.1719	1.4916	Not Rejected
Upper Lower SEC -> Omniscient Authority	0.2145	1.7678	Not Rejected
Upper Lower SEC -> Quick Learning	0.2643	2.2479*	Rejected
Upper Lower SEC -> Structure Knowledge	0.042	0.3208	Not Rejected
P< 0.001= ***, P< 0.01=**, P<0.05=*			

There are different impacts of students' socioeconomic classes on their different epistemological beliefs dimensions. The epistemological beliefs dimensions of certainty of knowledge and quick learning are influenced significantly by students' socioeconomic classes. The lower and upper lower socioeconomic backgrounds were positively related to students' epistemological beliefs in certainty of knowledge and quick learning. However, the relationships of lower socioeconomic class to epistemological beliefs of certainty of knowledge and quick learning were stronger, and students of this socioeconomic class have higher levels of naive beliefs in these dimensions as compared to students of superior upper lower socioeconomic class, who have lower level of naive beliefs in quick learning and knowledge is certain. Although, the relationship of upper lower socioeconomic class to naive scores of beliefs in quick learning and knowledge certainty were significant but these were not so strong. In this way, the study hypothesis, the students' socioeconomic classes will have significant impact on their epistemological beliefs is partially supported (Table 04). The relationships of students' socioeconomic backgrounds and epistemological beliefs are not straightforward (Figure 2-B).

5. Discussion

The findings of this study construe that students' gender may have no direct significant impact on their epistemological beliefs. The variable gender in this study failed to contribute direct significant differences in students' epistemological beliefs. Five dimensions of beliefs did not appear to be significantly related with students' gender. The finding about insignificant contribution of gender in students' epistemological beliefs is aligned to previous findings of Conley *et al.* (2004). They found no direct or moderating impact of gender on students epistemological beliefs. They found boys and girls almost similar in their epistemological beliefs in justification, certainty, source and development of knowledge.

However, the finding about insignificant impact of students' gender on their epistemological beliefs was unexpected, and appeared inconsistent to most of studies in literature. Bendixen *et al.* (1998) found gender difference in only certainty of knowledge dimension, and they found no gender differences in innate ability, structure of knowledge, omniscient authority and quick learning. Schommer *et al.* (1997) found gender differences in epistemological beliefs in quick learning. They found boys to have stronger beliefs of quick learning than girls. In this way, popular literature shows gender differences in different dimensions of epistemological beliefs. Studies conducted in different countries have reported the gender differences. It is found that Turkish male students have higher level of naive beliefs in justification of knowledge (Özkan & Tekkaya, 2011), quick learning and innate ability (Topçu & Yilmaz-Tüzün, 2009), the Canadian male students have more higher levels of naive beliefs in fixed ability, certainty of knowledge and quick learning (Lodewyk, 2007). These studies indicate that male students have more naive beliefs than female students (Lodewyk, 2007; Özkan & Tekkaya, 2011; Topçu & Yilmaz-Tüzün, 2009). However, there is also evidence that female students might have more naive epistemological beliefs than the male students (Ozkal *et al.*, 2011). The inconclusive literature fails to guide about the direction of impact of gender on epistemological beliefs. The contradiction among findings might be because of the sample size, epistemological beliefs measures used, domain general or domain specific approach, culture and teaching learning environment in education institutions (Demir & Ellett, 2014).

The study found the significant impact of socioeconomic classes on students' epistemological beliefs. However, this impact was not extended to five dimensions of epistemological beliefs. Lower and upper lower socioeconomic classes delivered significant impact on students' epistemological beliefs in dimensions of quick learning and certainty of knowledge whereas, the students of lower socioeconomic class have higher scores in epistemological beliefs in these dimensions (certainty of knowledge and

quick learning) than students of upper lower socioeconomic class. This finding corroborates previous findings that students' socioeconomic status or class is important predictor of their epistemological beliefs. The students of higher or superior socioeconomic classes have higher levels of sophisticated epistemological beliefs than students of less superior socioeconomic backgrounds (de Brabander & Rozendaal, 2007; Ozkal *et al.*, 2011; Özkan & Tekkaya, 2011).

The naive beliefs in quick learning and knowledge certainty can have negative impacts on students' academic behaviour. The students having naive epistemological beliefs may limit themselves to use of memorization strategies, and can lose interest in study (Kizilgunes *et al.*, 2009; Köller, 2001). These may result in inability to regulate learning (Metallidou, 2013) and failure in examinations (Monetti, 2001).

6. Conclusion

The naive epistemological beliefs have negative impacts on students' learning attributes, learning beliefs, and academic achievements. The naive epistemological beliefs in quick learning curtail students' effort to understand content, and learning goals. Likewise, the students' naive epistemological beliefs in knowledge certainty confine them to surface information of the content, and they avoid to draw deep meanings and understating of the content, and they fail to explain discrepancies in existing knowledge. Hence, these naive epistemological beliefs cannot be tolerated among students of all socioeconomic classes. However, there is a strong possibility that students of less superior socioeconomic classes keep naive epistemological beliefs, and these naive epistemological beliefs can consequence in their academic failure. Although, the students of less superior socioeconomic classes face many challenges and problems in their education, however, their naive epistemological beliefs can increase their social, psychological, emotional and educational challenges.

The importance of epistemological beliefs in education is unquestionable. The teachers' epistemological beliefs resonate in their ways to deliver content to students. Likewise, students' epistemological beliefs govern their learning behaviours and learning outcomes. Therefore, there should be research on teachers' and students' epistemological beliefs in reference to Pakistani culture and society. The understanding of teachers' and students' epistemological beliefs may help to comprehend teaching approaches, learning practices, and academic achievements in Pakistani educational institutions.

The schools should have comprehensive plans for the development of sophisticated epistemological beliefs among students. There should be explicit trainings to challenge and change students' naive epistemological beliefs. For the reason that the students of less superior socioeconomic classes have more likelihood to have naive epistemological beliefs, especially, these students' epistemological beliefs should be scanned.

There is the need to include goals and objectives for students' epistemological beliefs in textbooks, curriculum and syllabus of different academic programs. Furthermore, the nature and quality of students' epistemological beliefs should be scrutinized and evaluated before awarding degree in any academic program.

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