

Predicting Gifted EFL Students' Goal Orientation, Cognitive Engagement, Perceived Linguistic Competence, and Achievement with Epistemological Beliefs

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ABSTRACT

The current study examined the epistemological beliefs of gifted EFL students compared to nongifted ones at the Saudi Arabian context. More specifically, the study investigated how far epistemological beliefs can be potential predictors of gifted EFL students' goal orientation, cognitive engagement, perceived linguistic competence and achievement. Four tools were used for data collection, including an Epistemological Beliefs Questionnaire, a Goal Orientation Questionnaire, a Cognitive Engagement Questionnaire, and a Perceived Linguistic Competence Questionnaire. Students' achievement was assessed by their GPAs. These tools were administered to a cohort of 163 (37 gifted, 126 nongifted) EFL students in the fifth, sixth, seventh, and eighth levels in Riyadh Teachers' College. Findings of the study indicated that gifted EFL students possess sophisticated epistemological beliefs along the six epistemological belief dimensions. Variance in development among belief dimensions did exist with beliefs in the "integration of knowledge" being the most sophisticated and beliefs in the "source of knowledge" the most naive. Findings of the study also indicated that gifted EFL students hold more sophisticated epistemological beliefs than their nongifted peers. Statistically significant differences were found between gifted and nongifted students in five of the six dimensions under investigation. No significant difference was found between the two groups in the "source of knowledge" dimension. Further, findings of the study indicated that some epistemological dimensions can potentially predict given psychological constructs but not others. The epistemological dimension of the "integration of knowledge" had the greatest predictive power. It predicted most of the variables under consideration in the current study (perceived linguistic competence, strategic processing of linguistic knowledge, self-regulation of language learning situations, persistence when encountering difficulties in language learning settings, and overall achievement in EFL classes). The "certainty of knowledge" dimension predicted such variables as performance goal orientation, strategic processing of linguistic input, self-regulation of language learning endeavors, persistence in the face of difficulties, and overall achievement in language classes. The "speed of knowledge acquisition" dimension predicted goal orientation adoptions (learning goal orientation and performance goal orientation). The "control of knowledge"

dimension predicted students' self-regulated language learning. The structure of knowledge dimension predicted students' overall achievement in language classes. The study provides some recommendations for the education of the linguistically gifted students and suggestions for further research.

INTRODUCTION

Recently, students' beliefs about knowledge and knowing, or personal epistemologies, have received increased attention from researchers. These beliefs were envisioned as a potential determinant of many learning activities (Neber & Shommer, 2002; Nist & Holschuh, 2005). They appear to have a potentially tremendous effect on students' motivation, willingness to accept challenges, interpretation of mistakes, overall persistence, strategy use, and academic performance (Bråten & Strømsø, 2004; Buehl & Alexander, 2005; Hofer, 2004; Hofer & Pintrich, 1997; Kardash & Scholes, 1996; Qian & Alvermann, 1995; Schommer-Aikins & Easter, 2006; Schommer & Walker, 1995).

Research regarding personal epistemology has thought to understand what individuals believe about the nature of knowledge and the process of knowing. These beliefs, as Schommer states, relate to five dimensions of epistemology, namely source of knowledge, certainty of knowledge, structure of knowledge, speed of knowledge acquisition, and control of knowledge. They were initially thought of as being similar across disciplines and cultures (Schommer & Walker, 1995). Later, researchers came to the conclusion that these beliefs are domain-specific and culture-bound (Chan, 2003; Farouq & Ismail, 2005; Hofer, 2004; Hofer & Pintrich, 1997).

Furthermore, language differs from other domains of knowledge because it is not a closed symbolic system like mathematics. For example, language is constantly transformed by its cultural context. Its informal background, objectives, concerns, and methodology, as Tangherlini and Durden (1993) state, “constitute a unique conceptual system, which shows and owns a distinctive epistemology whereby truthful, dynamic, contrastable, and rectifiable knowledge may be obtained” (P.428).

Yet, although many researchers have examined epistemological beliefs in non-gifted student populations (e.g., Brownlee & Boulton, 2001; Kardash & Howell, 2000), few of them focused on these beliefs among gifted students (Neber & Schommer, 2002; Schommer & Dunnell, 1994, 1997). Bearing on the differences between gifted and nongifted students, it is expected that gifted students' personal epistemologies differ from those of their nongifted peers in a way that positively contribute to their giftedness; an area that has not been given due attention. Within the EFL learning context, studies on personal epistemologies are very scant. The few studies that have been conducted indicate that foreign language education contexts have peculiar features that might activate epistemic positions atypical of these contexts (Chan, 2003; Chan & Elliot, 2002; Farouq & Ismail, 2005).

Consequently, the current study examines epistemological beliefs as an antecedent that is potentially important for predicting linguistic giftedness of foreign language learners in the Saudi EFL context. More specifically, the study examines the epistemological beliefs of gifted EFL students at the tertiary level and how far these beliefs can predict their cognitive engagement, perceived linguistic competence, goal orientations and achievement.

Statement of the Problem

It is obvious from the previous introduction that epistemological beliefs may be potential determinants of linguistic giftedness. Yet, little is known about the epistemological beliefs of gifted EFL students and how far these beliefs are viable predictors of various aspects of their language learning behaviors and achievement. The current study is an attempt to handle this issue through answering the following set of questions:

1. What are the epistemological beliefs that Saudi Gifted EFL students hold?
2. Are there significant differences between gifted and normal EFL students in their epistemological beliefs?
3. How far can epistemological beliefs predict EFL students' goal orientation, academic engagement, perceived linguistic competence, and achievement?

Significance of the Study

Significance of the current study stems from the following considerations:

1. It sheds light on an area of research in linguistic giftedness that has not been widely addressed in the literature; namely epistemological beliefs. When college staff are aware that epistemological beliefs can support quality academic performance, then they may be more willing to give some class time to these underlying epistemic notions.
2. It may help teachers understand Gifted EFL students' approaches to studying, their level of participation in the classroom and the type of goals they adopt in their language learning.
3. It sheds light on how far epistemological beliefs can predict aspects of academic performance and consequently whether they can be potentially useful indices in the identification and education of the linguistically gifted students.
4. The study of students' epistemological beliefs may also contribute to gifted language education, fundamentally by knowing students' biases and ideas about their attitudes, namely how they perceive linguistic knowledge, how they justify their own inferences, how they plan their study strategies and how they should practice language trusting their experience.

Definition of Terms

Epistemological beliefs refer to “conceptions about how knowledge is constructed and evaluated and how knowing occurs” (Hofer, 2001: 354).

Academic engagement refers to “the amount of effort and type of processing strategies that students use for learning” (Ravindran et al., 2005: 222).

Goal orientation refers to “an individual’s general schema or theory for approaching the task, doing the task, and evaluating their performance on the task” (Pintrich, 2000: 473).

Perceived linguistic competence refers to students’ perceptions of their ability to do their work in English (Anderman & Midgley, 1997: 272)

REVIEW OF LITERATURE

Linguistic giftedness has been the focus of much research lately. Emphasis has been placed on the nature of gifted students and the best ways to nurture giftedness. Compared to normal students, gifted learners were found to exhibit outstanding learning behaviors and achieve higher learning outcomes. Yet, there is no consensus among researchers and educators on what constitutes linguistic giftedness. Various models and propositions have been theorized to create learning environments suitable for developing individual prerequisites for linguistic giftedness in the course of education.

Cognitive models of giftedness attribute linguistic supremacy of gifted language learners to cognitive factors such as high ability to process linguistic information and to be engaged cognitively (Dupeyrat & Marine, 2005; Greene & Miller, 1996; Ravindran et al., 2005). In this regard, findings of research indicate that gifted students show higher levels of strategic processing and greater skillfulness in self-regulation and self-management in language learning situations (Alexander et al., 1995; Gaultney et al., 1996). They are more likely to deploy language learning strategies appropriate for the requirements of the task and the language learning situations at hand. These strategies range from simple, surface-level strategies such as rehearsal and memorization to more complex and deeper-level ones such as

elaboration, critical thinking, and divergence. Compared to normal students, gifted learners were shown to be more likely to functionalize and integrate these types of strategies (Ibrahim, 2003). Self-regulation of language learning situations refers to students' ability to set goals, monitor and orient their performance for better achievement of goals, and self-reflect on their performance for any disparity between pre-set goals and achieved outcomes. Research findings indicate that gifted students are better self-regulators not only of their own learning but also of some aspects of the learning context (Neber & Schommer-Aikins, 2002).

The spectrum of determinants of linguistic giftedness has been extended to **motivational factors** such as perceived linguistic competence, self-efficacy, expectancy of success, intrinsic value, among other motivational components. These motivational factors affect students' cognitive engagement and consequently their language learning performance. In this regard, perceived competence refers to students' conceptions about their ability as language learners. As literature indicates, gifted students have a more positive self-image and greater expectancy of success in their future language learning endeavors compared to normally achieving students. They are sure of their ability to do well and to outperform peers in language settings. Hence, they show more persistence when encountered with challenges and show more skillfulness in handling stress and anxiety ensuing from these challenging situations (Casado, 2004; Ganschow & Sparks, 1996; Rozendaal et al., 2003).

Lately, this spectrum of motivational factors has been extended to **goal orientations** referring to students' schemata or theory of approaching a language task (Pintrich, 2000). This construct reflects internal motivational processes that affect an individual's task choice, self-set goals, and effort mechanisms in learning and performance (Button et, 1996; Fisher & Ford, 1998; Phillips & Gully, 1997; VandeWalle, 1997). As Dweck and her associates (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988) state, children approach learning situations with two different types of goal orientation, namely performing goal orientation and learning goal orientation.

Individuals with a learning goal orientation are concerned about developing their ability and thus seek out opportunities that foster learning and their focus is on gaining understanding, insight, and skill. Individuals with a performance goal orientation are concerned about demonstrating their ability and their focus is on gaining favorable judgments of their competence and/or avoiding being judged as not able. Further refinement by VandeWalle (1997), Elliot (1999) Midgely et al. (1998) and Bråten et al.(2004) resulted in partitioning performance goal orientation into performance-approach and performance-avoidance components. Students who adopt performance-avoidance goals strive to avoid unfavorable judgments of their competence.

According to this perspective, differences between gifted and nongifted students lie in their goal orientation in educational settings. Gifted students show more tendency to adopt learning (mastery) goal orientation compared to nongifted ones who are more likely to adopt a performing goal orientation. Such differences in goal orientation yield individual differences in self-regulatory behaviors (Ford et al. 1998; VandeWalle, et al, 1999), deeper processing cognitive strategies and metacognitive strategies (Colquitt & Simmering, 1998; Ford et al., 1998), academic performance (Beaubien & Payne, 1999; Chen et al., 2000; Phillips & Gully, 1997; VandeWalle et al., 2001) and task performance (Mangos & Steele-Johnson, 2001; Steele-Johnson et al., 2000).

In recent years that spectrum of causal determinants of linguistic giftedness has been broadened. **Epistemological beliefs** have been envisioned as a potential determinant of giftedness. These beliefs are “qualitative conceptions about the nature of knowledge” (Neber & Schommer-Aikins, 2002: 60). Earlier studies on epistemological beliefs focused on the developmental perspective of epistemology (Kitchener & King, 1990; Magolda, 1992; Perry, 1970). These studies investigated personal epistemology as if it were a single dimension that ranged from the belief that simple, certain knowledge is handed down by authority to the belief that complex tentative knowledge is discovered or reasoned out.

Beginning in 1990s, a great deal of theoretical and empirical work of epistemological beliefs has been conducted by Schommer and her colleagues (Dull & Schommer-Aikins, 2001; Schommer & Dunnell, 1994; Schommer & Walker, 1995; Schommer et al., 1997). Schommer (1990) expanded epistemological beliefs to include beliefs about learning, namely the speed and ability to learn. This set of beliefs was considered as a system of more-or-less independent components. In this framework, epistemological beliefs were reconceived as a system of more or less independent dimensions. By “system,” Schommer meant that there is more than one belief to consider. By “more or less independent,” she meant that individuals may be sophisticated in some beliefs but not necessarily sophisticated in others. For example, it has been found that some individuals believe that knowledge tends to be highly complex, yet they also believe that knowledge does not change (Schommer, 1990).

Initial research on epistemological beliefs proposed that these beliefs are similar across disciplines, cultures, and fields of study (Schommer & Walker, 1995). More recently, researchers came to the conviction that epistemological beliefs are domain-specific and culture-bound (Alexander, 2001; Hofer, 2000; Mori, 1999). Specifically, there is increased recognition that although students may hold beliefs about knowledge in general that influence their behavior, they also have differentiated beliefs about knowledge in different academic domains (e.g., Buehl & Alexander, 2001, 2004, 2005; Buehl et al., 2002). Such variations may be reflective of differences in the way academic domains are theoretically conceptualized. For instance, some domains (such as language and history) are viewed as more ill-structured domain, while other domains (such as mathematics) are viewed as more well-structured domain. Structural differences between domains, as well as variations in content and method of instruction, could contribute to differences in students’ views of knowledge (Buehl et al., 2002; Hofer, 2000). Moreover, as Arkoudis (2003), Clarebout (2001), and Flores (2001) argue, EFL contexts have unique cultural characteristics that might activate epistemological beliefs atypical of such environments. It is impossible for language teachers and learners to divorce themselves from beliefs constructed within varying social environments.

Within the context of foreign language education, research on epistemological beliefs indicates that EFL students' epistemic positions shadow various aspects of their language learning. For example, epistemological beliefs were found to influence the teaching orientations, language learning strategies, and foreign language classroom anxiety among Saudi preservice EFL teachers (Farouq & Ismail, 2005). Preservice teachers with sophisticated beliefs were more likely to adopt a constructive student-based teaching orientation compared to those with naïve beliefs. They showed more skillfulness in deploying appropriate cognitive, metacognitive, social, and affective language learning strategies. Moreover, preservice EFL teachers with sophisticated epistemologies were more skillful in lowering anxiety and managing stress-provoking situations in EFL classrooms.

Based on this epistemic perspective, giftedness was interpreted in terms of belief sophistication. Some researchers supposed that compared with regular students, gifted students are more likely to be mature in their epistemological beliefs. Consequently, gifted learners are more likely to believe that knowledge is organized in complex, integrated patterns, and that learning can be a gradual process (Schommer, 1993; Schommer & Dunnell, 1994). On the other hand, naïve epistemological beliefs can present an explanation for the reason why underachieving highly gifted students do not fully use their cognitive potential (Schommer & Dunnell, 1997).

Nevertheless, research on the linguistic giftedness of EFL students in relation to epistemological beliefs is very scant. Most research on epistemology within EFL contexts focused on regular students (Chan, 2002, 2003; Farouq & Ismail, 2005). Thus the current study is an attempt at investigating the epistemological beliefs of gifted EFL students and uncovering how far these beliefs can predict gifted EFL students' goal orientation, cognitive engagement, perceived linguistic competence, and achievement.

METHODOLOGY

Participants

The sample of the study involved a cohort of 163 EFL students at the Teachers' College of Riyadh. They were all males between the ages of 19 and 22 in the 5th, 6th, 7th, and 8th levels of study. The sample included 37 Gifted EFL students and 126 nongifted ones. Selection of gifted students was based on a set of criteria. First, teachers were asked to submit names of EFL students whom they viewed as linguistically gifted based on their classroom performance and EFL proficiency. From amongst the selected pool of teacher nominations, the researchers chose students with a minimum GPA of 4 (out of 5). A TOFEL test was used with selected students. The final group of gifted EFL students included those who scored 550 and above on the TOEFL test.

Instruments

Four instruments were used in the current study including: An EFL Epistemological Beliefs Questionnaire, a Goal Orientation Questionnaire, an Academic Engagement Questionnaire, and a Perceived Linguistic Competence Questionnaire. The latter three were constructed by the researchers for the sake of the current investigation.

The EFL Epistemological Beliefs Questionnaire (EFLEBQ)

The current study used the EFL Epistemological Beliefs Questionnaire designed by Farouk and Ismail (2005) with the aim of identifying the epistemological beliefs of Saudi EFL students. It is a 45-item questionnaire with a 5-point Likert rating scale type ranging from "Strongly Agree" to "Strongly Disagree". It was based on the theory of epistemological beliefs proposed by Schommer (1994). Items included both positive and negative statements (items with negative wording were reverse-coded in the scoring procedures). They were pivoted along six dimensions of epistemological beliefs. These six dimensions vary along a continuum with polarities at two extreme ends. The first dimension, Source of Knowledge, ranges from students' believing in "knowledge as handed down by experts and authority" to "knowledge as obtained by reason and evidence". The second dimension, Control of Knowledge, ranges from "students' beliefs in linguistic ability as inborn and fixed" to "beliefs of linguistic ability as a result of effort". The

third dimension, Certainty of Knowledge, ranges from beliefs in “knowledge as certain and absolute” to “knowledge as tentative and ever-changing”. The fourth dimension, the Speed of Knowledge Acquisition, ranges from “beliefs in linguistic knowledge acquisition as quick” to “beliefs in acquisition as gradual and time-consuming”. The fifth dimension, the Structure of Knowledge, ranges from “beliefs in linguistic knowledge as simple” to “beliefs in linguistic knowledge as complex”. The sixth dimension, Integration of Knowledge, ranges from “beliefs in linguistic knowledge as fragmentary” to “beliefs in linguistic knowledge as integrated and in constant interplay with the cultural context of language learning”.

To revalidate the factor structure of the questionnaire, it was re-administered to a sample of 163 EFL students at the Teachers College of Riyadh during the second semester of the academic year, 2005- 2006. A factor analysis was conducted using principal component factoring with Varimax rotation (eigenvalues ≥ 1.0). Factor loadings of 0.4 or above were chosen as a criterion for analysis. The analysis yielded results similar to those obtained by Farouk and Ismail (2005), i.e. the examination of the scree plot suggested a six-factor solution, which accounted for 58 % of the total variance in epistemological beliefs. As named by Farouk and Ismail (2005), the six extracted factors were called: Source of Knowledge (9 items with factor loadings ranging from 0.437 to 0.742), Control of Knowledge (8 items with loadings ranging from 0.412 to 0.673), Certainty of Knowledge (7 items with loadings ranging from .400 to 0.669), Speed of Knowledge Acquisition (7 items with loadings ranging from .518 to .856), Structure of Knowledge (5 items with factor loadings ranging from .490 to .793), and Integration of Knowledge (9 items with factor loadings ranging from .411 to .688). Thus, the final form of the questionnaire included 45 items.

The EFL Goal Orientation Questionnaire (EFLGOQ)

The questionnaire aimed at identifying the goal orientations of the linguistically gifted EFL students. It is a 12-item questionnaire with a 5-point Likert rating scale ranging from “Strongly Agree” to “Strongly Disagree”. Designing the questionnaire was based on the goal orientations proposed in the literature (Brett & Vandwalle, 1999; VandeWalle et al., 2001). In this

regard, learning goal orientation concerns developing learning abilities and seeking out opportunities to gain understanding, insight, skills, and learning new strategies. Individuals with performance approach goal orientation are concerned about demonstrating their ability to others and their focus is on gaining favorable judgments of their competence. Individuals with performance avoidance goal orientation exhibit a desire to avoid negative evaluations of competence (VandeWalle 1997; VandeWalle et al., 2001).

The blueprint of the questionnaire included 18 items that represent the various goal orientations that EFL students are likely to adopt. It was submitted to a jury of TEFL specialists and psychologists to decide on its validity for assessing the goal orientations of the EFL students at the Saudi tertiary level. Necessary modifications were introduced on the preliminary form of the questionnaire based on the recommendations of the jury members.

To establish the factorial structure of the questionnaire, a principal component analysis with Varimax rotation and eigenvalues of ≥ 1 was performed on the responses provided by a sample of 163 EFL students at Riyadh Teachers College in the second semester of the academic year 2005-2006. Examination of the scree plot suggested a three-factor solution. These factors were learning goal orientation (including 4 items with loadings ranging from 0.596 to 0.877), performance goal orientation (including 4 items with loadings ranging from 0.512 to .904), and performance avoidance orientation (including 4 items with loadings ranging from 0.523 to 0.760) with eigenvalues of 3.98, 1.85, and 1.67 respectively. They explained 33.24 %, 15.41 %, and 12.29 % respectively, with a total of 60.94 %, of the total variance in the students' responses.

Reliability of the questionnaire was calculated using the internal consistency method. The calculated Cronbach's Alphas were 0.83, 0.74, and 0.65 for learning goal orientation, performance-approach orientation, and performance-avoidance goal orientation, respectively. Thus, the questionnaire shows statistically reasonable degrees of reliability for use in this study.

The Academic Engagement Questionnaire (AEQ)

The Academic Engagement Questionnaire aims to identify levels of engagement in language learning exhibited by Saudi EFL students at the tertiary level. In this regard, cognitive engagement refers to “the amount of effort and type of processing strategies that students use for learning” (Ravindran et al., 2005: 222).

The preliminary form of the questionnaire included 32 5-point Likert scale type items pertaining to students’ processing strategies deployable when handling language learning tasks and materials. This blueprint of the questionnaire was submitted to a jury of TEFL specialists and psychologists to decide on its validity for assessing the cognitive engagement of the study sample. Recommended revisions by deletion, modification, addition, or restatement, were made on the blueprint.

To validate the factorial structure of the questionnaire a principal component analysis with Varimax rotation and eigenvalues of ≥ 1 was conducted on the responses of a sample of 163 students during the second semester of the academic year 2005-2006. Factor loading minimum of $\geq .3$ and eigenvalues of ≥ 1 were chosen as criteria for analysis. Items that loaded on more than one factor and those with factor loadings less than .4 were deleted and the correlation matrix was reanalyzed. Initially a four-factor solution was attempted based on evidence provided in previous literature (Dupeyrat & Marine, 2005; Ravindran et al., 2005). Yet, examination of the scree plot yielded a three-factor solution where the two factors of deep and shallow processing loaded together in one factor. We named this factor “strategic processing”. Thus, the final form of the questionnaire included items pivoted along three factors with eigenvalues of 10.711, 1.830, and 1.677 respectively accounting for 43.09 % of the total variance in students’ responses. The first factor, strategic processing, included 15 items with loadings ranging from 0.436 to 0.680. The second factor, self-regulated Learning, included nine items with loadings ranging from .510 to .721. The third factor, persistence in academic work, included seven items with loadings ranging from 0.410 to 0.638.

Reliability of the sub-questionnaires was calculated using the internal consistency method. The calculated Cronbach's alphas for the three subscales were .653, .85, .89 respectively. The reliability coefficient for the whole scale was calculated using the split-half technique. It was .89 which makes the questionnaire reliable enough for use in the current study.

The Perceived Linguistic Competence Questionnaire (PLCS)

The scale aimed at identifying students' perceptions about their EFL linguistic competence. As depicted in the literature (Kaplan & Midgley, 1997) perceived competence includes three factors pertaining to self-efficacy beliefs, expectancy of success, and comparison to others.

The preliminary form of the scale included 22 items representing the three pivots of perceived linguistic competence. Items included both positive and negative statements (items with negative statement were reverse-coded in the scoring procedures). This blueprint was submitted to a jury of TEFL specialists to decide on its validity for assessing the linguistically gifted EFL students' perceptions about their linguistic competence. Necessary changes were made on the preliminary form of the questionnaire based on the recommendations of the jury members.

To validate the factorial structure of the scale, a principal component analysis with Varimax rotation was conducted on the responses of a sample of 163 EFL students during the second semester of the academic year 2005-2006. Factor loadings of ≥ 0.4 and eigenvalues of ≥ 1 were used as criteria for analysis. Items that loading on more than one factor or those that loaded at a minimum less than 0.4 were eliminated and the correlation matrix was reanalyzed. Based on this procedure, seven items were eliminated. Thus, the final form of the scale included 15 items distributed along three pivots. The first pivot, self-efficacy, included seven items with factor loadings ranging from 0.41 to 0.75. The second factor, compared to others, included four items with factor loadings ranging from 0.43 to 0.68. The third factor, expectancy of success, included four items with factor loadings ranging from 0.40 to 0.75. Eigenvalues for the three factors were 4.32, 1.62, and 1.2 respectively.

These three factors accounted for 28.82 %, 10.84 %, and 8.04 %, with a total of 47.71 % of the variance in the students' responses.

Reliability of the subscales was calculated using the internal consistency method. The calculated Cronbach's alphas were .76, .65, .63 for self-efficacy, expectancy of success, and comparing with others respectively. Reliability of the whole questionnaire was calculated using the split-half technique yielding a coefficient of .79, which makes the questionnaire statistically reliable enough for use in the current study.

Procedures

The study was conducted during the second semester of the academic year (2005-2006). All the tools were group administered to the participants in a classroom setting over a period of two weeks starting round the middle of March. The students were informed that their participation would be entirely voluntary and were assured that the information they provided would be confidential and would be used for research purposes only. The tools were administered by the researchers. The students were given as much time as they needed to complete the measures.

The scoring technique

The summated rating method, known as Likert scales, was used in scoring the tools. Students were asked to respond to items by indicating how far they agree with the statements on a five-point rating scale. Each response was associated with a point value, where "Strongly Agree" (SA) was assigned a point value of (5) and "Strongly Disagree" (SD) a point value of (1). Items with negative statement were reverse coded so that higher scores indicated (a) more sophisticated epistemological beliefs, (b) higher levels of perceived linguistic competence (c) more cognitive engagement in language learning situations, and (d) higher levels of goal orientation adoption.

RESULTS

Students' responses to the tools of the study were scored and tabulated. The statistical package (SPSS, V. 10) was used in the statistical treatment of the results of the study as follows:

Saudi Arabian gifted EFL students' Epistemological Beliefs

To decide on the nature of epistemological beliefs that gifted EFL students hold, means and standard deviations were calculated and tabulated as shown in Table (1).

Table (1): Means and standard deviations obtained by the gifted EFL students in the six dimensions of the Epistemological Beliefs Questionnaire

	Source	Certainty	Control	Speed	Structure	Integration
Total	5	5	5	5	5	5
M	3.09	3.14	3.33	3.63	3.43	3.89
SD	0.51	0.71	0.44	0.45	0.09	0.42

Data in Table (1), indicate gifted EFL students hold a variety of beliefs about the nature of linguistic knowledge and the process of handling this knowledge. Students' responses varied according to the dimension of epistemology under consideration. Generally, gifted EFL students hold relatively sophisticated epistemological beliefs along the various dimensions of epistemology. Sophistication of their epistemology is the greatest in the "Integration of knowledge" dimension (3.89) indicating that they tend more to believe that linguistic knowledge is an integrated whole rather than fragmentary constituents. The least sophistication of their epistemology is exhibited in the "source of knowledge" dimension (3.09) indicating that although they tend to believe that knowledge can be drawn from various sources rather than the teacher or other omniscient figures, they still have some degree of belief in the teacher as the main source of linguistic knowledge in the EFL classrooms. Their mean scores on the "certainty of knowledge" dimension is (3.14) which denotes that they have an above average degree of conviction that linguistic knowledge is tentative and changing rather than fixed. Their mean score in the "control of knowledge" dimension is (3.33), which indicates that they have a considerable degree of conviction that they have control over the process of knowing and that effort and engagement are the main factors behind their language proficiency. For them, excellence in language study is not predetermined by some innate ability, but rather depends on striving and hard work. Similarly, the mean score in the "speed of language acquisition" dimension (3.62) indicates that

gifted EFL students hold a considerable degree of conviction that mastery of English as a foreign language is a process of gradual progression that takes time. Learning English, for them, is a process of incremental development. Their mean score in the “structure of knowledge” dimension is (3.43), which indicates that they are less likely to consider language as an accumulation of linguistic facts, vocabulary, or grammatical rules, but rather as a dynamic and structured phenomenon.

Gifted vs. non-gifted students’ epistemological beliefs

To decide on the differences between Saudi Arabian gifted EFL students and their non-gifted peers, a multivariate analysis of variance (MANOVA) was conducted on their responses to the Epistemological Beliefs Questionnaire. Results are shown in Table (2).

Table 2: MANOVA results of the differences in epistemological beliefs between gifted EFL students and their nongifted peers

	Gifted EFL Students		Non-gifted EFL students		DF	F	Sig.
	M	SD	M	SD			
Source of knowledge	27.08	3.85	26.29	3.64	6,156	7.11	0.001
Certainty of knowledge	21.94	4.56	19.76	3.10			
Control of knowledge	26.67	4.11	25.33	3.86			
Speed of knowledge	25.37	2.45	23.65	3.12			
Structure of knowledge	17.13	2.12	15.04	2.33			
Integration of knowledge	35.05	4.87	32.71	4.58			

As shown in Table (2), differences between the gifted EFL group and the non-gifted one in the various dimensions of epistemological beliefs do exist. As a whole, the gifted EFL students showed more sophistication of epistemological beliefs compared to the normal EFL students ($F(6, 156) = 7.11, P < .001$).

This omnibus test was followed by univariate analyses (ANOVAs) of students’ responses on the six dimensions of epistemological beliefs to decide on the differences between the gifted and the nongifted EFL students along these individual dimensions. As shown in Table (2), there are statistically

significant differences between the two groups in five of the six dimensions of epistemological beliefs.

Table 3: Univariate analyses of the differences in epistemological beliefs between gifted and nongifted EFL students

Dependent variables	Gifted		Normal		df	F
	M	SD	M	SD		
Source of knowledge	3.64	26.29	3.85	27.08	1, 163	1.302
Certainty of knowledge	3.10	19.76	4.56	21.94		11.25*
Control of knowledge	3.86	25.33	4.11	26.67		3.36*
Speed of knowledge	3.12	23.65	2.45	25.37		9.48*
Structure of knowledge	2.33	15.04	2.12	17.13		23.72*
Integration of knowledge	4.58	32.71	4.87	35.05		7.24*

*P < .01

First, as shown in table (3) there is a statistically significant difference between gifted and nongifted EFL students in the “certainty of knowledge” dimension. The gifted EFL students showed greater conviction that linguistic knowledge is tentative and ever-changing rather than fixed and certain. Similarly, the gifted EFL students showed more sophistication than their nongifted peers in the “control of knowledge” dimension. For the Gifted EFL students, innate ability was not the controlling factor in their language development. It is not a matter of merely being gifted at birth, but rather a matter of hard work and effort expenditure. The more the invested effort in foreign language learning, the greater the chance for excellence and supremacy. As well, the gifted EFL students showed more sophistication concerning the “speed of knowledge acquisition” dimension of their epistemology. They were more likely than their nongifted peers to believe that language learning is gradual and incremental rather than quick and momentary. This gradual development of linguistic knowledge necessitates that they spend lengthened periods of time striving and struggling to perform appropriately in language learning situations. On the other hand, nongifted EFL students exhibited more tendency to learning quickly and learning first

time. For the nongifted students, learning either occurs at initial endeavors or is not likely to occur at all. Regarding the “structure of knowledge” dimension, the gifted EFL students showed more tendency than their nongifted peers to believe that linguistic knowledge is complex rather than simple. Linguistic knowledge, for the gifted EFL students, is not an accumulation of grammatical rules and lexical items, but rather a complex dynamic structure. Likely, the Gifted EFL students exhibited more sophistication regarding the “integration of knowledge” dimension. They were more likely than their nongifted peers to believe that language skills and aspects are integrated and are in constant interplay with each other. EFL proficiency, as the gifted EFL students believe, necessitates that they master various language skills and aspects as an integrative whole. Moreover, they were more likely to recognize the reciprocal interplay between language and the cultural context of language learning context.

Surprisingly, although there are differences between EFL gifted and nongifted students in the “source of knowledge” dimension, these differences are statistically insignificant, $F(1, 163) = 1.302$, $P = .256$. It is noteworthy that this dimension received the lowest mean scores by both groups, which indicates that they both hold relatively considerable degrees of conviction that EFL teachers are the main source of knowledge in the EFL teaching/learning settings. Imitating teachers’ examples and ways of expression was deemed instrumental to appropriate tackling of classroom-based language tasks.

Predicting goal orientation, cognitive engagement, and perceived linguistic competence with epistemological beliefs of EFL students

In order to test the predictability of goal orientation, cognitive engagement and perceived linguistic competence with epistemological beliefs, the researchers run a series of multiple regression analyses with epistemological belief dimensions as possible predictors and the dependent variables (goal orientation, cognitive engagement, and perceived linguistic competence) as the criterial variables. They were simultaneously entered by selecting the stepwise entry mode in the analysis process. Results are shown in Table (4).

Table (4): Multiple regression prediction of goal orientation, perceived linguistic competence, cognitive engagement, and achievement with epistemological beliefs of EFL students

Dependent Variables	Predictors	R ²	B	β	T
Learning goal orientation					
	Speed	.40	.260	.201	2.582*
Performance-approach goal orientation					
	Certainty	.042	-.212	-.214	-2.783***
	Speed	.071	.198	.169	2.198*
Perceived Competence					
	Integration	.163	.624	.404	5.603***
Cognitive Engagement					
	▪ Strategic Processing				
	Integration	.250	.984	.501	7.472***
	Certainty	.280	.446	.172	2.568**
▪ Self-Regulation					
	Integration	.124	.463	.341	4.901***
	Certainty	.173	.516	.289	3.997***
	Control	.231	.408	.251	3.467***
▪ Persistence					
	Integration	.115	.284	.342	4.549***
	Certainty	.169	.254	.232	3.219**
Achievement					
	Structure	.126	7.894	.300	4.076***
	Integration	.160	2.566	.389	2.618**
	Certainty	.185	2.937	.164	2.240*

***P ≤ .001, **P ≤ .01, *P ≤ .05

Regarding EFL students' goal orientation, regression results indicate that students' epistemological beliefs are potential predictors of their goal orientations in language learning contexts. Yet, as the results of regression analysis show, epistemic dimensions vary in their predictive power. The "speed of knowledge acquisition" dimension of epistemology was the only predictor of learning goal orientation {F (1,158) = 6.668, P < .01}, indicating that students who believe in linguistic knowledge acquisition as a gradual and time-consuming process are more likely to adopt learning goals than those who believe in linguistic knowledge acquisition as quick or not at all. This dimension accounts for 40 % of the students' total variance in their leaning

goals ($R^2 = .40$). Students' adoption of performance goal orientation was predicted with both "speed of knowledge acquisition" and "certainty of knowledge" dimensions of epistemological beliefs $\{F_s(2, 157) > 5.994, P < .003\}$. They respectively account for 7%, and 4% of the total variance in students' performance goal orientation. This finding indicates that EFL students who believe that linguistic knowledge acquisition is a gradual and continuous process can adopt a dual goal orientation (both learning and performance goals). In this regard, learning goal orientation concerns their engagement in academic work in order to improve their competence, or for the intrinsic satisfaction that comes with learning. Performance goal orientation pertains to engagement in academic work to demonstrate ability or avoid the appearance of lack of ability relative to others. Yet, the "certainty of knowledge" dimension correlates highly significantly and negatively with performance goal orientation $\{F(1, 158) = -6.987, P < 0.009\}$, which indicates that students who believe in linguistic knowledge as incremental, tentative, and ever-changing are less likely to adopt a performance goal orientation. Avoidance goal orientation was not predicted with any of the six dimensions of epistemological beliefs.

Perceived linguistic competence was predicted with the "integration of knowledge" dimension of epistemological beliefs $\{F(1, 158) = 31.39, P < .001\}$. This denotes that EFL students who believe in linguistic knowledge as an integral whole rather than fragmentary constituents are more likely to exhibit higher degrees of perceived linguistic competence. They possess ample levels of linguistic self-efficacy values and higher levels of success expectancy in their future language learning endeavors. This dimension accounts for 16 % of EFL tertiary level students' perceived linguistic competence ($R^2 = .163$).

EFL students' cognitive engagement in language learning activities in its three considered factors (strategic processing, self-regulation, and persistence) was predicted with a cohort of epistemological beliefs. The strategic processing of linguistic knowledge was predicted with the "integration of knowledge" and the "certainty of knowledge" dimensions of epistemology $\{F(2, 160) = 31.05, P < .001\}$. This indicates that EFL students

who believe in linguistic knowledge and skills as integrated and in constant interplay with one another, on the one hand, and with the socio-cultural context of language learning, on the other hand, are more likely to have a strategic vision of how to handle language learning tasks in such contexts. They are more likely to deploy a wide array of language learning strategies according to the requirements of the language tasks at hand. These strategies include and integrate both surface-level and deep-level processing of language learning input. This reflects the idea that EFL students who believe that linguistic knowledge is incremental and ever-changing are more likely to adopt a strategic approach to tackling language learning situations. Beliefs in the uncertainty of knowledge lead students to deploy more experimental and discovery-like strategies in their pursuit of knowledge. Notably, this belief dimension accounts for 28 % of the total variance of students' strategic processing behaviors ($R^2 = .28$).

Self-regulation of students' language learning was predicted with three dimensions of epistemological beliefs. These were the belief dimensions of "integration of knowledge", "certainty of knowledge" and "control of knowledge" $\{F(3, 159) = 15.95, P < .001\}$, which respectively accounted for 12%, 17%, and 23%, respectively, of the total variance in students' self-regulated language learning. This indicates that EFL students who exhibit more sophistication in these dimensions of epistemology are more likely than their peers to practice control over their language learning i.e. they are more likely to plan, monitor, and reflect on their learning endeavors for better achievement of their language learning goals. It is notable here that the "control of knowledge" dimension was the best predictor of self-regulation (rather than others' regulation) of their learning, which indicates that students' belief in their abilities is an ample indicator of their self-directedness and self-management of language learning. They take responsibility and exhibit independence in language settings.

Persistence in challenging language situations was predicted with the belief dimensions of "integration of knowledge" and "certainty of knowledge" $\{F(2, 160) = 16.28, P < .001\}$. They respectively account for 12% and 17% of the total variance in students' persistence in language

settings. This indicates that EFL students who possess an integrated panoramic view of language learning components and who believe that mastering these components needs effort and time are more likely to persist, try longer, and work harder in language learning situations. They exhibit more endurance and tolerance when faced with language learning difficulties along with skillfulness and intuitiveness in handling stress ensuing from these difficulties.

Students' achievement as measured by their GPAs was predicted with three epistemic belief dimensions: certainty of knowledge, integration of knowledge, and structure of knowledge $\{F(3,138) = 12.41, P < .001\}$. These belief dimensions respectively account for 19 %, 16 %, and 13% students' language achievement. This denotes that students who believe that language skills and areas are integrated with one another, on the one hand, and with the socio-cultural context of language learning, on the other hand, are more likely to achieve higher and get better gains in language learning situations. Similarly, students who believe that linguistic knowledge is tentative and ever-changing are more likely to better engage in self-construction and self-discovery endeavors that ultimately lead to better language achievement indices. As well, EFL students who believe in linguistic knowledge as a structured whole rather than an accumulation of grammatical rules and lexical lists are anticipated to achieve better and score higher in language achievement and proficiency tests.

Discussion

A number of revelations ensue from the findings of the current study that may add to the existing literature on epistemological beliefs in general and the effect of these beliefs on linguistic giftedness in particular.

The first of these revelations is the extraction of the "source of Knowledge" dimension of epistemology. This dimension was not delineated in most literature on epistemological beliefs particularly that conducted in Western cultures of language education where individualism is the norm (Kardash & Scholes, 1996; Qian & Alvermann, 1995; Schommer, 1994; Schommer & Walker, 1995; Strømsø & Bråten, 2003). The extraction of this

dimension reflects the effect of socio-cultural context of language learning on the epistemic positions of gifted EFL students. In collectivist, hierarchical cultures such as that of Saudi Arabia, students are more likely to show respect and obedience to elders and knowledgeable figures such as teachers. Those omniscient figures' knowledge and expertise are seen as passing the test of time. Consequently, students' believing in them as reliable sources of knowledge is a natural byproduct of such cultural context. This finding is in line with the results of Farouq and Ismail's study (2005) on Saudi EFL preservice teachers. It highlights cultural differences in epistemological beliefs that should be taken into consideration when generalizing epistemic research results to other cultures and language learning contexts (Chan, 2000; Chan & Elliot, 2000, 2004; Deumert, 2003; Farouq & Ismail, 2005; Lee, 1995; Mori, 1997).

A second revelation is that Gifted EFL students hold sophisticated epistemological beliefs. They exhibit above average scores along the six dimensions of epistemology. Yet, it is noteworthy that there is variance in sophistication along the six dimensions. The "integration of knowledge" dimension was the most sophisticated followed by speed of knowledge acquisition, structure of knowledge, control of knowledge, certainty of knowledge, and source of knowledge, successively. This finding yields two significant implications. First, it reassures Schommer's view (1990, 1994) that epistemological dimensions are more or less independent of each other. Being sophisticated in some belief dimensions does not imply being so in other dimensions. Development along various epistemological dimensions occurs at different rates. Second, this finding reflects the effect that language learning context exerts on epistemological beliefs. As the results of the study indicate, certain epistemological beliefs seem more likely than other beliefs to be activated by aspects of the socio-cultural context of language education. These epistemological positions seem more functional in EFL settings and consequently more related to linguistic giftedness.

The comparison of epistemological beliefs among gifted and nongifted EFL students provides more evidence to the above-mentioned conclusion. As results indicate, sophisticated epistemological beliefs may be instrumental

factors behind linguistic giftedness. Gifted EFL students showed more sophistication in epistemological beliefs than their nongifted peers and were more able to functionalize these beliefs in language learning situations. This finding supports prior research conclusions that reported gifted students as being more mature in their epistemological beliefs (Schommer, 1993, Schommer & Dannel, 1994). This is also consistent with conclusions by Schommer and Dunnell (1997) that poorly developed epistemological beliefs could be a mediational barrier explaining why underachieving highly gifted students do not fully use their full cognitive potential.

Yet, an exception to the above finding is that no significant differences were found between Gifted EFL students and their nongifted peers in the “source of knowledge” dimension of epistemology. It should be noted that this dimension received the lowest mean scores by both groups. This indicates that both gifted and nongifted EFL students have a relatively considerable degree of conviction that EFL teachers are knowledgeable sources of information whose examples and ways of expression should be taken into consideration if students are to be successful in EFL classrooms. This finding reflects the valence of the teaching/learning atmosphere prevailing in the Saudi EFL classroom. Such atmosphere, as Alhujailan (2005) states, is still tailored to audio-lingual practices that depict teachers as models that should be imitated. Language content provided in textbooks is focused over any other kind of content. Exams are tailored to information provided by teachers through language textbooks. Thus, content memorization and teacher imitation are a guarantee that students pass the exams. In such a context it is natural for students who have been instructed to imitate and memorize to come to the conclusion that teachers and textbooks are the main sources of knowledge at the expense of any other sources. Self-constructed and self-discovered knowledge will be less valued compared to this transmitted by teachers or compiled within language “resource” textbooks.

A remarkable revelation of the current study is that epistemic dimensions vary in their predictive power. Some epistemological dimensions can potentially predict given psychological constructs but not others. The

epistemological dimension of the “integration of knowledge” has the greatest predictive power. It predicted most of the variables under consideration in the current study (perceived linguistic competence, strategic processing of linguistic knowledge, self-regulation of language learning situations, persistence when encountering difficulties in language learning settings, and overall achievement in EFL classes). The “certainty of knowledge” dimension predicted a number of variables such as performance goal orientation, strategic processing of linguistic input, self-regulation of language learning endeavors, persistence in the face of difficulties, and overall achievement in language classes. The “speed of knowledge acquisition” dimension predicted goal orientation adoptions (learning goal orientation and performance goal orientation). The “control of knowledge” dimension predicted students’ self-regulated language learning. The structure of knowledge dimension predicted students’ overall achievement in language classes. This significant revelation adds another perspective to existing literature on epistemological beliefs. Various epistemic dimensions seem to be inherently linked to specific psychological constructs and thus have the potentiality to predict these constructs in language learning situations. This has to be taken into account when constructing instructional treatments to develop these constructs.

Suggestions for further research

Although the current study provided insightful conclusions about the epistemological beliefs of gifted EFL students, a set of research avenues remain open for investigation in this regard. Based on this, the following suggested studies seem pertinent:

A predictive investigation of linguistic giftedness with epistemological beliefs to see whether students’ epistemology can be a reliable predictor of their EFL giftedness.

A comparative study of gifted and nongifted EFL female students’ epistemological beliefs to investigate the effect of gender on gifted students’ epistemology.

Replicating this study in other EFL contexts and other settings of foreign language learning to add more validity to current conclusions.

Replicating this study with other variables to see whether epistemological beliefs can predict other variables in the foreign language learning context.

An investigation of the instructional treatments most suitable for activating students' adaptive epistemological beliefs.

The effect of epistemological retraining of gifted underachievers on their EFL proficiency.

An investigation of the factors that affect the development of epistemological beliefs in the EFL context.

An investigation of the specific links between gifted EFL students' epistemological beliefs and the characteristics they display in the classroom.

A developmental study of epistemological beliefs among gifted EFL students to decide on best stages of intervention.

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