Journal of English language Teaching and Learning
University of Tabriz
Volume 12, Issue 26, (Fall & Winter 2020)
Pages 303-333

Pre-eereeeeTTEFLeeeachernnnmmucnnnppppcciicennndrrrrrmnnnnm to academic self-concept*

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Abstract
Teacher quality and teaching effectiveness as consequences of teacher professional development hinge on teachers' professional knowledge, professional beliefs and skills which affect instructional practice of teachers and student learning. The present study sets out to probe the relationship between academic self-concept and self-reported instructional practice among pre-service TEFL teachers in Iran. Developed and validated through the Rasch model, two questionnaires were utilized in this study. The results indicated that there is a significant positive relationship between academic self-concept and instructional practice at the general and more differentiated levels. Furthermore, academic self-concept was found to affect teacher candidates' teaching practices. The obtained findings highlighted the significance of academic self-concept and its inclusion in teacher preparation programs.

Keywords: Instructional practice, academic self-concept, pre-service TEFL teachers, teacher education.

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1. Introduction

Any nation around the world strives for launching high-quality learning. It is generally believed that such an optimal system of education never becomes a reality without evolution in teachers' perceptions and augmentation in their theoretical and practical knowledge. Teachers' professional competence consists of both professional knowledge, professional beliefs and motivational orientations (Baumert & Kunter, 2013). Constructs such as self-concept and beliefs have been shown to influence learners' performance (Wang, 2000). Likewise, there seems to be a reciprocal relationship between self-concept and academic achievement (Marsh & Craven, 2006). Self-concept and beliefs concerning teaching may affect teachers' instructional approach and their perceptions of students' learning abilities (Yeung, Craven & Kaur, 2014). Additionally, self-concept can predict teachers' teaching practices (Guskey, 1988). Yeung et al. (2014) found that teachers' positive self-concept contributes greatly to students' involvement in learning activities compared to teachers with less positive self-concept. Similarly, teaching practices are affected by teachers' perceptions of teaching (Trigwell, Prosser, & Waterhouse, 1999). Thus, any changes in teachers' beliefs pertinent to learning and pedagogy underlie teachers' professional development (Ho, Watkins, & Kelly, 2001). Accordingly, professional beliefs and skills play a significant part in teacher competencies (Snoek, 2010). Although students' professional self-concept has been extensively surveyed and explored in the literature, pre- and in- service teachers' academic self-concept has not received due attention (e.g., Paulick, Grobschedl, Harms, and Moller, 2016).

It has also been shown that self-concept and beliefs mediate and control teaching behavior (Craven & Yeung, 2008) and contribute to the development of instructional quality and teachers' instructional practice (e.g., Gitomer & Bell, 2016; Konig & Pflanzl, 2016). Instructional practice refers to what teachers actually do in the classroom as affects student learning (Hattie, 2009). It contains three dimensions of cognitive activation, classroom management and student

learning support (Konig & Pflanzl, 2016; Voss et al., 2011). A number of studies have demonstrated the association between these three aspects of instructional practice and learners' cognitive and non-cognitive learning consequences (Baumert et al., 2010). Despite the influence of teachers' self-concept and beliefs in student learning and pedagogical practices, these constructs have not been thoroughly surveyed in teacher education programs around the world (Paulick et al., 2016; Yeung et al., 2014). Particularly, a paucity of research in the context of second language teacher education is evident.

Against this background, this study sets out to investigate the relationship between pre-service TEFL teachers' academic self-concept and self-reported instructional practice. Furthermore, it attempts to explore the predictable effect of ELT teacher candidates' academic self-concept on their teaching practices.

2. Theoretical framework

2.1. Teacher academic self-concept

As a psychological construct, academic self-concept is a person's perception of his or her capabilities in academic domains (Ferla et al., 2009; Lips, 2004). Academic self-concept can lead to achievement in educational contexts (Chen, Yeh, Hwang & Lin, 2013), in emotional and social contexts (Harter, 2012) and in daily activities (Eccles, 2009).

The relation between academic self-concept and instructional outcomes such as achievement, interest, coursework selection and motivation has been investigated (Arens, Yeung, Craven, & Hasselhorn, 2011). Academic self-concept affects learners' academic achievement (Awad, 2007; Marsh, 2006) although there are contradictory studies about the effect of course progresses on the improvement of academic self-concept (e.g., Liu & Wang, 2005; Marsh et al., 2002). It has also been studied in terms of males and females' perceptions regarding their competencies in academic settings. Males, for instance, have higher academic self-concept in science than their female counterparts (Harter, 1999). The significant point is that there is no consensus whether previous academic self-concept causes academic achievement or academic achievement affects subsequent academic

self-concept (Marsh et al., 2002; Matovu, 2012). Two models regarding this issue are self-enhancement model and skill-development model. In the self-enhancement model, academic self-concept contributes to the development of academic achievement (Skaalvik & Skaalvik, 2005) whereas in the skill-development model, it is believed that academic achievement helps the development of academic self-concept (Marsh, 2006; Marsh et al., 2005, 2002). However, it seems that there is a reciprocal relation between academic self-concept and academic achievement (e.g., Guay et al., 2003) in which both variables predict and impact each other.

Self-concept is now considered a measure of expectancies of success (Guo, Marsh, Parker, Morin, & Dicke, 2017). Thus, the self-concept of teachers can be regarded either as a dimension of expectancy of success or as a cognitive appraisal representing teacher's conceived control of teaching (Lohbeck, Hagenauer, & Frenzel, 2018).

Yeung et al. (2014) studied 208 primary school teachers in Australia in terms of relative strength of self-concept and valuing of learning in predicting teacher beliefs and two teaching approaches, student-centered and teacher-centered. Teachers' responses to the developed survey were analyzed using structural equation modeling. The obtained results indicated that teacher self-concept contributed to the prediction of both teaching approaches. In other words, teachers with higher self-concept regarding their teaching used both student-and teacher-centered approaches. They also found that teachers who had valued student learning adopted a student-centered approach to teaching more. While teachers' self-concept plays a vital role in any educational setting, its structure has not been paid rigorous attention to. Paulick et al. (2016) investigated the factorial structure of pre-service biology and physics teachers' self-concepts in Germany in regards to three dimensions of CK, PCK, and GPK. They found the separability of the pre-service teachers' self-concept into three dimensions of knowledge. Lately, Lohbeck et al. (2018) also surveyed the conceptual separability of teachers' self-concept as well as the relationship between six dimensions of teachers' self-concept and three groups of emotions,

namely enjoyment, anger, and anxiety. The obtained findings showed that all aspects of self-concept and emotions could be separated from each other. All dimensions of self-concept correlated positively with enjoyment and negatively with anxiety and anger. Craven and Yeung (2008) maintain that teacher education programs should emphasize the importance of self-concept together with skills and content of the course. Pre-service teachers should also be informed regarding the significance of raising learners' positive self-concept and the rationale for doing this task.

2.2. Instructional practice

Instructional practice refers to what pre- or in-service teachers actually do in the context of the classroom or, according to Depaepe and Konig (2018), what happens in the classroom. Research has indicated its influence on learner achievement (Hattie, 2009). As one of the components of teacher education program, practicum or practical teaching experience aims to make a link between theory and practice. In practicum, student teachers become acquainted with specific instructional contexts, involved in observation and attempt to teach under the control of a supervisor.

Three components of the instructional practice, namely cognitive activation, class management and learner support have been reported in the literature (e.g., Baumert et al., 2010; Konig & Pflanzl, 2016; Voss et al., 2011). Depaepe and Koning (2018) maintain that cognitive activation has to do with presenting tasks and activities which are cognitively demanding and challenging to the students. Classroom management is mainly concerned with time management, preventing disorder and student monitoring. Providing student learning support deals with encouraging learners and providing adaptive instruction. They also investigated the relationship between the three variables of GPK, self-efficacy (SE) beliefs and reported instructional practices among 342 master student teachers in Germany. The results indicated that SE strongly predicated instructional practice whereas GPK predicated only student support and class structure of instructional practice.

In a similar vein, Konig and Pflazl (2016) identified three components of instructional quality based on teachers' GPK which were "generic teaching methods/teacher clarity, effective classroom management and teacher-student relationships" (p. 6). They conducted a study with Austrian in-service teachers to figure out the relation between teachers' GPK and their instructional quality. The findings of the study showed a positive correlation between teachers' GPK and aspects of instructional quality as regards teaching methods/teacher quality, efficient class management and teacher-student relation. The results also indicated that GPK is a good predictor of teaching quality.

Baumert et al. (2010) categorized instructional quality into three aspects, namely "cognitively challenging and well-structured learning opportunities; learning support through monitoring of the learning process, individual feedback, and adaptive instruction; and efficient classroom and time management" (p. 145). They found a significant correlation between teachers' CK and cognitively challenging and well-structured learning opportunities among a sample of math teachers. But they did not find any relation between CK and effective classroom and time management. Voss et al. (2011) investigated the relation between pre-service teachers' pedagogical-psychological knowledge and instructional quality as measured by student ratings. Bivariate correlations were found between teacher students' knowledge and such aspects of instructional quality as cognitive activation, pace of instruction, learner-teacher relationship, teachers' understanding of comprehension problems students face and class management. They also reported positive correlation between two constructs.

To study instructional practice of teachers, different methods have been utilized. The most common way is video recording of teachers' classroom teaching by external observers (Praetorius, Lenske, & Helmke, 2012). However, a number of researchers have utilized teacher rating of the lessons or summing learners' rating of their teachers' instructional practice (e.g., Depaepe & Konig, 2018; Konig & Pflanzl, 2016; Voss et al., 2011).

As stated before, this study is an attempt to investigate pre-service TEFL teachers' academic self-concept and self-reported instructional practice. The study specifically deals with the following research questions and hypotheses:

(1)Is there any significant relationship between academic self-concept and self-reported instructional practice of pre-service TEFL teachers at the general and more differentiated levels? Thus, the first hypothesis is that both constructs are significantly related to each other.

(2)To what extent does academic self-concept predict instructional practice of pre-service TEFL teachers? Accordingly, the second hypothesis states that academic self-concept significantly predicts ELT teacher candidates' instructional practice.

3. Methodology

3.1. Sample and context of the study

This study was conducted at Teacher Training University in Iran, mainly known as Farhangian University (FU). This university, jointly managed by two Ministry of Education and Ministry of Science, Research and Technology, is responsible for training teacher candidates. The English language education department of this university accepts candidates willing to become English language teachers provided that they pass the nationwide university entrance examination held annually. To graduate and obtain a B.A. degree in English language teaching and become a tenured language teacher, the candidates are required to take 150 credit courses including both theoretical and practical ones. They are also required to attend schools and observe and teach classes under the supervision of a mentor during the last four semesters.

Pre-service TEFL teachers who were at the last semester in the academic year of 2018-2019 were recruited from different branches of FU. The total population of TEFL teacher candidates who were on the verge of graduation around the country was 193 at the time of this investigation. A combination of purposive, convenience and snowball

sampling procedures were used to select the participants. The number of participating candidates varied between 92 and 97 (59.8% male, 39.8% female) for two utilized instruments. The mean age was 22.24 years and mean GPA was 17.19. The questionnaires were administered simultaneously in June 2019 in a number of FU campuses in cooperation with teacher educators. The response rate was 87.5%.

3.3. Instruments

3.3.1. Instructional practice questionnaire

Since observing all the student teachers' classes was not possible, it was decided to use the self-reported instructional practice survey. Although there are variations in addressing dimensions of instructional practice (e.g., Baumert et al., 2010; Depaepa & Konig, 2018; Konig & Pflanzl, 2016; Voss et al., 2011), Depaepa and Konig's (2018) utilized components (cognitive activation, classroom management and student learning support as discussed above) were adopted along with the corresponding subcomponents. Each of these three main components was further divided into two sub-categories (Depaepa & Konig, 2018) making six sub-dimensions of instructional practice. For each sub-dimension, a number of items were developed which were mostly adopted from international surveys such as the International Student Assessment (PISA, 2003, 2006, 2009, 2012) and Teaching and Learning International Survey (TALIS). The adopted items were adapted and slightly modified to be used with pre-service TEFL teachers.

In "cognitive activation", there were two sub-dimensions. The first sub-dimension, that is, "doing cognitive demanding tasks" included four items (e.g., *I asked the students to discover the rule themselves*) and the second sub-dimension, "stimulating students' cognitive independence", also made 4 items (e.g., *I gave the students opportunities to express their opinions about the topic*). The two sub-dimensions of "classroom management" that is, "preventing disorder" included five items (e.g., *I made the students aware of some possible consequences for their misbehavior*) and "providing structure" had three items (e.g., *I explained beforehand what I expected of the*

students). Finally, sub-dimensions for 'providing student learning support", that is, "encouraging students" (e.g., *I really listened carefully oo yy ’’’’’’’’ cmmmen””ddd eeæeee k*) and "dealing with student heterogeneity" (e.g., *I provided different tasks for the students who had different ability levels*) had five and four items, respectively. The constructed questionnaire which was designed on a four-point Likert scale was content checked and minor modifications were made accordingly. The final version ended up with 25 items.

3.3.2. Academic-self-concept questionnaire (ASCQ)

To address the pre-service TEFL teachers' academic self-concept, Paulick et al''s (2016) questionnaire was adopted. Paulick et al. (2016) themselves used an instrument developed initially by Braun, Gusy, Leidner, and Hannover (2008) for self-evaluated student competencies. Braun et al.'s (2008) scale consisted of five competencies, namely knowledge competency, methodology competency, presentation competency, communication competency, cooperative competency, and personnel competency. However, only the items related to knowledge competency reflecting three components of professional knowledge, that is, content knowledge, pedagogical content knowledge, and general pedagogical knowledge were utilized by Paulick et al. (2016). It comprised of five main items. Each item, however, was repeated three times to cover the three domains of professional knowledge. In total, fifteen items were used to measure academic self-concept of German pre-service Physics and Biology teachers.

The adopted instrument was then content checked by the experts (two applied linguists and two educational psychologists) in terms of appropriateness and applicability in a new context. The final version of the instrument ended up having twelve items on a four-point Likert scale.

3.4. Analyses

The overall design of this study was quantitative in nature. The self-reported instructional practice survey and academic self-concept questionnaire were validated using the Rasch model (Winsteps

Software, Version 4.3.4). The results provided the basis for the unidimensionality of these two instruments, an indication of the construct validity of the scales (see Result section). The reliabilities of the instruments were estimated in total and for individual items using Cronbach alpha and person separation index in the Rasch model. The obtained reliabilities for the instructional practice survey and the academic self-concept questionnaire were .083 and .060, respectively which were acceptable. To answer the first research question, bivariate correlations were conducted between teacher candidates' academic self-concept and instructional practice. To investigate the second research question, a linear regression was applied. We also controlled for such background variables as age, gender, and GPA.

4. Results

The obtained data were then submitted to the descriptive and inferential analyses. Table 1 illustrates an overview of the descriptive statistics for the two utilized questionnaires.

Table 1. Overview of descriptive statistics of pre-service TEFL teachers' academic self-concept (ASC) and instructional practice (IP)

	N	Mean	SD	Skewness	Kurtosis
ASC	92	2.69	0.85	-0.541	-0.573
IP	97	2.84	0.80	-0.608	0.255

4.1. Instructional practice questionnaire

As stated earlier, the IP questionnaire consisted of three main factors each of which was divided into two sub-dimensions, containing six components altogether. As goodness of fit indices were not in acceptable ranges for confirmatory factor analysis (except for chi square, $X^2 = 2.18$), the developed questionnaire was validated using the Rasch model in which the evidence for construct validity and reliability was provided (see Baghaei, 2008).

To investigate the relevance of the items, the fit indices were first examined. Infit and outfit statistics were used for investigating the goodness of fit. Linacre (2012) prefers outfit MNSQ statistic to infit MNSQ statistic. Outfit and infit mean-square values ranging from 0.60 to 1.40 (Bond & Fox, 2007) are good fit values and deemed significant for analysis in the rating scales. Misfitting items show multidimensionality and deviation of the model. Values larger than 1.4 indicate construct-irrelevant variance (Baghaei, 2008), representing unusual response patterns, misleading the measurement. Values smaller than 0.60 which represent deterministic response patterns are considered benign. These values show information redundancy, not misleading the measurement but can result in false high reliabilities.

Table 2. Item statistics for fit model estimate and difficulty parameter for IP

ENTRY NUMBER ITEM	TOTAL SCORE	TOTAL COUNT	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL MEASURE	PTMEASUR-AL CORR.	MODEL S. E.	EXACT MATCH OBS%	EXACT MATCH EXP%	INFIT MNSQ	INFIT ZSTD
1	295	97	.80	-1.37	-.20	.15	.79	-1.47	.45	.45	66.0
54.5	Q1										
2	305	97	.96	-.23	-.42	.15	.92	-.49	.35	.44	62.9
55.8	Q2										
3	251	97	1.01	.12	.64	.13	1.02	.18	.39	.50	48.5
46.6	Q3										
4	300	97	1.23	1.49	-.31	.15	1.31	1.95	.31	.45	51.5
54.9	Q4										
5	259	97	1.12	.94	.50	.13	1.12	.86	.32	.50	52.6
49.1	Q5										
6	338	97	.98	-.06	-1.32	.18	.91	-.51	.41	.38	60.8
60.6	Q6										
7	320	97	1.13	.86	-.79	.16	1.07	.51	.42	.42	59.8
57.1	Q8										
8	249	97	1.13	1.04	.67	.13	1.17	1.23	.41	.51	41.2
46.5	Q9										
9	281	97	.95	-.34	.09	.14	.92	-.53	.57	.47	55.7
52.6	Q10										
10	247	97	1.20	1.52	.70	.13	1.18	1.33	.39	.51	36.1
45.8	Q11										
11	247	97	.80	-1.64	.70	.13	.80	-1.61	.53	.51	43.3
45.8	Q12										

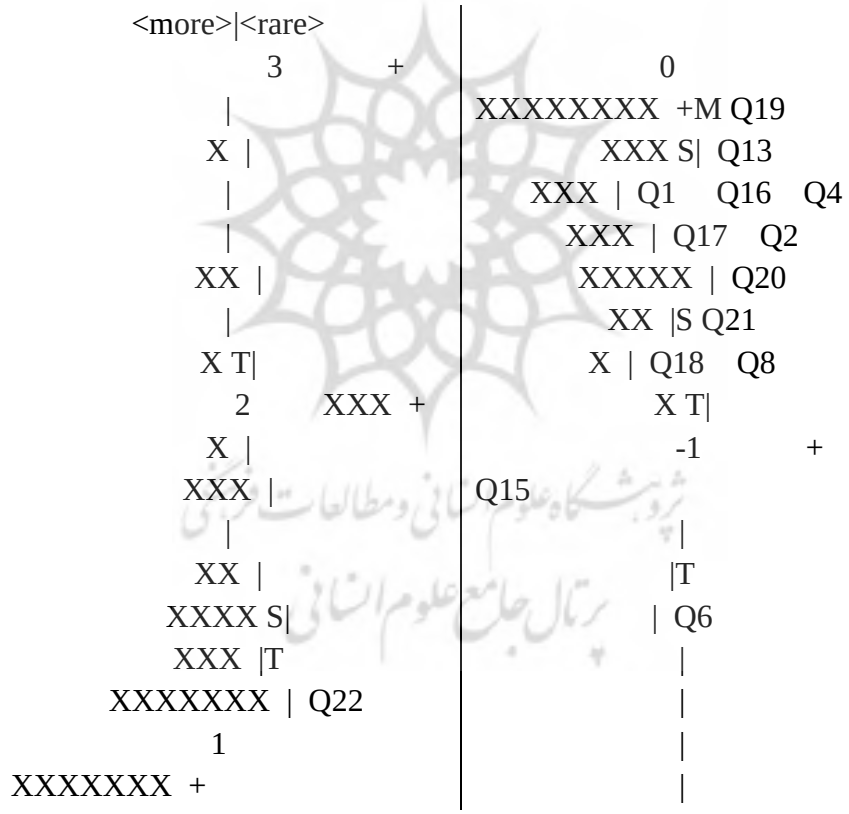
12	292	97	-.13	.14	.72	-2.04	.63	-2.40	.59	.46	61.9	53.8	Q13
13	258	97	.51	.13	1.27	1.91	1.23	1.94	.19	.50	46.4	49.1	Q14
14	327	97	-.98	.17	1.12	.79	1.06	.41	.40	.40	53.6	58.2	Q15
15	299	97	-.28	.15	1.01	.12	.99	.01	.59	.45	53.6	55.0	Q16
16	305	97	-.42	.15	1.39	2.35	1.34	2.13	.41	.44	49.5	55.8	Q17
17	320	97	-.79	.16	1.00	.03	1.09	.64	.27	.42	52.6	57.1	Q18
18	284	97	.03	.14	.87	-.89	.83	-1.23	.67	.47	59.8	53.1	Q19
19	309	97	-.51	.15	1.04	.33	.96	-.21	.61	.43	58.8	56.2	Q20
20	315	97	-.66	.16	.85	-.97	.81	-1.26	.53	.42	66.0	56.5	Q21
21	223	97	1.10	.13	1.11	.87	1.131	.04	.60	.52	36.1	42.1	Q22
22	256	97	.55	.13	.87	-.99	.86	-1.07	.55	.50	46.4	48.4	Q23
23	263	97	.43	.13	.88	-.90	.85	-1.09	.54	.49	52.6	49.3	Q24
24	236	97	.89	.13	.68	-2.89	.67	-2.90	.67	.52	48.5	44.3	Q25
MEAN	282.5	97.0	*.00*	.14	1.01	.0	.99	-.1	52.7	52.0			
P.SD	P.SD	31.7	.0	.65	.01	.18	1.3	.19	8.3	4.9			

In the first run, as item 7 (infit and outfit MNSQ= 1.55) was not within the acceptable range of 0.60 to 1.40, it was decided to be eliminated due to lack of fit to the model. As a result, the Rasch model was run for the second time with 24 items. The obtained results indicated that all items fitted the Rasch model according to above criteria (they were within the acceptable limits) (see Table 2).

Table 2 also illustrates the fit indices for the items and difficulty of items. As Table 2 shows, the most difficult item was item 21 (difficulty of this item was estimated to be 1.10 logits with a standard error (SE)

of 0.13) and the easiest item was item 6 (with a difficulty of -1.32 logits and SE of.18).

Figure 1 displays the person-item map of the data as an indicator of the representativeness of the questionnaire items or content validity. As shown, there are numbers on the right which refer to items and *Xs* on the left which indicate persons in each column. The more difficult items and more proficient persons are located on the top of the scale while the easier items and less proficient persons are placed down the scale. Figure 1 reveals that the majority of persons on the right were matched to the majority of items on the left, revealing that IP questionnaire was intended for pre-service TEFL teachers. The figure also shows that the categories of items included a range larger than the overall item estimate. Thus, the IP questionnaire contained a wide range of ability. In other words, the components of this questionnaire were demonstrated to be appropriate indicators for IP.



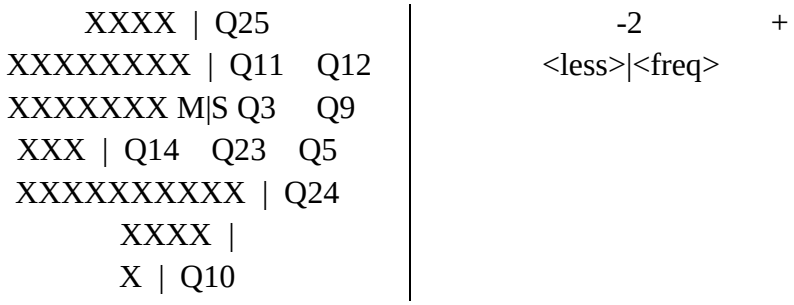


Fig. 1. Person-item map

One of the assumptions needed to be taken into account in the Rasch model is unidimensionality. By considering and examining patterns in the residuals, unidimensionality can be attempted. Residuals are subjected to principal components analysis (PCA). To determine the unidimensionality of the items in PCA, Linacre (2009a) proposes that the eigenvalue of the first residual should be lower than three and should account for less than variance. Table 3 shows PCA of the standardized residuals in which the Rasch dimension is as large as 7.88 items which explains 21.8% of the variance in the data. In total, 66.5% of the variance remains unexplained by the model. Furthermore, the eigenvalue of the first contrast is 2.7 which was acceptable. Hence, the IP questionnaire was considered unidimensional, measuring the same underlying construct, an indication of the construct validity of the instrument.

Table 3. Standardized residual variance in eigenvalue units = Item information units

	Eigenvalue	Observed	Expected
Total raw variance in observations	=	36.1133	100.0% 100.0%
Raw variance explained by measures	=	12.1133	33.5% 33.8
Raw variance explained by persons	=	4.2247	11.7% 11.8%
Raw Variance explained by items	=	7.8887	21.8% 22.0%

Raw unexplained variance (total)	=	24.0000	66.5%
100.0% 66.2%			
Unexplained variance in 1st contrast	=	2.7105	7.5%
11.3%			

4.2. Academic self-concept questionnaire

As discussed before, the academic self-concept questionnaire was adopted (Paulick et al., 2016). This questionnaire consisted of 12 items (four main items repeated three times) related to TEFL teacher educators' perception of their academic abilities in knowledge competency.

To investigate the construct validity of the ASCQ, the Rasch model using partial credit model (PMC) was also run. First, the ASCQ items were investigated in terms of fit indices. The obtained values of infit and outfit MNSQ showed that all items were within the acceptable limits (0.60 to 1.40) and thus fitted the Rasch model. As shown in Table 4, the easiest item is item 1. The difficulty of this item is estimated to be -.68 logits with the standard error of .15. The most difficult item is item 5 with a difficulty estimate of .60 logits and standard estimate (SE) of .15.

Table 4. Item statistics for fit model estimate and difficulty parameter for ASCQ

ENTRY	TOTAL	TOTAL		MODEL	INFIT		
	OUTFIT	PTMEASUR-AL		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S. E.	MNSQ	ZSTD	
	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	
ITEM							
1	284	92	-.68	.15	1.06	.45	
1.10	.69	.22	.38	47.8	55.6	Q1	Q1
2	258	92	-.15	.14	.80	-1.47	
.82	-1.23	.40	.42	63.0	50.4	Q2	
3	263	92	-.25	.14	1.26	1.69	
1.24	1.57	.39	.41	46.7	51.5	Q3	

4	244	92	.10	.13	1.19	1.39	1.15	1.06	.34	.43	41.3	47.0	Q4
5	213	92	.60	.13	1.16	1.32	1.19	1.48	.47	.46	52.2	40.2	Q5
6	217	92	.54	.13	1.07	.61	1.08	.66	.45	.46	42.4	40.2	Q6
7	256	92	-.12	.14	.91	-.64	.87	-.86	.46	.42	53.3	50.3	Q7
8	262	92	-.23	.14	.68	-2.43	.65	-2.62	.57	.41	62.0	51.4	Q8
9	254	92	-.08	.13	.95	-.29	.95	-.32	.42	.42	47.8	48.8	Q9
10	259	92	-.17	.14	.89	-.79	.83	-1.18	.45	.41	57.6	50.4	Q10
11	233	92	.28	.13	.68	-2.80	.65	-3.01	.56	.45	52.2	42.7	Q11
12	241	92	.15	.13	1.21	1.56	1.22	1.53	.41	.44	33.7	44.0	Q12
Mean	248.7	92.0	.00	.13	.99	-.1	.98	-.2			50.0	47.7	P.SD
19.4	.0	.34	.01	.19	1.5	.20		1.5			8.2	4.7	

In Figure 2, person-item map of the data was presented. As mentioned above, persons and items placed on the top represent more proficient people and more difficult items. On the contrary, easier items and less proficient persons are located down the scale. Figure 2 reveals that most of the items and persons are matched to each other, indicating that ASCQ was appropriately intended for ELT teacher candidates. Furthermore, the figure shows that the item categories had a wider operational range than the overall item estimate. Consequently, this questionnaire dealt with a wide range of abilities which provided

evidence for content validity or representativeness of questionnaire items. Put it differently, the components of this questionnaire were appropriate indicators for academic self-concept.

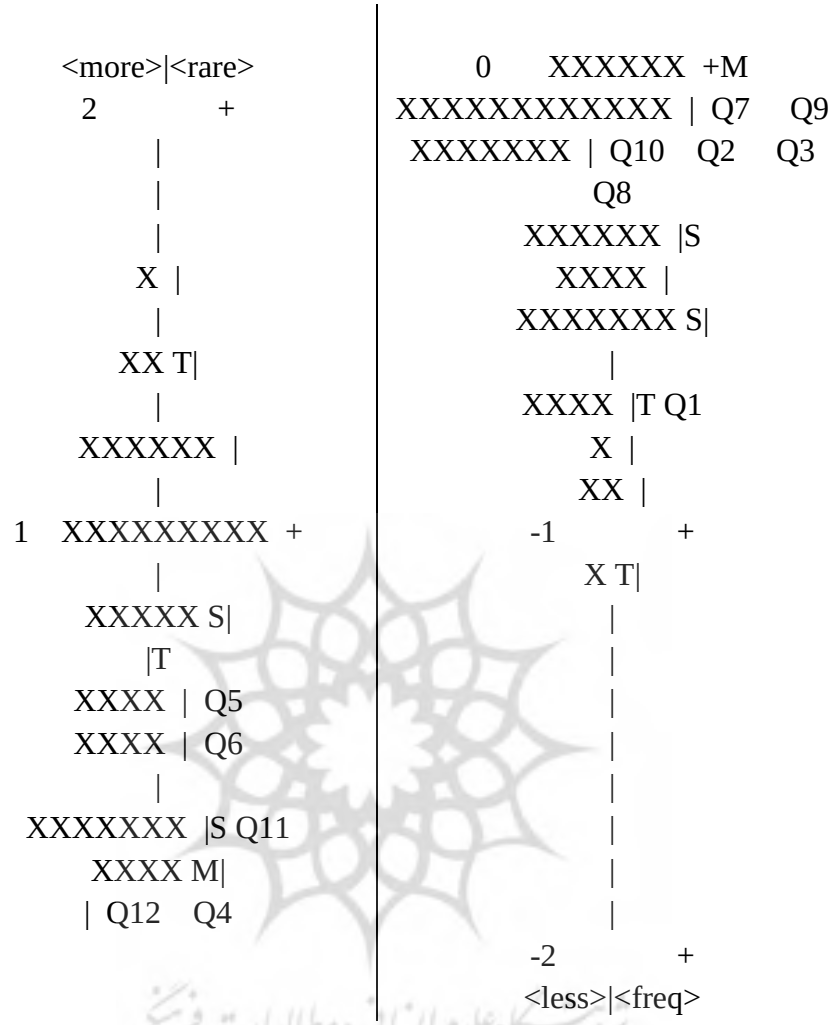


Fig. 2. Person-item map

Finally, to examine unidimensionality of the ASC instrument, global fit statistics were investigated by examining patterns in residuals. The smaller the residuals, the better the data fit the model. Principal component analysis (PCA) was applied to study unidimensionality.

Table 5 shows that the Rasch dimension was as big as 2.6 which explains 16.6 % of the variance in the data. Moreover, 76.2% of the variance remained unexplained in total. To check unidimensionality, the row "*unexplained variance in the 1st contrast*" was spotted. The eigenvalue of the first contrast was 2.4 corresponding to 2.4 items which was good as far as the given criterion was concerned. Consequently, the ASCQ is considered unidimentinal, measuring the same underlying construct, which is an indication of the construct validity of the instrument. In other words, the intended scale measures the academic self-concept of the pre-service TEFL teachers.

Table 5. Standardized residual variance in Eigenvalue units = Item information units

	Eigenvalue	Observed	Expected
Total raw variance in observations =	15.7392	100.0%	100.0%
Raw variance explained by measures =	3.7392	23.8%	23.1%
Raw variance explained by persons =	1.1284	7.2%	7.0%
Raw Variance explained by items =	2.6108	16.6%	16.1%
Raw unexplained variance (total) =	12.0000	76.2%	100.0% 76.9%
Unexplained variance in 1st contrast =	2.4521	18.1%	23.8%
Unexplained variance in 2nd contrast =	2.1986	14.0%	18.3%
Unexplained variance in 3rd contrast =	1.7602	11.2%	14.7%
Unexplained variance in 4th contrast =	1.3038	8.3%	10.9%
Unexplained variance in 5th contrast =	1.0936	6.9%	9.1%

4.3. Research questions

The first research question of this study asked whether there is a significant relationship between academic self-concept and self-reported instructional practice of pre-service TEFL teachers. The results of bivariate correlations between manifest variables indicated that there is a significant relationship between academic self-concept and instructional practice (r = .354, p = .001). In other words, these two variables are positively and moderately correlated with each other. As such, academic self-concept explains 12.5% of variance in instructional practice and vice versa (see Table 6).

Table 6. Correlation between academic self-concept and instructional practice of pre-service TEFL teachers

		Academic self-concept	Instructional practice
Academic self-concept	Pearson Correlation	1	.354**
	Sig. (2-tailed)		.001
Instructional practice	Pearson Correlation	.354**	1
	Sig. (2-tailed)	.001	

**. Correlation is significant at the 0.01 level (2-tailed).

Moreover, as shown in Table 7, significantly positive correlations were also observed between academic self-concept and sub-dimensions of instructional practice, that is, cognitive activation (r = .294, p = .004), classroom management (r = .356, p = .001) and student learning support (r = .282, p = .006). Hence, these subcomponents explain 8.4%, 12.6% and 7.9% of variance in academic self-concept. Consequently, the hypothesis which states that there is a significant relationship between academic self-concept and instructional practice is accepted both at the general and differentiated levels (subcomponents).

Likewise, significantly positive inter-correlations were observed among the dimensions of cognitive activation and classroom

management (r = .521, p = .000), cognitive activation and student learning support (r = .652, p = .000), and classroom management and student learning support (r = .655, p = .000) (see Table 7).

Table 7. Correlations between academic self-concept and instructional practice dimensions

		IPCogniti ve	IPmanagem ent	IPSupport
Academic self-concept	Pearson Correlation	.294**	.356**	.282**
	Sig. (2-tailed)	.004	.001	.006
IPSupport	Pearson Correlation	.652**	.655**	1
IPCognitive	Sig. (2-tailed)	.000	.000	
	Pearson Correlation	1	.521**	.652**
IPManagement	Sig. (2-tailed)		.000	.000
	Pearson Correlation	.521**	1	.655**
	Sig. (2-tailed)	.000		.000

The second research question asked to what extent academic self-concept predicts instructional practice of pre-service TEFL teachers. To answer this question, linear regression was run in which the instructional practice was considered as a dependent variable (predicted) while academic self-concept was regarded as an independent variable (predictor). At first, the assumptions of regression such as normality, linearity, equality of variance and independence were checked. Independence was met as data were collected only once (cross-sectional data). Normality of distribution was checked through one sample Kolmogorov-Smirnov test in which p-values for academic self-concept and instructional practice were 0.20 (test statistics = 1.061) and 0.67 (test statistics = 0.721) (>.05), respectively. Linearity and equality of variance were checked through scatter plot. As shown in

Figure 3, the scatter plot does not follow a curvilinear pattern (i.e. a linear pattern) and residuals do not spread out in any triangular fashion (equality of variance). As such, all assumptions were met.

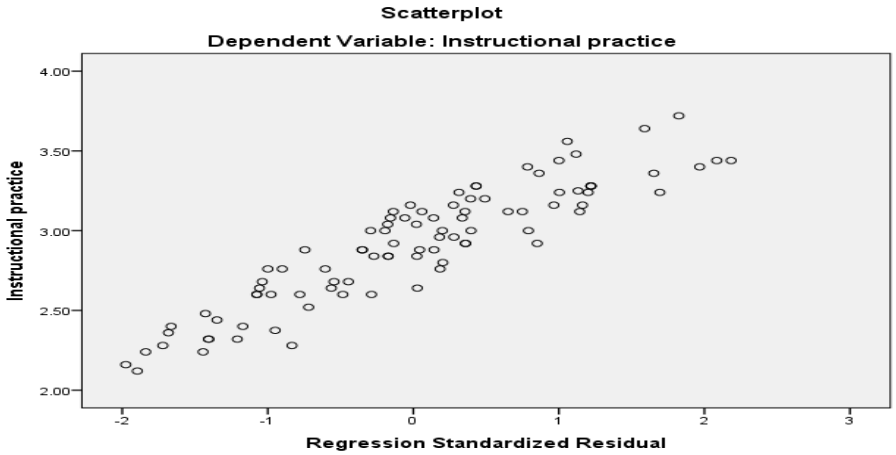


Fig. 3. Scatter plot

Table 8. Model summary of variables of the study

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.405[a]	.164	.155	.33997

In Table 8, R square refers to the proportion of variance in the dependent variable that can be accounted for by the independent variable. As shown, academic self-concept can predict 16.4% of variance in instructional practice.

Table 9. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.044	1	2.044	17.687	.000[b]
	Residual	10.402	90	.116		
	Total	12.447	91			

Table 9 shows that the independent variable, that is, academic self-concept significantly predicts instructional practice, F = 17.68, *p* = .000. In other words, the regression model was a good fit for data.

Table 10. Coefficients between predictor (ASC) and predicted (IP)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.826	.261		7.002	.000
	Self-concept	.402	.096	.405	4.206	.000

Finally, the results for the independent variable of academic self-concept as represented by standardized coefficients are .405. As such, a significant positive relationship is observed between academic self-concept and instructional practice (p = .000). Consequently, it can be safely claimed that academic self-concept contributes significantly to the prediction of instructional practice. Figure 4 shows that the regression model was a good fit for data as well.

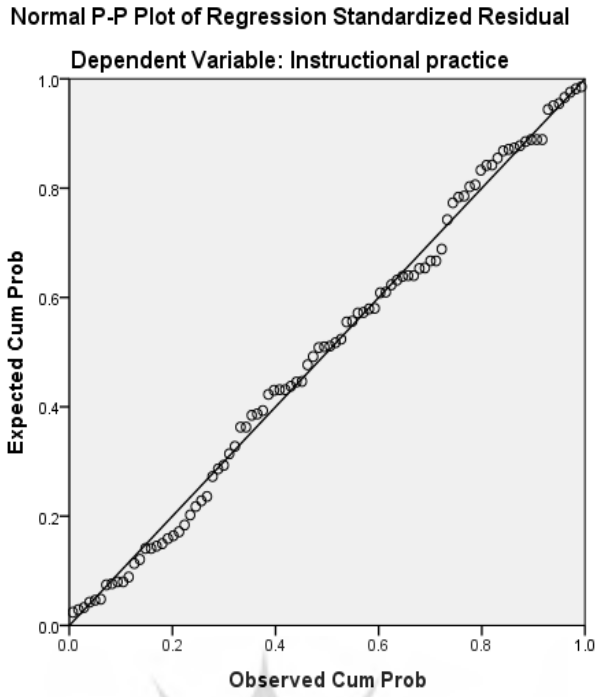


Fig. 4. Normal P-P plot of regression standardized residual

5. Discussion and conclusion

The present study aimed at investigating the relationship between academic self-concept and self-reported instructional practice of pre-service TEFL teachers. Additionally, it attempted to probe the predictive effect of academic self-concept on instructional practice. The findings of the study revealed that there is a significant positive correlation between academic self-concept and ELT teacher candidates' self-reported instructional practice at the general and differentiated levels (components). As such, the hypothesis which states that there is a significant relationship between these two variables is accepted. The obtained results also indicated that the academic self-concept can predict ELT teacher candidates' instructional practice. Consequently, academic self-concept is a good predicator of teacher candidates' teaching behavior. Moreover, teachers with higher academic self-concept rate themselves better by self-reported

instructional practice survey. Similarly, teachers' positive perceptions of their academic abilities make a contribution to students' involvement in learning activities.

The present study attempted to unravel the relationship between academic self-concept and pre-service TEFL teachers' instructional practice. Although academic self-concept has been surveyed in a number of studies (e.g., Lohbeck et al., 2018; Mercer, 2011; Yılmaz, 2018), its relation to instructional practice has rarely been touched upon in ELT teacher education programs. A somehow similar work was Paulick et al.'s (2016) who analyzed academic self-concept in relation to three knowledge domains without taking instructional practice into account. Nonetheless, both studies adopted the same subscale knowledge processing instrument developed by Braun et al. (2008) to measure academic self-concept. Using the Rasch model, the questionnaire was validated in the Iranian context, indicating that the instrument was unidimentional in a sense that it measured the underlying construct, that is, academic self-concept of teacher candidates.

Yeung et al. (2014) found that teacher self-concept contributed to the prediction of teaching approaches. In other words, teachers with higher self-concept regarding their teaching used both student-and teacher-centered approaches. Although the present study did not investigate the teaching approaches, the instructional practice which was highlighted in this study, as stated earlier, refers to what actually happens in the classroom including teaching approaches utilized by teachers. Hence, the results obtained in this study were consistent with Yeung et al.'s (2014) in which both studies found that self-concept can safely predict teachers' behaviors in the classroom. However, the sample and instruments were different. Unlike the present study which recruited pre-service TEFL teachers, Yeung et al. (2014) used in-service primary school teachers to achieve the intended purposes.

While the present study surveyed the predictive effect of self-concept on instructional practice, Yilmaz (2018) investigated the predictive effect of teacher candidates' experiences during practicum

on EFL self-concept formation in five pre-service EFL teachers in Turkey. Thus, both studies attempted to investigate self-concept and instructional practice among pre-service TEFL teachers, but from different perspectives. In other words, using qualitative research methods such as journal entries and interview, Yilmaz (2018) found that pre-service EFL teachers' teaching experiences gained through practicum can influence EFL self-concept formation. On the contrary, the present study, applying quantitative research methods, did not investigate EFL self-concept development during practicum, but the probable impact self-concept may have on teacher candidates' teaching practices.

Regarding the inter-correlations among the sub-dimensions of instructional practice, the obtained results in this study were in line with Konig and Pflanzl's (2016) in which they found that there were significant positive correlations among the instructional practice aspects of classroom management, teacher-student relationships and teaching methods.

Surprisingly, no more studies were found to investigate the relationship between academic self-concept and instructional practice of ELT teacher candidates. However, there are a number of investigations which studied pre- and in-service teachers' instructional practice with such manifest variables as professional knowledge and self-efficacy (Depaeape & Konig, 2018; Dicke et al., 2015; Konig & Pflanzl, 2016; Voss et al., 2011, 2014). Voss et al. (2011, 2014) investigated the relationship between GPK and instructional practice as rated by their students. They found a significant positive correlation between GPK and instructional practice. Konig and Pflanzl (2016) found that GPK was a predictor for instructional practice. Depaepe and Konig (2018) investigated the association between GPK and SE on one hand and self-reported instructional practice on the other hand. Unlike SE, they did not observe any significant association between GPK and instructional practice.

As the current research base is limited, this study makes a novel contribution to the development of knowledge and understanding of

pre-service TEFL teacher education in terms of academic self-concept and instructional practice. Accordingly, a significant relationship between academic self-concept and instructional practice was found both in correlational study and linear regression in this study. It indicates that the development of pre-service TEFL teachers' self-concept plays an important role in pedagogical practices during practicum. Given that teacher candidates' academic self-concept significantly predict instructional practices, it is important to improve pre-service EFL teachers' perceptions, values and beliefs. All in all, the obtained results indicated that teacher candidates' self-concept and beliefs are significant constructs that influence quality teaching. As such, the findings of the present study have important implications for teacher educators, researchers, and even practitioners to take self-concept and expectancy-value approaches into account when dealing with student teachers. Traditionally, teacher education centers have been mostly responsible for equipping student teachers with theoretical and practical knowledge. No obvious endeavors are made to enhance teacher candidates' perceptions, beliefs, and motivational orientations which are believed to affect knowledge and instructional practice. Hence, the first and foremost goal of teacher preparation programs should be developing pre-service teachers' academic self-concept pertinent to teaching and learning and the inclusion of self-concept along with specific content and skills of the course (Yeung et al., 2014). This would in turn lead to a change in teacher candidates' instructional practice which in the long run would have an effect on students' learning. Lohbeck et al. (2018) propose a number of strategies for developing positive self-concepts such as making mastery experiences and reattribution training. By reattributing they meant, attributing success to one's own ability and effort and attributing failure to outside factors.

Although the obtained results are promising, there are a number of limitations concerning the present study. First, due to data collection constraints, only a small sample of TEFL teacher candidates was studied. It was mainly due to the small population of last semester EFL

teacher candidates at the time of investigation. Hence, future studies can recruit large samples to replicate the present study and corroborate the obtained findings.

Second, since goodness of fit indices were not in acceptable ranges for confirmatory factor analysis, the research instruments were validated via the Rasch model. Thus, further studies are required to study the construct validity of these questionnaires using CFA in the Iranian context. Moreover, as it was not feasible to access and observe all classes of teacher candidates, we utilized self-reported instructional practice. As such, the possibility of rating bias or social desirability by teacher candidates may have affected the obtained results adversely. Future studies can utilize observation and video-recording of teacher candidates' actual practices to obtain more reliable data.

Finally, we adopted and validated Paulick et al.'s (2016) academic self-concept questionnaire since it was particularly intended for eliciting pre-service teachers' academic self-concept in the teacher education context. Future studies can utilize other available self-concept surveys or develop and validate new instruments to study teacher candidates' academic self-concept. Additionally, further studies with both pre-service and in-service teachers in different fields of study can contribute to the generalizability of our findings.

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