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To cite this article: Vahid Rahmani Doqaruni , Behzad Ghonsooly & Reza Pishghadam (2020): Development and validation of an Inventory on Teachers' Beliefs about Action Research (ITBAR) in second language education, Innovation in Language Learning and Teaching, DOI: [10.1080/17501229.2020.1824233](https://doi.org/10.1080/17501229.2020.1824233)

To link to this article: <https://doi.org/10.1080/17501229.2020.1824233>



Published online: 23 Sep 2020.



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Development and validation of an Inventory on Teachers' Beliefs about Action Research (ITBAR) in second language education

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ABSTRACT

Purpose: Although action research (AR) is considered essential for teacher development in second/foreign language (L2) education, no validated scale has been designed for its measurement. With that in mind, this study attempted to develop and validate an Inventory on Teachers' Beliefs about Action Research (ITBAR). **Design/methodology/approach:** For this purpose, a model construction and validation framework consisting of exploratory and confirmatory analyses was used to examine the construct validity of a proposed model. The participants were 287 practicing English language teachers at different institutes, schools, and colleges/universities in Iran. **Findings:** The results of the exploratory factor analysis indicated that the scale can be best explained by six factors. However, one factor was removed from further analysis because of the low reliability of its components. Thus, confirmatory factor analysis was run with the five remaining factors which, based on the loading of the items and their underlying themes, were named Teacher Empowerment, Practical Issues, Professional Development, Institutional Culture, and Research Engagement. **Originality/value:** The ITBAR developed in this study is aimed to reflect the realities of L2 classrooms and give direction to the process of critical reflection by providing a context through which teachers articulate their own beliefs about AR.

ARTICLE HISTORY

Received 25 February 2020

Accepted 30 August 2020

KEYWORDS

action research; teachers' beliefs; exploratory factor analysis; confirmatory factor analysis; critical reflection

1. Introduction

Research on teachers' beliefs has already gained its reputation as an essential component of teacher development in the field of second/foreign language (L2) teacher education. It is because beliefs 'are involved in helping individuals make sense of the world, influencing how new information is perceived, and whether it is accepted or rejected... [beliefs] serve to frame our understanding of events' (Borg 2001, 186–187). This is also due to the fact that beliefs play a crucial role in influencing teachers' behaviors, actions and interactions in the classroom (Borg 2006) as they constitute a complex network of assumptions underlying teachers' professional behavior (Zheng 2015). Moreover, in order to deal with innovation in L2, teachers' beliefs need to be taken into account and these beliefs should be reconsidered and restructured (Keedwell and Najem 2015).

Due to such an importance, a new strand of research has recently paid a special attention to teachers' beliefs of research in L2 (e.g. Allison and Carey 2007; Barkhuizen 2009; Borg 2007, 2008, 2009; Gao, Barkhuizen, and Chow 2011). However, despite such an enthusiasm, teachers' beliefs about

research have not been studied in any *systematic* way in L2 and consequently we know less about teachers' beliefs about research (Borg 2008). This problem is of considerable importance since this lack of understanding is a barrier in the way of making informed decisions about policy development and enabling teachers to be more engaged with and in research (Borg 2007).

Similar concerns have been raised about teachers' beliefs about action research (AR) in L2 education (e.g. Atay 2006, 2008; Bashir 2011; Wyatt 2011). Considering beliefs and being aware of their inevitable presence is especially necessary in AR because they shape teachers' perception, analysis and interpretation of what is happening in their classrooms during the AR process. However, as Burns (2010) makes it clear, many language teachers often 'have only a hazy idea of what it [action research] actually is and what doing it involves' (1).

The fact is that the views about what is feasible and attainable regarding L2 teachers' engagement in AR need to be based on empirical studies of teachers' beliefs about AR that we currently lack. The rationale for such work has been that activities to advance teacher research engagement will be more successful if they are based on an awareness of teachers' beliefs about doing research. With reference to such an importance, however, the construct of teachers' beliefs about AR has not been defined in its operational terms to allow for its quantification, mainly due to the absence of any instrument for measuring teachers' beliefs in the field. The purpose of the present study is thus to develop and validate an Inventory on Teachers' Beliefs about Action Research (ITBAR). In other words, the main motive behind this study is to design an instrument to allow for the quantification of the teachers' beliefs about AR in L2 education to witness more empirical investigation as a result.

2. Literature review

Although there is an extensive collection of work on teachers' beliefs about research (e.g. Allison and Carey 2007; Barkhuizen 2009; Borg 2007, 2008, 2009; Gao, Barkhuizen, and Chow 2011), teachers' beliefs about AR are surprisingly scarce in the field of L2 education. Rainey's (2000) study was one of the first in its own type which revealed the findings of an international study about the knowledge, practices and opinions of L2 teachers with respect to AR. Of particular relevance to the present study, she found that the teachers' beliefs who knew about AR were more in accordance with the primary type of AR, i.e. AR for professional self-development, as they believed that AR could just help them solve a problem in their classrooms or affect their teaching positively. In other words, it seemed that the teachers were not aware of other potentialities of AR, such as change.

Not satisfied with the situation that neither pre- nor in-service English teachers did much research in Turkey, Atay (2006) used a collaborative AR model to help teachers fill the gap between research and teaching, and become familiar with research in real classroom contexts. After gaining theoretical knowledge about AR, the teachers worked with each other and carried out their research. The results showed that both groups benefitted from conducting the collaborative AR as it provided them with a framework to systematically observe, evaluate, and reflect on their teaching practices in the classroom. In addition, the results also revealed some major themes regarding the effects of AR which changes in beliefs about AR were of considerable importance. To introduce AR as an opportunity for challenging their underlying belief systems, Atay (2008) also directed an in-service education and training program with 62 English as a Foreign Language (EFL) teachers in Turkey. Her program consisted of three parts including theoretical knowledge on English Language Teaching (ELT), issues for investigation, and doing research. She then analyzed the data from the teachers' narratives and journals. The analysis of teachers' narratives on their perceptions of AR showed that they were generally aware of the usefulness of AR. The further analysis of the teachers' journals revealed that the AR process had positive effects on their beliefs toward AR.

In a recent series of studies, Rahmani Doqaruni and his colleagues (Rahmani Doqaruni, Ghonsooly, and Pishghadam 2017, 2018, 2019) systematically examined English language teachers' beliefs, reasons, and views regarding carrying out AR in Iranian private English language teaching institutions. Their findings revealed that most of the teachers equated AR with observation, had the

ability to distinguish between AR and standard research, preferred collaborative AR, and, in contrast to the mainstream research, did not believe AR to be a way to professional development. Despite the fact that many teachers in their studies considered AR useful in solving their immediate teaching problems and improving their teaching practices, the analysis of the teachers' reasons showed that there were serious barriers in the way of conducting AR which were in nature practical (lack of time), logistic (not having enough knowledge and support), and attitudinal (teachers believed that their job was only to teach). In addition, teachers' views about conducting their AR projects showed that they were concerned with issues such as being empowered in dealing with a particular problem, belonging to a professional community, and valuing time allotment.

3. Methodology

3.1. Instrument development

Following the standard procedure for developing a valid and reliable measurement instrument (Dornyei 2003), a comprehensive review of the related literature was carried out to check for any available model of AR and its components. This literature review resulted in an initial draft of the constructs and behaviors perceived as relevant to AR. The review specifically led to the accumulation of AR categories out of which a temporary data driven model of AR was developed.

The next stage included two phases; during the first phase, those items that overlapped or were mere repetitions of one another were eliminated, reducing the list to the least number of items possible. In the second phase of stage two, an effort was made to translate the existing categories into actual instances of AR. For example, the category of understanding students' needs better was rephrased as 'AR enables teachers to become more aware of their students' needs and thus be able to adapt their lessons correspondingly'.

In the next step of the instrument development effort, the tentative model, along with the developed items (including 50 items), went through a second round of item assessment/reduction by two domain experts familiar with AR and its theoretical underpinnings. The aim in this stage was twofold: first, to get a second professional opinion on the make-up of the model regarding its components, and second, to consider experts' judgment about item redundancy, clarity and readability (Dornyei 2003). This expert analysis of the instrument further polished the questionnaire and resulted in a shorter version of the model (including 36 items).

Following the standard outlines for questionnaire development, a 6-point Likert scale was developed to assess English language teachers' beliefs about AR. The reason for choosing an even number of items in the response scale over the odd number of items is that the latter gives survey takers an 'easy out', and provides them with the opportunity to pick the neutral option rather than putting thought into the question. In other words, a 6-point scale forces choice, so ending up in better data. In addition, an even number of items in the response scale can provide researchers with groupings that are easier to understand and discuss.

The instrument was then piloted on a group of 37 ELT teachers and a high Cronbach's alpha reliability of the questionnaire was obtained (.94).

3.2. Instrument validation

In the present study, the validation procedure proposed by Mulaik and Millsap (2000), consisting of Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) was used. The purpose of EFA is to analyze data in order to formulate hypotheses that are considered suitable for testing. To this end, it makes use of techniques to maximize insights into a dataset through uncovering underlying structure and extracting important latent factors. In fact, in the exploratory phase, the aim is to uncover the latent variables which can explain as much of the variance in the data as possible (Shultz and Whitney 2005). Following the EFA phase, the developed model is further extended and verified in

the subsequent CFA stage. This is done first through computing the Cronbach's Alpha reliability of the whole scale and each of the yielded factors from the exploratory phase. Then, the data from the EFA stage undergoes a data reduction procedure in which the number of expected factors for model validation have been determined beforehand (Shultz and Whitney 2005). In fact, the purpose of CFA is to verify 'that the factor structure obtained in the exploratory factor analysis is robust and not merely the consequence of the whims of random variability in one's data' (Howitt and Cramer 2000, 329). During both EFA and CFA, experts' judgments as well as domain knowledge were interactively employed for verifying the rationality of the yielded results.

It is worth noting that while there are researchers who suggest conducting EFA and CFA on the same data set because of providing empirical evidence about data set (e.g. Worthington and Whittaker 2006), some others suggest conducting EFA and CFA on different data sets in case the data is big enough to split (e.g. Fabrigar et al. 1999). As our sample was not large enough to perform a split-sample model development, we conducted EFA and CFA on the same data set.

Finally, in order to objectively evaluate the model's overall fit for the data being examined, heuristic measures called 'Goodness of Fit Indices' (Ho 2006) were used as the last step in the model evaluation/validation procedure. This included the most commonly used indices for empirical examination of model fit. In addition to normed Chi-Squared statistic (chi-square divided by the degrees of freedom) which is not very sensitive to sample size, four other commonly used indices of Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), the standardized root mean square residual (SRMR), and the Akaike's Information Criterion (AIC) were used in this study. A value of normed Chi-Square less than 3 is considered acceptable (Tseng and Schmitt 2008). Generally, a model is considered acceptable when fit indices GFI, CFI, and TLI, are $\geq .90$, and SRMR is $< .09$ (Hu and Bentler 1999). For RMSEA, values $\leq .06$ are considered indicative of good fit (MacCallum, Browne, and Sugawara 1996). The model with the lowest AIC value (< 2) can be considered to have substantial support (Burnham and Anderson 2002).

3.3. Participants and data collection procedure

The target sample of the present study was defined as all practicing ELT teachers at different institutes, schools, and centers of higher education in Iran. Both face to face and email methods were used for instrument distribution. One of the researchers distributed a total of 233 instruments in hard copy personally to the teachers in Mashhad (northeastern Iran) from which 209 completed questionnaires were returned, representing a response rate of 89%. Before administering the survey, consent was sought and all participants received information about the voluntary nature of the study with anonymity assured. To have access to more and varied participants through email, the instrument was also reproduced through Google Docs. The instrument was sent to more than 700 ELT teachers and professionals in Iran. In general, 98 respondents completed the instrument, representing a response rate of 14%. Upon initial inspection, 14 of the completed hard copy instruments and 6 of the online instruments were discarded since they were either incomplete or carelessly completed (for example those questionnaires in which one response was systematically selected). This left us with 287 instruments for model validation. 85 of the respondents were male (30%) and 202 female (70%). Their teaching contexts included public school (20%), private institute (46%), and university/college (32%). Their teaching experience ranged from 1 to 5 years (44%), 6 to 10 years (20%), and more than 11 years (36%). The respondents' main major was teaching English as a foreign language (82%).

4. Results

4.1. Exploratory factor analysis

The Statistical Package for Social Sciences (IBM SPSS Statistics 24) was used for inputting and computing data. In order to determine whether there is any empirical support for the existence of

Table 1. KMO and Bartlett's test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.932
Bartlett's Test of Sphericity	Approx. Chi-Square	5205.105
	df	630
	Sig.	.000

separate factors for teachers' beliefs about AR, the data underwent Principle Components Factoring (PCF) with varimax rotation. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.9 which indicates that 'patterns of correlations are relatively compact and so factor analysis should yield distinct and reliable factors' (Field 2009, 684). Bartlett's Test of Sphericity was also significant which tells us that the correlation matrix is significantly different from an identity matrix. The results, shown in Table 1, clearly support the suitability of the data set for factor analysis.

PCF with varimax rotation on the 36 items yielded 6 factors with Eigenvalues greater than 1 accounting for 57.5% of the total variance with the minimum item loading threshold set at .4 (See Figure 1). Factor 1 with 14 items accounts for 37% of the variance; Factor 2 with 7 items explains 5.5% of the variance; Factor 3 with 3 items accounts for 4.5% of the variance; Factor 4 with 5 items explains 4% of the variance; Factor 5 with 5 items accounts for 3.5% of the variance; and finally Factor 6 with 2 items explains 3% of the variance.

All the items reached the acceptable loading value on their given factors. In other words, all the items showed significant statistical relationship with one of the uncovered factors.

4.2. Confirmatory factor analysis

Based on the EFA results, a six factor model of teachers' beliefs about AR was extracted from the data. This hypothetical model, then, had to be validated so that it could be used as a valid measurement instrument for teachers' beliefs about AR. So, at this stage, CFA was conducted on the data using

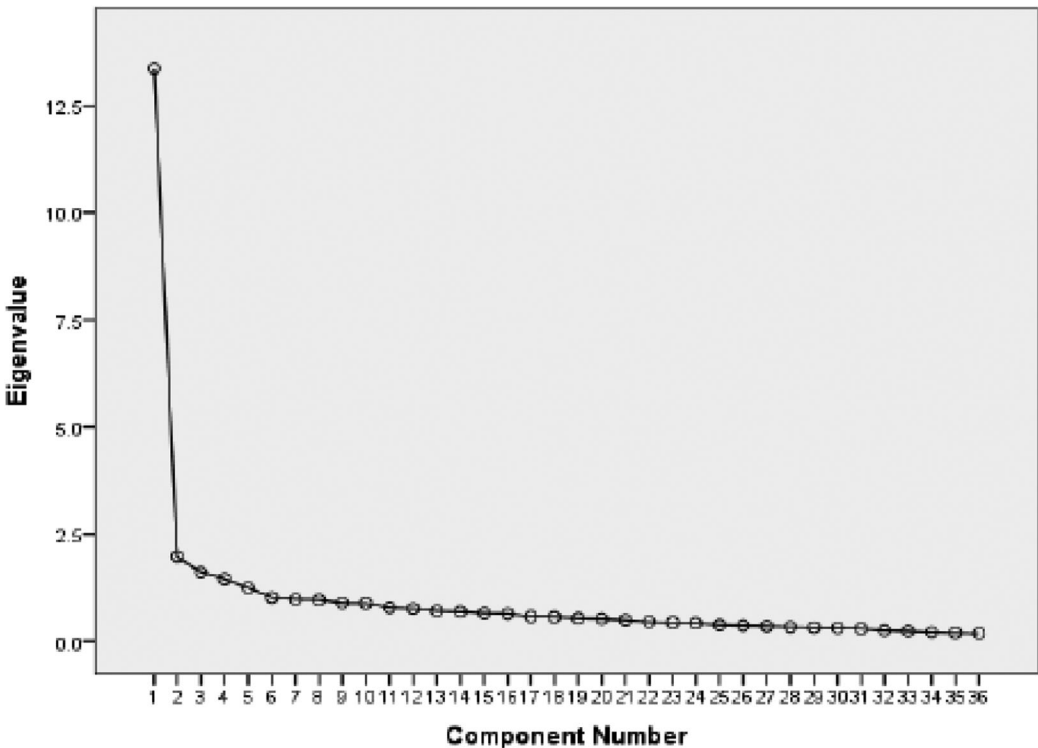


Figure 1. Scree plot.

Analysis of Moment Structures (IBM SPSS AMOS 24) software. However, prior to proceeding with this analysis, the Cronbach's alpha estimates for the factors 1, 2, 3, 4, 5, and 6 were calculated and turned out to be .92, .84, .72, .74, .75, and .51 respectively. Since factor 6 did not reach the minimum requirement of the Cronbach's alpha ($\alpha \geq .7$), this factor was discarded from CFA procedure. This factor consisted of item 6 (AR is facilitated if management provides financial incentives such as raising salary) and item 7 (AR helps teachers to become aware of socio-economic, power and gender inequalities in their classrooms).

As Figure 2 shows, CFA corroborated a five factor model which, based on the loading of the items and their underlying theme, were named Teacher Empowerment (TE), Practical Issues (PI), Professional Development (PD), Institutional Culture (IC), and Research Engagement (RE) in which all the loadings between the indicators and the latent factors as well as the covariance among the factors were significant (p -value $\leq .001$). However, after running CFA with these five factors, the initial model did not show an acceptable fit to the data (see Table 2). In order to deal with this

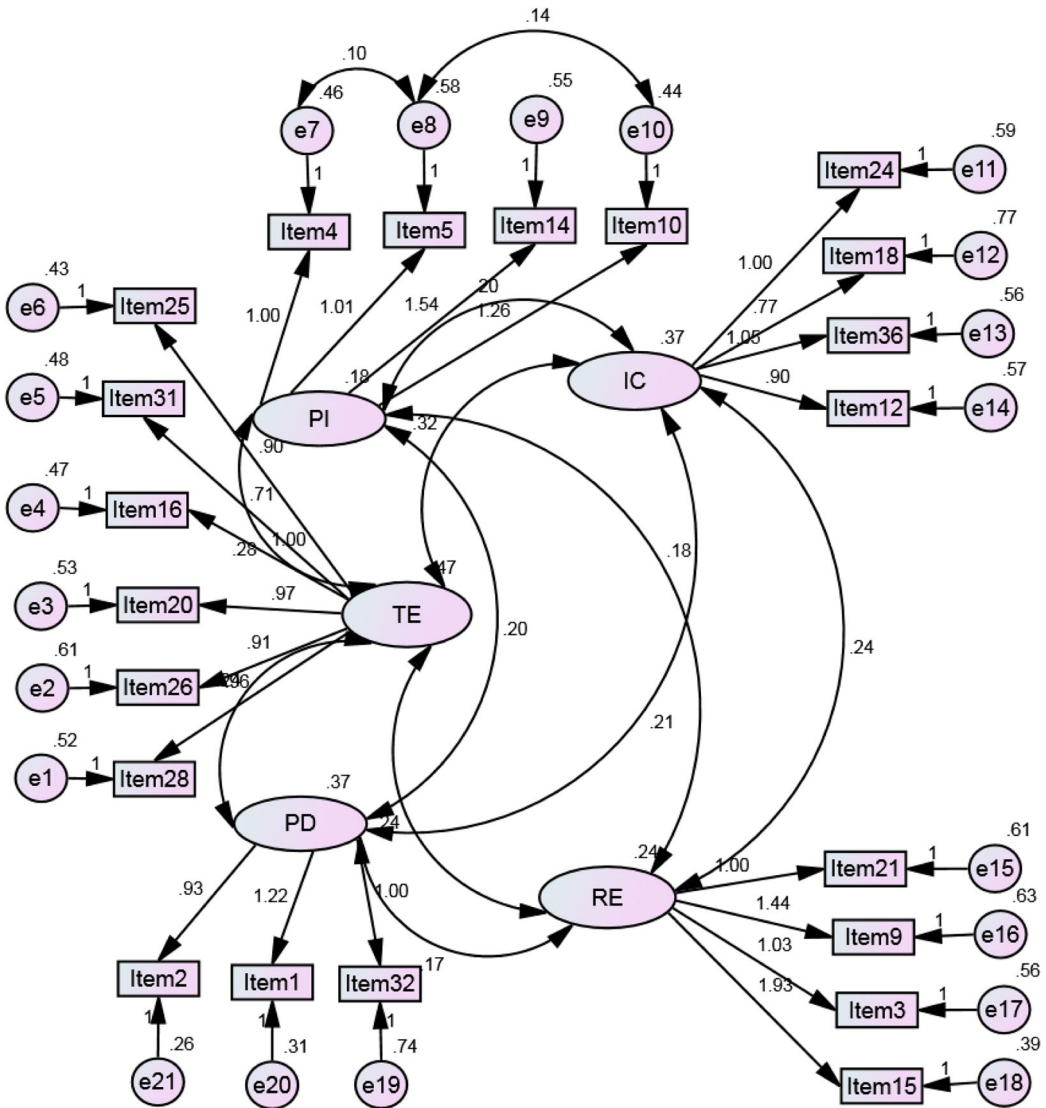


Figure 2. Path diagram of the CFA.

Table 2. Fit Indices of the model.

	χ^2/df	GFI	CFI	TLI	RMSEA	SRMR	AIC
Acceptable fit	<3	$\geq .90$	$\geq .90$	$\geq .90$	$\leq .06$	<.09	<2
Initial model	2.2	.80	.85	.84	.06	.08	1.8
Final model	1.9	.90	.92	.90	.05	.07	1.6

problem, a set of modifications were done. For this purpose, eight TE items were discarded either due to their low loadings or the experts' judgments. These included item 29 (AR helps teachers to examine their teaching context to gain a deeper understanding of their own work), item 22 (AR helps teachers to become more conscientious through reflecting on how their lessons can be structured to accommodate students), item 34 (AR helps teachers to become more aware of the complexity and rewards of teaching), item 19 (AR presents teachers with a powerful learning opportunity to learn about themselves as professionals), item 33 (AR helps teachers to gain a renewed understanding of their teaching and students' learning, which becomes the motivation for the continuation of their research effort), item 27 (AR helps teachers to develop skills needed to investigate and analyze challenges they face in their classrooms), item 17 (AR encourages teachers to address and find solutions to particular problems in a specific teaching or learning situation), and item 35 (AR allows the application of theoretical principles to problems in specific classroom contexts).

Moreover, three PI items were also removed due to the same reasons mentioned above. These included item 13 (AR helps teachers to have a discourse community of their own with ways of understanding common problems and potential solutions), item 11 (AR helps teachers to recognize the importance of learning how to seek answers to their questions), and item 8 (AR helps teachers to show an openness to trying new and varied teaching strategies). Item 30 (AR's sustainability is enhanced if teachers are given institutional recognition in their specific contexts) which was categorized under IC was also discarded from the model because of its low loading, but item 23 (AR reduces gaps between academic research findings and practical classroom applications) was removed from the model because it was irrelevant to the RE factor.

As encountering borderline modification indices in CFA is common because of the large sample sizes, it has been suggested that 'the fit of the model could be improved if correlated errors were added to the model' (Brown 2006, 186). So in order to enhance the fitness of the model, error terms of two PI items (e7 and e8) were correlated because both of these items referred to the improvement of teacher's practice inside the classroom. Error terms of two other PI items (e8 and e10) were also correlated because both items involved the practicality of AR in the classroom context. As the correlated errors were loaded on the same factor, not separate factors, this gives a substantive rationale for improving the model fit.

This left us with an instrument with five factors and 21 items for measuring teachers' beliefs about AR (see Figure 2).

After these modifications on the model, the calculated model-fit estimates verified this CFA model as a valid measure of teachers' beliefs about AR (see Table 2). In other words, the construct validity of the final version of the instrument is verified for its intended purpose (see Appendix I for the final version of the instrument).

The results of the normality test, correlations, and covariances are presented in Tables 3 and 4.

5. Discussion

Although AR is considered essential for teacher development in L2 education (Atay 2006, 2008; Rainey 2000), no validated scale has been designed for its measurement. With that in mind, this study attempted to develop and validate an instrument for measuring teachers' beliefs about AR (ITBAR) in L2 education. For this purpose, a model construction and validation framework consisting of exploratory and confirmatory analyses was used to examine the construct validity of a proposed

Table 3. Assessment of normality.

Variable	Mean	Std. Deviation	Skew	Kurtosis
Item10	5.30	.848	-1.293	2.226
Item14	4.92	.988	-.798	.564
Item5	5.25	.869	-1.212	1.402
Item28	4.96	.978	-.950	1.008
Item26	4.83	.999	-.617	-.124
Item20	4.89	.990	-.620	-.174
Item2	5.37	.764	-1.449	3.060
Item1	5.09	.932	-1.174	1.928
Item32	5.00	1.058	-1.225	1.832
Item15	4.67	1.124	-.684	.268
Item3	5.03	.900	-.717	.054
Item9	4.91	1.060	-1.105	1.238
Item21	5.00	.922	-.785	.468
Item12	5.03	.936	-.882	.887
Item36	5.11	.988	-.929	-.016
Item18	5.04	.996	-.935	.389
Item24	4.91	.982	-.773	.115
Item4	4.94	.800	-.134	-.882
Item25	4.95	.901	-.414	-.727
Item31	5.22	.846	-.842	.111
Item16	4.78	.973	-.494	-.321

model. The results of the EFA indicated that the scale can be best explained by six factors. However, one factor (containing items 6 and 7) was removed from further analysis because of the low reliability of its components. Thus, CFA was run with the five remaining factors, namely *Teacher Empowerment*, *Practical Issues*, *Professional Development*, *Institutional Culture*, and *Research Engagement*.

The six items in the *Teacher Empowerment* factor clearly show the importance of AR in empowering teachers. It is believed that the process of AR can empower teachers as the creators and not just the holders of knowledge (Edge 2001) if conducted systematically and extensively. On the other hand, when teachers do research and make pedagogical decisions based on their own research findings, they are empowered with making more informed and evidence-based decisions (Borg 2007, 2009, 2010). These decisions will consequently affect teachers' teaching and learners' learning beneficially (Hargreaves 2001). It has also been shown that doing research can empower teachers to better understand their work, to reflect on what they do, to explore different avenues regarding new thoughts, and to end up being autonomous (e.g. Tinker Sachs 2000; Wang and Zhang 2014).

The four items in the *Practical Issues* factor reflect one of the primary purposes behind doing AR which falls within Rock and Levin's (2002, 7) definition of AR 'with the goal of improving their [teachers] teaching practices'. This is not surprising as the context of L2 teaching requires teachers to

Table 4. Correlations and covariances.

			Correlations		Covariances		
			Estimate	Estimate	S.E.	C.R.	P
TE	↔	PI	.963	.278	.041	6.820	***
TE	↔	IC	.757	.316	.048	6.591	***
TE	↔	RE	.712	.237	.039	6.034	***
TE	↔	PD	.567	.237	.042	5.604	***
PI	↔	IC	.788	.202	.035	5.859	***
PI	↔	RE	.878	.179	.031	5.774	***
PI	↔	PD	.789	.203	.035	5.745	***
IC	↔	RE	.807	.239	.041	5.893	***
IC	↔	PD	.570	.212	.041	5.194	***
RE	↔	PD	.590	.175	.034	5.139	***
e8	↔	e10	.271	.136	.032	4.206	***
e7	↔	e8	.202	.104	.031	3.355	***

be equipped not only with an expansive knowledge of how learners learn a second language, but also with knowledge of how to deal with different learners. Moreover, teachers should continually be aware of changing situations that are the remarkable signs of current L2 education. As Richards and Farrell (2005, 2) state, ‘teachers have different needs at different times during their careers ... the pressure for teachers to update their knowledge in areas such as curriculum trends, second language acquisition research, composition theory and practice, technology or assessment is intense’. Figuring out how to problematize and manage the complex issues of their profession is thus necessary for teachers in the field of L2 education. An awareness of AR and its assumptions gives an appropriate premise to address these issues. In other words, the process of solving pedagogical problems with evidence gathered through AR inside the classroom context can make teachers become more critical (Price 2001), connect general theory with their specific practice (Burns 2005b), take appropriate action to make change if necessary (Somekh and Zeichner 2009), and improve understanding of their learners’ needs and perspectives (Edwards and Burns 2016; Wyatt and Dikilitas 2016).

The three items in the *Professional Development* factor emphasize on this fact that in both general education (e.g. Ado 2013; Cain and Milovic 2010; Vogrinc and Zuljan 2009) and L2 education (e.g. Atay 2006, 2008; Cabaroglu 2014; Dikilitas and Yayli 2018; McDonough 2006; Richards and Farrell 2005) AR has been seen as a key factor in providing opportunities for professional growth and development. In Burns’ words (2005a, 70), AR is a primary ‘vehicle for practitioners’ personal and professional development’. Due to the limitations of the current short-term/one-shot in-service teacher education programs (Atay 2008), researchers and educators have tried to find new ways of teacher professional development so that teachers take a more responsible role for examining their teaching context to gain a deeper understanding of their own work on an ongoing basis (Edge 2005). AR has gained its reputation as a reliable tool to this end as it fosters meaningful professional development for teachers (e.g. Atay 2006, 2008). It aims at reflecting on teaching practices, examining beliefs, values and principles, and sharing with colleagues, all of which, according to Schon (1983), lie at the very heart of professional development. It has also been proposed that AR gives teachers the knowledge and confidence to act as responsible professionals. As Flake et al. (1995, 407) claim, ‘by becoming researchers, teachers can take control of their classrooms and professional lives in ways that confound the traditional definition of teacher and offer proof that education can reform itself from within’.

All the items in the *Institutional Culture* factor emphasize on the importance of institutional culture in motivating teachers to conduct AR (Edwards 2019; Yuan and Lee 2015). However, as the previous literature has shown, there are serious barriers in the way of conducting AR in institutions. As an example, time is one of the most important factors when teachers come together as researchers because they ‘need sufficient chunks of time in which to work and sufficient longevity as a group over time’ (Cochran-Smith and Lytle 1999, 294). In the same line, Firkins and Wong (2005), recognizing research as a sign of professionalism of teachers, also assert that ‘educational authorities need to allocate resources to schools by way of time and funds’ (69). However, despite such propositions, the evidence is that teachers generally do not feel this time is available within their current teaching context. For example, Crookes and Arakaki (1999) highlighted some factors which hinder teachers’ research engagement; one of them was lack of time. Borg (2007, 2008, 2009) also in his studies on teachers’ research engagement showed that a lack of time was by far the factor most often cited for not doing research. Lack of teachers’ specialized knowledge about AR is yet another barrier in the way of doing AR which is directly related to their institutional culture. Teachers are rarely educated in their institutions how to conduct AR; however, they are unreasonably expected to carry out research projects all alone and furthermore to use research findings in their own practice (Mehrani 2014). As another barrier, teachers doing AR are not appreciated in their institutions. In Mehrani’s (2014) words, ‘teachers are not rewarded for engaging in research’ (27).

All the items in the *Research Engagement* factor reflect this fact that doing AR provides L2 teachers with the knowledge and skills that can help them develop research skills (Burns 2014; Kayaoglu 2015;

McDonough 2006; Thorne and Qiang 1996). As teaching has become increasingly professionalized, so research has increasingly become something that teachers are expected to include in their repertoire of skills. However, although some teachers may possess limited skills they can use during research, many have not received the research education to help them effectively conceptualize and carry out a piece of research. Needless to say, if the inquiry is to be soundly conducted and the findings effectively shared, teachers need to possess relevant research-related knowledge and skills. Many previous studies have shown that AR has the potential to increase the L2 teachers' research skills. For example, Thorne and Qiang (1996) reported in their study that the teachers who implemented AR projects improved research skills than did teachers who did not carry out their projects. McDonough (2006), in his study on improving L2 teachers' perception of AR, also found that,

TAs [Teaching Assistants] who carried out action research projects as part of an elective seminar gained a broader understanding of research ... and implemented new L2 teaching practices. Participating in action research gave the TAs a framework for systematically observing, evaluating, and reflecting on their L2 teaching practices. (45)

6. Implications

Using ITBAR, a complete picture of L2 teachers' beliefs about AR is revealed. Such a conceptualization of EFL teachers' belief systems has important implications for designing and developing research on teachers' beliefs about AR, as well as for EFL teacher education. In this way, this study contributes to a fuller understanding of L2 teachers' belief systems about AR that is not only of theoretical but also of practical importance.

Furthermore, the ITBAR is aimed to reflect the realities of L2 classrooms and present an analytical and contextually meaningful, rather than a holistic, picture of beliefs of teachers about AR. In this way, the items provided in the instrument are all attempts to reflect the reality and difficulty of conducting AR in classrooms as far as possible. This instrument will provide a foundation through which researchers can identify certain individuals' beliefs and investigate the connections between their beliefs and their actual teaching behaviors and classroom practices. In other words, by applying ITBAR to understand teachers' beliefs, it is hoped to contribute to the emergence of the dialogue between beliefs and practice in the classroom context regarding AR.

7. Conclusion

At the present time, there is a call for L2 teachers to be critically reflective in their practice of teaching (Akbari 2007). For several years now the profession has pushed its members to reflect critically on their underlying assumptions and values that give direction and justification to their work. For many teachers this is not an easy task. What is it that one should reflect upon? How are the underlying values and assumptions to be identified? In other words, the objects of critical reflection are not self-evident. AR has been well documented as being an important form of teacher research that encourages reflection through the intentional and rigorous examination of teacher practices in the L2 classroom (Mann and Walsh 2017; Sato and Chen 2019).

In the absence of any instrument measuring teachers' beliefs about AR, however, it has not been possible to quantify this construct in its operational terms. So the present study was conducted to design and validate an AR instrument unique to L2 context. The ITBAR developed in this study gives direction to the process of critical reflection by providing a context through which teachers articulate their own beliefs about AR. In other words, the developed model provides a means of tracking and looking more deeply at the underlying values and assumptions that constitute teachers' perspectives on AR.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

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Appendix I. Inventory on Teachers’ Beliefs about Action Research (ITBAR).

	<i>Strongly Disagree</i>	<i>Moderately Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Moderately Agree</i>	<i>Strongly Agree</i>
(1) AR helps teachers to form a better understanding of the contextual constraints which leads to their emerging role as agents of change						
(2) AR Encourages teachers to re-think about their teaching, their students, and the values of their work and thus change the status quo correspondingly						
(3) AR helps teachers to become more aware of their autonomy in educational system						
(4) AR reinforces good teachers’ qualities needed to teach such as to be more open, more patient, and more flexible						
(5) AR gives teachers a break in their routines to renew their energy and enthusiasm about teaching						
(6) AR helps teachers to reflect about the aims and values implicit in their teaching and students’ learning						
(7) AR encourages reflection through the intentional and rigorous examination of teacher practices in the classroom						
(8) AR is a useful tool for teachers to improve their classroom practice						
(9) AR empowers teachers to develop a pedagogical theory and to explore it in practice						
(10) AR enables teachers to become more aware of their students’ needs and thus be able to adapt their lessons correspondingly						
(11) AR is facilitated if time for doing AR is built into teachers’ workloads in their institutions						
(12) AR is facilitated if teachers have access to AR books and journals in their institutions						
(13) AR is facilitated if management provides opportunities such as organizing workshops or giving teachers support to attend conferences						
(14) AR is facilitated if the institution atmosphere makes teachers feel that doing AR is an important part of their job						
(15) AR has positive effects on teachers’ perspectives toward research						

(Continued)

Continued.

	<i>Strongly Disagree</i>	<i>Moderately Disagree</i>	<i>Somewhat Disagree</i>	<i>Somewhat Agree</i>	<i>Moderately Agree</i>	<i>Strongly Agree</i>
(16) AR makes teachers feel motivated to read professional journals and publications						
(17) AR acquaints teachers with the concept of research and enhances their knowledge of conducting research						
(18) AR makes teachers feel motivated to disseminate their research through publishing articles or participating in conferences						
(19) AR empowers teachers as the creators of knowledge and not just the holders of such knowledge						
(20) AR has profound impacts on teachers' professional development						
(21) AR helps teachers to be more thoughtful and purposeful about their teaching						
