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A Brain-Friendly Teaching Inventory: A Rasch-based Model Validation

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Abstract

Teachers usually teach according to how brains naturally learn. In this way, not only do their learners learn, retain, and recall quickly, but also the teaching becomes more joyful. Increased attention to the worthwhile role of the mind in learning/teaching in recent times Due to the lack of a valid scale for estimating teachers' awareness of brain-friendly teaching, the current study intended to construct and validate a 54-item brain-friendly teaching inventory by the implementation of the Rasch model. The test was administered to 200 Iranian EFL teachers from different educational contexts. The results revealed that all the 54 items of the scale had a good fit to the Rasch model. Infit and outfit values were within the acceptable range which indicates unidimensionality of the scale. Furthermore, it is asserted that the inventory enjoyed suitable reliability. This demonstrates that the Brain-Friendly Teaching Inventory is valid and can be applied as a scale for assessing the teachers' awareness of brain-friendly teaching.

Keywords: Brain-friendly teaching, EFL teachers, Rasch model, Scale development, Validity

Introduction

In the last decade, with the growing advancements in neuroscientific knowledge, some scientists and educators are becoming progressively aware of the privileges neuroscience is making with regards to the brain and its function when students learn. Just like the brain scientists who try to understand how the human brain works, several educators have been seeking the neurosciences research results to enlighten and advance classroom teaching methodologies (Tommerdhal, 2010). In this regard, brain-friendly teaching concentrates on studies about the way brain works and the ways teachers can use this knowledge to help their second/foreign language learners learn English better and more efficiently. In other words, brain-friendly teaching refers to a set of strategies implemented concerning hypothetical observations and recent research findings related to the human brain and the brain-based learning ideologies (R. N. Caine, Caine, McClinti, & Klimek, 2005; Sousa, 2015). Although in comparison to other methods, all teaching processes are essentially brain-based, brain-friendly teaching is an approach specially designed to signify the proper potential of the brain in the learning process (R. N Caine & Caine, 1991).

According to Winarso and Karimah (2017), brain-friendly teaching uses neurosciences' research outcomes to keep learners in suitable circumstances for effective thinking and learning by focusing on succeeding a good physiological state in order to make the learners' brains work rapidly, easily, and logically. Therefore, brain-friendly approaches keep learners motivated by providing a balance of comfort and motivation using teaching techniques associated with the way human brains work (Winarso & Karimah, 2017). Besides, according to Ghanbari, Haghani, and Akbarfahimi (2019), brain-friendly teaching also practices approaches and methods that support learners to become high achievers by promoting their potential abilities. Accordingly, brain-friendly environments lead to well-adjusted behavior, effective thinking and learning. In line with the environment, brain-friendly belief/attitude is considered to be an important prerequisite for brain-friendly practice. Thus, innovative hypothetical knowledge about the brain leads to novel ideologies towards teaching/learning and the improvement of new practical approaches (Ghanbari et al., 2019). A brain-based program

uses the results of cognitive science to promote learning activities, materials, and classroom programs which associate with the brain's preferences and processes. Besides, getting what the brain wants to focus and why can be considered as the basis for creating a brain-friendly classroom (Lewis, 2016). Therefore, brain-based programs are planned to advance the way the brain works, stores, and recalls data to enhance learning (Winarso & Karimah, 2017).

A few researchers like Solihatin and Syahrial (2019), and Satria (2020) directed for subjects of Science, Math, and Language and have given experimental proof that brain-based models turn out effectively for the development of ideas and aid operationalizing higher request thinking abilities. These studies additionally recognize that learning is an organized interaction that includes memory highlights. Additionally, the focal point of brain-based learning is how students learn effectively as opposed to sitting inactively in the classroom (Kagan, 2014). Thus, the brain-friendly techniques recommend different ideas of appraisal according to which, as opposed to estimating test scores and home undertakings, teachers ought to evaluate understudies' abilities, execution, and a few other genuine practices (Varghese, 2016). Consequently, if teachers teach according to ways the human brains naturally learn, not only do their learners learn, retain, and recall better and quickly, but also the teaching becomes more joyful.

Although recent studies have looked at the importance of the mind in teaching and learning, there is no inventory of brain-friendly teaching. Therefore, the main aim of this study was to construct and validate a Brain-Friendly Teaching Inventory which consists of 54 items by the application of the Rasch model.

Literature Review

Review of the previous scholarly studies (Battro, Fischer & Lena, 2008; Caine & Caine, 1997; Smilkstein, 2003) shows that there is an obvious gap in the area of brain-friendly teaching, which is the lack of a valid scale for estimating to what extent EFL teachers are aware of brain-friendly teaching strategies and techniques.

Comprehending brain-based teaching/learning programs start with having knowledge of what occurs in the brain as individuals learn. Neuroscientists

can measure and observe the way brains work as people learn a new thing (Lewis, 2016). The brain's neurons connect to each other with electrical signs and chemicals called neurotransmitters. Thus, human's thoughts, feelings, and feedbacks are the results of neurons' signals to each other, which indicate how the brain encodes and recovers data. Therefore, when learners create links between thoughts, they are actually relating these ideas in the brain using neural signals and patterns (Ghanbari et al., 2019). As expressed by Cahill, when learners are associated with learning, explicit synapses in the brain caution to the hippocampus to check this occasion with additional clearness (Cahill, 2000). Investigations have revealed that the dispersing of evaluations and input delivers more proficient learning. Accordingly, Duman (2010) planned a brain-based incorporated learning-teaching model based on the brain-based learning principles. Exercises began with the playing of music, bunch exercises, and participation among group individuals to improve emotional awareness and unwinding. Hence, comprehension of what the brain likes to focus, how to make decision about the information in long-term memory, and how to make recall data can lead to the development of learning activities which assist learners in remembering and understanding complex ideas, and creating connections between them (Winarso & Karimah, 2017).

In particular, the connection between feelings and meanings are also worthwhile factors in learning. Humans focus on things that have meaning or that activate emotive reactions. It is due to the fact that people like to involve with things that have positive, not negative, effects and connections. That is why a positive learning environment seems to be essential for learners. Accordingly, brain-based learning supports the loose and tranquil learning setting (Fatima, Quraishi, & Khanam, 2020) since students can investigate and be inventive if they are in a new and peaceful learning environment. In this way, a very much planned brain-based learning assists with establishing an intriguing and compelling learning environment to make learning dependable (Siercks, 2012). Schools and teachers utilize an assortment of systems, projects, and methods during standard classes or outside the classroom to upgrade the learning of students. Learning can be

sped up in a brain-friendly learning climate since the teacher is a facilitator and guide in this environment (Gu, Lillicrap, Ilya, & Sergey, 2016).

Teachers' awareness of their knowledge and abilities is almost a new issue in the field of language teacher education. For example, Van Veen, Sleegers, and Van de Ven (2005) studied a secondary school teacher of Dutch language in the Netherlands. The research collected the required data using several audio-recorded semi-structured interviews. In doing so, the researchers were interested in the question of whether personal, moral, and social motives/constraints would affect the teachers' image of themselves as a language teacher and the extent to which they are eager to remain in the profession of language teaching in a log run. Van Veen et al. (2005) found that the awareness of the teachers in their study was affected by several factors, including *personal concerns*, *moral concerns*, and *social concerns*. The personal concerns were related to the extent to which the teacher felt motivated for his language teaching profession. At the center of this motivation for teaching was the extent to which the teacher found opportunities for professional growth and individual learning. Van Veen et al. (2005) claimed that these opportunities were closely related to their participant's sense of self-awareness as an individual. The moral concerns, on the other hand, were concerned with the educational and ideological views of how language learners acquire Dutch as an L2, what they should learn, and how important it is for language teachers to become independent thinkers for themselves. Finally, the social concerns were concerned with the relationships of the teacher with the students, the position of the teacher in the school, his relations with his coworkers, and the management of school.

Accordingly, Gao and Xu (2014) investigated language teacher awareness in countryside secondary schools in China. They made use of biographical interviews to gather their data, which let the teachers to "reflect on and voice their experiences as they were encouraged to recall and recount freely what they had experienced" (p. 155). At the time of the study, all the teachers in the study (seven teachers) taught the English language in areas that were heavily poor concerning the distribution of educational resources as a result of economic and social underdevelopment. The classrooms the participants taught were overcrowded as there were 60 to 70 students in

each class. The results of the study indicated that the members had uncertain opinions regarding English language teaching.

Moodie and Feryok (2015) is yet another study that investigated English language teacher self-awareness in South Korean. For their purposes, the researchers targeted four primary school teachers (i.e., two experienced and two beginner tutors). They collected the required data through several data collection techniques, including reflective writing, interviews, and observations. The findings showed that the participants' awareness of their profession could date back to the positive and negative experiences they had experienced both as a language learner and during the course of language teaching, meaning that language teachers' awareness is transferred between language learning and teaching.

Method

Participants

Two hundred Iranian EFL teachers from different educational contexts participated in this research. They were 90 males and 110 females from different age groups (Under 20= 1.5%; 21-30=37.5%; 31-40=45.5%; and over 40=15.5%), different fields of study (TEFL= 34.5%, English Translation= 17.5%, English Literature= 13%, Others=35%), and different years of teaching experience (0-5=32.5%; 6-10= 23%; and more than 10 years= 44%). Due to the spread of the Coronavirus, the process of distribution of the questionnaire was done only electronically through the Google Form link shared in Telegram and WhatsApp.

Instrumentation

A 54-item questionnaire (see Appendix) which contained various items for assessing teachers' Awareness of Brain-Friendly Teaching was used to find out Iranian EFL teachers' awareness of brain-friendly teaching. The items were set on a five-point Likert scale (Never, Rarely, Sometimes, Usually, and Always) in three constructs of *Assessment* (items 1-12), *Motivation* (items 13- 30), and *Instruction* (items 31-54).

This 54-item inventory was set in three constructs (Assessment, Instruction, and Motivation). The items, which were explained below, were extracted and set by reviewing the related literature and interviewing the

experts from the English language teaching field. Nine of these 54 items (Items 14, 15, 16, 17, 18, 19, 20, 21, and 28) were proposed according to Rehman and Bokhari (2011) who believe that enriched cognitive atmosphere like playing soft tones, using suitable words and gentle colors, admiring, creating a safe and welcoming environment, discovering everyday problems, inspiring smiles and laughter, encouraging critical thinking, and providing effective tips are helpful in brain-friendly teaching. Besides, items 22, 23, 24, 32, 34, and 39 were designed according to Duman's (2010) brain-based integrated learning-teaching model. Lessons in this model begin with music and group work to improve emotive consciousness and relaxation. Learners were also recommended to drink water and eliminate their stress. Related graphics, pictures, and multimedia were displayed. Finally, learners were asked to pose questions and do deep thinking which results in brain-friendly teaching.

According to R. Caine and Caine (1994), the core concentration of the brain-based strategies is to inspire teachers to adapt their teaching styles so as to create a safe and inspiring emotional environment for the learners. In addition, the cognitive sciences reported that distributed learning such as giving learners rest periods during learning, retrieval practice, information interleaving like presenting past, present, and future data, providing challenges concerning the learners' level, and overviewing before presenting the details can benefit learning and brain-friendly teaching. Other examples can be creating a connection between learning and retrieval contexts, simulation-based learning, inspiring attention and curiosity, creating a fun atmosphere to foster investigation, drawing conscious attention, and the members' own motivation in the teaching/learning process. Based on the above-mentioned strategies items 25, 26, 27, 37, 40, 41, 42, 43, and 44 were extracted.

Items 42, 45, and 46 were designed according to the ideas of Sprenger (2006). She believes that meaning and feeling are crucial in putting data into long-term memory, that is why teachers should spend times to get students to work with new information, to reflect on the concept, make connections, connect prior knowledge and new information, and put the ideas into their own words by, for example, asking them to write a summary of what they have discussed in the classroom. Teachers should also know that without

feedback, learners' brains cannot frame the learning and misconceptions might occur. Sprenger (2006) asserted that some other factors, according to which items 1, 52, and 53 were designed, may result in brain-friendly teaching; for instance, she believed that keeping stress low is vital for the high-level of brain function, and flexible grouping inspires the sense of community. Simply, brains function more efficient when working with other brains. Also, suitable wait time on task, as well as giving students *choice* help them in problem-solving and decision-making. Besides, formative assessment with timely feedback allows the brain distinguish what is expected of it and offers a learning framework. Finally, a good-looking atmosphere (plants, animal toys, colorful pictures, and relaxing lighting) can lead to better learning and achievement.

Willis (2007) assumed that some factors may meet with brain-friendly teaching which should be taken into account by teachers. Some of these factors which results in designing items 2, 29, 54, and 48 are making learning clear and clearly relevant; giving students' brains a break; helping students create positive associations; creating visible progress and achievements; helping students learn to prioritize information; leveraging inquiry-based learning and a growth mindset, and reducing stress. Besides, according to Cahill (2000) as learners are emotionally involved in learning (item 30), special neurotransmitters in the brain sign to the hippocampus, an important brain structure related to memory, in order to make the event clearer and more understandable.

Items 4, 5, 6, 7, 10, 11, and 13 were selected in line with Sousa (2011) who believed using descriptive/non-marked assessment, matching formative and summative assessment besides informing students with the type of assessment and helping shape the strategies students use to prepare for assessments. Furthermore, teachers should assess what students should know besides providing students with self-correction opportunities after the teacher's correction and informing students about the types of assessment. In addition, King (2001) introduced some required factors to meet with brain-friendly teaching (Item 12 and 47). For example, new learning should be linked with the previous knowledge, developing personal relevance, and

encouraging the student to do self-assessment and self-reflection are vital, and information must make sense and have meaning.

According to Squire and Kandel (2000) teachers must provide learners with learning context retrieval cues that help them to recall the concept. Teachers can also plan lessons and classroom surroundings that aid learning by; for example, playing calm music to reduce stress, reducing the amount of lecturing time, encouraging physical activities and eating healthy foods, and creating comfortable study areas (Items 31, 33, 36, and 38). Moreover, Magnesen (1983) demonstrate that the human brain gets the information more quickly if teachers make the learners at the center of the learning process, and help them to be interested in creativity (Item 51). Duman (2010) also elaborates on the brain-based learning principles and working of a brain in improving learning and enhancing academic success, and respecting individual differences (Item 50). Moreover, some of the brain-based strategies, based on which items 49 and 35 were designed, that are most suitable for a brain-compatible class are group work, innovative and creative learning experiences, storytelling, physical movements, learners' interaction, challenging environment, teacher's timely feedback. Besides, teachers should be assured about the lesson plan that it is relevant because lesson relevance guarantees learners' success. Students' learning is enhanced when they work in small groups (Wiggins, 1993). Wiggins (1993) also stated that teachers should ask students to provide reasons for their answers (Item 8). And finally, items 3 and 9 were added by the two experts in the field of English language teaching.

Procedure

Fifty-four items, related to brain-friendly teaching strategies used by teachers, was selected from the literature. A specific content validation was performed based on expert review. Five experts, as the representative sample of the content domains of the inventory, were recruited from different fields of English language. These expert judges were independent of those who developed the item pool. They were asked to evaluate both the content and the structure of the items, using a scale of 1 (not appropriate) to 5 (appropriate) points. They could also add open commentaries. Then, the inventory was modifies based on the experts' comments and suggestions. Based on experts' comments, some items were modified, and a few were

omitted. Then, the inventory was distributed to gather the data. Due to the spread of Corona virus, the process of distribution of the questionnaires was done only electronically through Google Form link shared in Telegram and WhatsApp groups. Participants were required to provide demographic information such as age, gender, field of the study and years of experience. After answering the items, the respondents were submitted the Google Form and the researcher had the demographic data as well as the responses to the items in each questionnaire in a spreadsheet format.

Data Analysis

Analyzing data was done using SPSS (16) and Winsteps (3.73) software. Preliminary analyses like finding normality of data, reliability of data, and descriptive statistics were done by SPSS. Winsteps was used to validate the Brain-Friendly Teaching Inventory.

Results

Winsteps Rasch software version 3.73 (Linacre, 2009) was used to approve the construct validity of the "Awareness of Brain-Friendly Teaching Inventory" questionnaire. Rasch rating scale model (Andrich, 1978) was fitted to the teachers' Awareness of Brain-Friendly Teaching scale. The fit of data to the Rasch model is a sign that the covariation among the items are caused by a latent trait and there is a causal connection between the variations in the construct and the scores (P. Baghaei & Tabatabaee-Yazdi, 2016; Borsboom, Mellenbergh, & van Heerden, 2004; Tabatabaee-Yazdi, 2020; Tabatabaee-Yazdi, Motallebzadeh, & Baghaei, 2021).

Item measures and fit values

Table 1 displays the items fit indices. The column *Measure* indicates items' difficulty. The higher the values of the *Measure*, the harder the item is to agree with. The *S.E*. column shows each item's standard error. The smaller the S.E., the more accurate the estimation of item difficulty is. Based on item analysis, item difficulty ranged from -.28 to .39 logits. Item 39 (*Encourage learners to ask questions*) on the scale is the easiest and item 13 (*Provide students with test-correction opportunities after the teacher's correction*) is the most difficult item to endorse.

Infit and outfit mean-square values are two values that are important to show how well items signify the intended construct. The acceptable values for infit and outfit mean-squares is .60 to 1.40, but the ideal value is one. Misfitting items can be a threat to validity indicating that the items do not belong to the construct being measured by other items and should be deleted. In fact, according to Baghaei, they introduce construct-irrelevant variance to the data (2008). Table 2 indicates that all items of the scale have an acceptable infit and outfit value. Moreover, person estimates based on the scale ranged from -1.20 to 2.24, higher values indicating more teachers' Awareness of Brain-Friendly Teaching. The item Rasch separation reliability was .79 and the person Rasch separation reliability was .89.

Table 2
Item Measures and Fit Statistics

Entry number	Measure	S.E.	Infit MNSQ	Infit ZSTD	Outfit MNSQ	Outfit ZSTD
13	.39	.07	1.08	.8	1.07	.7
10	.35	.07	1.13	1.3	1.18	1.8
1	.30	.07	.84	-.1.7	.83	-1.8
31	.30	.07	1.11	1.2	1.15	1.5
43	.25	.07	.79	-.2	.79	-2.1
30	.24	.07	1.03	.3	1.00	.0
19	.22	.07	1.08	.8	1.08	.8
22	.22	.07	1.23	2.1	1.29	2.8
33	.20	.07	1.28	2.2	1.33	2.1
9	.16	.07	1.19	1.9	1.24	2.3
7	.10	.07	1.00	.1	.98	-.2
20	.09	.07	1.26	2.1	1.24	2
47	.08	.07	1.06	.7	1.07	.7
21	.08	.07	.99	-.1	.99	-.1
37	.07	.07	1.01	.1	.97	-.3
49	.07	.07	.82	-2	.80	-2
26	.03	.08	1.00	0	.97	-.2
24	.02	.08	.79	-2	.78	-2
5	.01	.08	.99	-.1	1.00	.1
17	.01	.08	1.23	2.1	1.23	2
36	.01	.08	1.08	.8	1.06	.7
38	.01	.08	1.04	.4	1.01	.2
4	.00	.08	1.08	.9	1.09	.9
23	.01	.08	1.13	1.3	1.11	1.1
44	.01	.08	.94	-.5	.96	-.4
3	.02	.08	.95	-.4	.96	-.4
45	.03	.08	.77	-2.1	.78	-2.2
29	.04	.08	1.07	.7	1.07	.7
50	.04	.08	1.13	1.3	1.09	.9
8	.05	.08	1.04	.4	1.06	.6
35	.05	.08	1.07	.7	1.04	.4
14	.07	.08	.77	-2.0	.75	-2.1
32	.07	.08	.99	0	1.02	.3
6	.08	.08	1.17	1.7	1.21	1.9
11	.08	.08	.97	-.3	.92	-.7

41	.08	.08	.90	-1.0	.89	-1.1
34	.08	.08	1.06	.6	1.05	.5
53	.09	.08	.92	-.8	.89	-1.1
2	.10	.08	.61	-.1.9	.66	-2
16	.11	.08	.91	-.9	.90	-1
28	.11	.08	.87	-1.3	.88	-1.1
52	.11	.08	1.05	.6	1.07	.7
54	.11	.08	1.11	1.1	1.12	1.1
25	.12	.08	.94	-.6	.92	-.7
51	.12	.08	.86	-1.4	.84	-1.6
27	.13	.08	1.18	1.7	1.15	1.4
40	.13	.08	1.03	.3	.99	0
48	.13	.08	.85	-1.5	.86	-1.4
12	.14	.08	1.03	.4	1.04	.4
42	.17	.08	.91	-.9	.92	-.7
15	.20	.08	.87	-1.3	.85	-1.5
46	.22	.08	.95	-.5	.95	-.5
18	.22	.08	1.06	.6	1.05	.5
39	.28	.08	.85	-1.5	.85	-1.4

Rating scale category structure

Table 3 demonstrates category information for the five-point Likert scale. The second column shows the category observed average which indicates the average of all peoples who selected that category. The infit and outfit mean squares for each category level should be an expected value of 1.0; values above 1.50 are problematical (Linacre, 2009). In this study, as the Table illustrated, all categories were within the accepted range. Finally, the thresholds column demonstrated the rating scale points where the likelihood of being detected in either of two nearby categories is equal. It is supposed that threshold estimates growth with category values. Disordered thresholds display that respondents cannot clearly distinguish the options (Bond & Fox, 2007) which means the categories are not clearly defined for participants. Bond and Fox (2007) suggested that to solve the problem disordered thresholds, number of response options should be reduced. The threshold parameters in this study are shown to be in order, so the categories are obviously distinguishable for the respondents. The values of the Andrich threshold were -2.13, -.90, -.06, .86, and 2.29, respectively.

Table 3
Category Structure

Category label	Observed count	Infit MNSQ	Outfit MNSQ	Andrich threshold	Category measure
1	501	.99	.99	None	-2.13
2	889	.94	.94	-.81	-.90
3	2723	1.02	1.01	-.50	-.06
4	2857	1.04	1.02	.46	.86
5	2426	1.03	1.02	.85	2.29

Category probability curve

Figure 1 shows a graphic representation of the probability curves for each of the response category. According to (Linacre, 2009) each category has to consist a peak on the curve, indicating that respondents falling on certain sections of the trait continuum, which means that each category characterizes a single section of the measured construct. "The plot should look like a range of hills. Categories which never emerge as peaks correspond to disordered Rasch-Andrich thresholds. These contradict the usual interpretation of categories as being a sequence of most likely outcomes" (Linacre, 2009, p. 304).

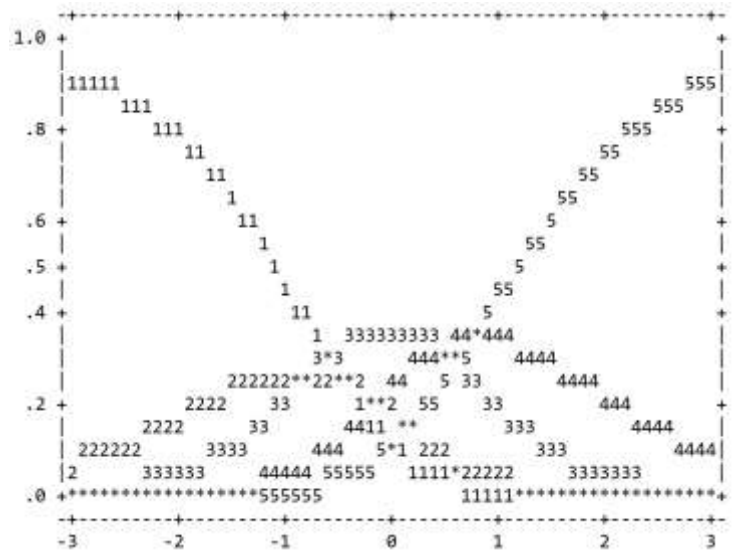

Figure 1. Category probability Curve.

Item-person map

Figure 2 illustrates the distribution of persons and the 54 items parameter. It shows the relative difficulty (endorsability) of the item estimations (on the right) and the persons' distribution (on the left). Items that are shown on top of the scale are those items that are difficult to agree with, but items at the bottom are easier to agree with. Therefore, persons at the top are higher in Brain-Friendly Teaching and those at the bottom are considered to be as lower Brain-Friendly Teaching level. As the map shows, it seems that although the scale covers a wide range of abilities, some harder items should be developed to cover the upper end of the scale. Generally, the map indicates that the scales' items are proven to be appropriate indicators of brain-friendly teaching.

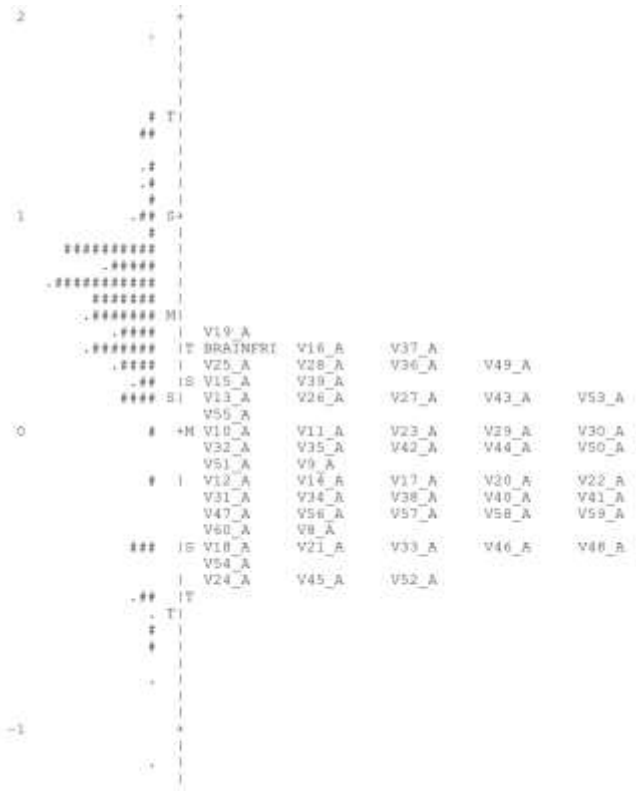

Figure 2. Wright map of the persons and items distribution on the latent variable.

Discussion

Due to the vital role of the brain in teaching/earning as well as the lack of a valid inventory for measuring teachers' awareness of brain-friendly teaching, an attempt was made to develop and validate the Awareness of Brain-Friendly Teaching Inventory using Rasch Model analysis (Rasch, 1960/1980). The findings of the study displayed that the Rasch rating scale model (Andrich, 1978) was fitted to the scale using Winsteps software. In addition, the fit of data to the Rasch model provides proof that the covariance among the items is caused by a latent trait, so there is an underlying association between the variations in the construct and the scores (Baghaei & Shoahosseini, 2019; Borsboom et al., 2004; Tabatabaee-Yazdi, 2020). Moreover, the results of this study disclosed that all the 54 items of the scale had a good fit to the Rasch model. Infit and outfit scores were within the acceptable range which indicates unidimensionality of the scale. Besides, rating scale statistics showed that the category thresholds were ordered which indicates that the scale works properly, thus, the Awareness of Brain-Friendly Teaching Inventory is a valid and appropriate scale to measures EFL teachers' awareness of brain-friendly teaching.

This study suffers from some limitations that could be the topic of further investigations in the field. The most important limitation could be the way of gathering data and sampling procedures. Participants of the study were gathered using convenience sampling using Google Form. In addition, this study considers Iranian EFL teachers. Other studies can work on teachers working at other domains and cultures to expand the generalizability of the scale. Moreover, multidimensional Rasch model can also be applied as an important future research study in order to separately study different constructs of the scale.

Declaration of interest: none

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Appendix

Awareness of Brain-Friendly Teaching Inventory

No	Items	How often do you ...?				
		Never	Rarely	Sometimes	Often	Always
1	use formative assessment (assessing during the learning process) with timely feedback.					
2	create visible progress and achievement (help learners set a goal and use self-assessment then ascertain whether they have attained the goal or not).					
3	evaluate learners' work to determine what type of instruction or resource they need next.					
4	use descriptive/non-marked assessment.					
5	match your formative and summative assessment.					
6	inform learners about the types of assessment.					
7	help shape the strategies learners use to prepare for assessments.					
8	ask learners to provide reasons for their answers.					
9	give learners the opportunity to decide on the format of their exams.					
10	give learners the opportunity to decide on assessment types(formative/summative).					
11	assess what learners should know.					
12	encourage learners to do self-assessment and self-reflection.					
13	provide learners with test-correction opportunities after the teacher's correction.					
14	use soft tones to speak in class.					
15	use appropriate words in teaching practices (based on the situation).					
16	praise the learners.					
17	use soothing colors in the classroom.					
18	generate a safe, welcoming and friendly setting.					
19	explore learners' real-life problems.					
20	use humor in the classroom.					
21	encourage smiles and laughter.					
22	play music to decrease stress.					
23	cooperate among members of groups to improve emotional awareness and relaxation.					

24	advise or remind learners to remove stress.					
25	create a safe and challenging emotive environment for the learners.					
26	stimulate learners' interests and curiosity.					
27	create a fun atmosphere to facilitate exploration (such as tasting, touching, listening, or observing real objects).					
28	provide attractive and peaceful surroundings.					
29	create a positive relationship among learners.					
30	engage learners emotionally with learning.					
31	engage learners in regular physical activity to decrease stress (stretching exercises/ yoga).					
32	promote learners' critical thinking.					
33	give nutritional tips such as drinking green tea, taking vitamin C/D).					
34	advise or remind learners to challenge themselves.					
35	do group activities.					
36	take retrieval practice (filling out a concept map on a previous lesson or recall and write down an answer to a flashcard).					
37	teach interleaved information (learners mix multiple subjects or topics while they study to improve their learning).					
38	use poster, pictures, graphs, and related multimedia.					
39	encourage learners to ask questions.					
40	modify the teaching methods considering all learners.					
41	provide an overview before presenting the details.					
42	provide effective feedback to advance data storage.					
43	make a connection between learning and retrieval contexts.					
44	attract learners' conscious attention.					
45	give learners the chance to reflect on the concept.					
46	make a connection between prior knowledge and new information.					
47	provide a meaningful curriculum relating to learners live.					
48	help learners to learn prioritized information (teach learners to distinguish main ideas from low-relevance details).					
49	provide innovative and creative learning experiences for learners.					
50	provide equal opportunities for individual differences.					
51	put the learners at the center of the learning process.					

52	have rest periods during learning.					
53	provide adequate wait time and time on task.					
54	make learning clear–and clearly relevant.					

Biodata

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