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Constructivist Translation Classroom Environment Survey (CTLES): Development, Validation and Application

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Abstract: This article reports the development, validation and application of the Constructivist Translation Classroom Environment Survey (CTLES) which assesses students' perceptions of five scales of actual or preferred classroom environment, namely, Personal Relevance, Uncertainty, Critical Voice, Shared Control and Student Negotiation. The CTLES was field tested with a sample of 523 Iranian university students. Various analyses attested to each scale's reliability, factorial validity, and ability to differentiate between the perceptions of students in different classes. Furthermore, comparison of Iranian university students' scores on actual and preferred forms of the CTLES revealed that students were not satisfied with their current translation classroom environment and preferred a more constructivist translation classroom environment on all scales. The work is unique since it is the first classroom environment study which is concerned with translation classrooms, specifically the application of constructivist ideas in translation classrooms. It also provides one of the few classroom environment studies conducted in Iran.

Keywords: constructivism, translation classroom environment, CTLES, learning environments research, students' satisfaction

1. Introduction

Following Piaget and Vygotsky, constructivism, both in its radical or social form, has been enthusiastically discussed and greatly supported as an efficient and alternative approach to learning (von Glasersfeld, 1995, 1998; Wang & Walberg, 2001; Brooks, 2002). The basic and the most fundamental assumption of constructivism is that knowledge is not independent of the learner, it is constructed by the learner.

Social constructivism has also had a great impact on translation teaching and Kiraly's book called *A Social Constructivist Approach to Translator Education; Empowerment from Theory to Practice* (Kiraly, 2000) has been cited as an important step in that 'it introduces useful theories to conceptualise how the focus of translation teaching needs to be shifted from being teacher-centred or learner-centred to learning-centred' (Malena, 2003, p.596).

It is unfortunate that constructivist education has not been investigated enough in action in translation classrooms and just a few studies (e.g. Kiraly, 2001; Varney, 2009) are available in this domain. Comprehensive studies are needed to assist researchers not only to investigate how constructivist education affects the students' final outcomes in their translation classroom but also to assess the effects of constructivist educational ideas on students' perceptions of and satisfaction with their translation classroom environments. It is necessary to provide researchers and educators with some instruments so that they can assess the degree to which a particular

translation classroom's environment is consistent with constructivist ideas. Instruments are necessary to assist educational practitioners to reflect on their assumptions and reshape their practice and policies in the teaching of translation.

This paper describes the validation of an existing instrument, i.e. the Constructivist Learning Environment Survey (CLES), for assessing students' perceptions of the psychosocial environment that should exist in constructivist translation classrooms and reports comprehensive validation information for a large sample of university students from Iran. It also explores, from a constructivist perspective, Iranian university students' satisfaction with their translation classroom environment. The work is distinctive because it is the first learning environment study in translation classrooms and provides one of the few classroom environment studies conducted in Iran.

2. Literature review

2.1 Constructivism

The general sense of constructivism is that it is a theory of learning or meaning making, that individuals create their own new understandings on the basis of an interaction between what they already know and believe and ideas and knowledge with which they come into contact (Resnick, 1989). The basic and the most fundamental assumption of constructivism is that knowledge is not independent of the learner, it is constructed by the learner. Among the most prominent philosophers and educators that are associated with constructivism are Piaget, Vygotsky, Kuhn, and von Glasersfeld. Cobb (1994) and Jonassen (1991) present the major philosophical and epistemological assumptions of constructivism as follows: (I) There is a real world that puts boundaries on what we can experience. However, reality is local and there are multiple realities. (II) The mind creates symbols by perceiving and interpreting the world. (III) The structure of the world is created in the mind through interaction with the world and is based on interpretation. (IV) Meaning is a result of an interpretive process and it depends on the knower's' experiences and understanding. Symbols are products of culture and they are used to construct reality. (V) Human thought is imaginative and grows out of perception, sensory experiences, and social interaction.

There are several schools of thought within the constructivist paradigm. The two most prominent ones are radical constructivism and social constructivism. Their major difference has to do with the locus of knowledge construction. For the radical constructivists, knowledge is constructed in the head of the learner while they are re-organising their experiences and cognitive structures (Piaget, 1970; von Glasersfeld, 1989). But social constructivists believe that knowledge is constructed in communities of practice through social interaction (Vygotsky, 1978; Kuhn, 1996).

Constructivism has been widely discussed and has been seriously recommended as an alternative approach to understanding learning (e.g., von Glasersfeld, 1995, 1998; Brooks, 2002). Constructivist classrooms have unique features that have been presented in different works by different educational practitioners.

Constructivist learning environments provide learners with authentic or complex problems or projects that are supported by information resources, cognitive tools, and learning-support strategies such as modelling, coaching, and scaffolding (Jonassen, Marra & Palmer, 2003). Constructivist learning

environments are student-centred and learner-cocontrolled, emphasising student responsibility and initiative in determining learning goals and regulating their performance toward those goals, not just determining the path through a prescribed set of learning activities (Marra, 2004). Social constructivist environments enhance learners' abilities of problem-solving, critical reflection, and thoughtful application of and contribution to knowledge based on a deep understanding of what is happening in the social context.

Teachers in constructivist learning environments give the students enough time to think about questions and direct students to the appropriate resources to find answers. They know that predefined sequences and deadlines usually interfere with their ability to help students understand complex concepts. Posing problems of emerging relevance and searching for windows into students' thinking is one of the most important roles of the constructivist teacher and also a particular aspect of the teaching process occurring in constructivist environments.

Constructivist teachers believe that the part-to-whole approach is not necessarily predictive of student success. When designing curricula, they organise information around conceptual clusters of problems, questions, and discrepant situations because students are most attracted when problems and ideas are given in a holistic manner rather than in separate, isolated parts.

Structuring a curriculum around 'big ideas' and broad concepts provides students with many opportunities: some become involved through practical responses to problems, some analyse tasks based on models and principles, and others interpret ideas through metaphors and analogies from their unique perspectives. Using broad concepts, constructivist environments provide each student with opportunities to participate irrespective of individual styles, temperaments, and dispositions.

In constructivist environments, students are at the centre of instruction and their points of view are highly valued. Awareness of students' points of view helps teachers challenge students, making school experiences both contextual and meaningful (Brooks & Brooks, 1999). In constructivist learning environments, content, instructional materials and pace of learning are based upon the abilities and interests of each individual learner. Each learner is unique and 'is an individual who must be helped to find his or her way to become autonomous' (Williams & L. Burden, 1998, p.194) and learners have different learning styles, learn at different rates, have varying socioeconomic backgrounds, and have diverse intellectual capabilities (Dileo, 2007). Here the traits of the individual learner are given more consideration and learning is improved by varying the pace of instruction, the instructional method, and the content. In such settings, learner achievements are independent of each other, everyone has an equal opportunity of gaining a reward of some kind, and success or failure is more likely to be attributed to effort (Williams & L. Burden, 1998). Constructivist pedagogy allows a student who is above or below 'average' to proceed at his/her own pace for optimal learning. Students do not have to repeat parts of a course that they have already mastered. Students learn the self-discipline and goal-orientation needed to motivate them and to keep their progress on target. In addition, students can check their own results on class work and seek help when needed. Such environments can be viewed as providing a form of self-competition, but differ from competitive structures in that they are essentially goal oriented and involve the development of self-awareness (Williams & L. Burden, 1998).

2.2 Constructivism in translation classrooms

Translator training studies is a relatively new sub-discipline of Translation Studies that began to develop in the middle of the twentieth century and gradually gained importance in the 1970s. Translation teaching has been greatly influenced by Social constructivism and Kiraly's book titled *A Social Constructivist Approach to Translator Education; Empowerment from Theory to Practice* (Kiraly, 2000) has been cited as an important step in that it introduces useful theories to improve translation teaching. As Kiraly (2000, p.12) argues, 'translators today cannot afford to be linguistic hermits, sitting alone behind a typewriter and surrounded only by dusty tomes. Translators are embedded in a complex network of social and professional activity'. Such a standpoint stems from a collaborative view of society which brings about important implications for the way we guide students in developing the skills they will need as translators.

The social constructivist approach to translator education converts the social into practical situated action; learners work together in small groups, when necessary consulting the instructor who in turn takes on the role of guide or facilitator (Varney, 2009). Group work here means the negotiation of meaning and appropriation of cultural and professional knowledge by each individual member in the group. Such an approach leads to collaboration not only between learners but also between learners and the instructor. In such an environment, participants are more likely to exploit to the full their autonomy and empowerment and important psychological responses which favour the learning process, such as curiosity and creativity, will be revealed (Varney, 2009).

Kiraly (2000) suggests that learning in the translation classroom environment cannot be a question of getting closer to the truth but about developing those skills which will enable us to function most efficiently in a specific situation at a specific moment. This perspective on learning in translator education sits well with the norm-based nature of the translator's activity; it also acknowledges the fact that norms change and that what is acceptable practice today may be replaced by an alternative set of norms tomorrow (Varney, 2009).

Kiraly (2001) carried out a two-year research project to investigate the implications of a constructivist educational epistemology for bringing innovation to curriculum and syllabus design, and to pedagogical procedures in translator education. It became clear during this project that a constructivist approach does indeed lend itself to the education of translators. By recognising the inherently personal and social nature of knowledge construction, and by negating the possibility of transferring objective knowledge from one mind to another, the approach inherently promotes a more equitable distribution of authority in the classroom and higher levels of motivation and active participation. He also found that constructivist education encouraged students to be responsible for their own learning.

In another study by Varney (2009), the viability of the social constructivist approach was measured against the specific requirements of the translation classroom via a case study on a real translation class. It was argued that learners are encouraged to take responsibility for their own learning if they are valued and respected by the instructor as autonomous thinking individuals with the capacity to meaningfully interact with the world. It was also mentioned that learners should feel confident enough to express their own ideas and opinions and it is the task of the instructor to create an environment where communal respect and trust mitigate the risk implied by creative, individual self-expression. Favouring a constructivist approach to translation teaching, the study added that learners should be

made aware of the value of individual subjective interpretation and meaning-making and only in so doing can instructors helps prepare learners to take their place in an ever changing society.

Kiraly (2000, p.49) argues that the social constructivist approach is particularly well-suited to the training of translators since translator competence can be seen as 'a creative, largely intuitive, socially-constructed, and multi-faceted complex of skills and abilities'. In his view, the translation classroom should link with the real world through teaching activities which are based on 'authentic situated action, the collaborative construction of knowledge, and personal experience' (Kiraly, 2000, p.3).

2.3 The field of learning environments research

The pioneering works of two American scholars, Rudolf Moos and Herbert Walberg, paved the way for the field of learning environments research. Walberg and Anderson (1968) developed the Learning Environment Inventory (LEI) and Moos (1968) elaborated a number of social climate scales.

The concept of learning environment involves three types of dimensions (Moos, 1974) which lead to its comprehensiveness. Moos's three basic types of dimensions for classifying human environments are Relationship Dimensions (which identify the nature and intensity of personal relationships within the environment and assess the extent to which people are involved in the environment and support and help each other), Personal Development Dimensions (which assess basic directions along which personal growth and self-enhancement tend to occur) and System Maintenance and System Change Dimensions (which involve the extent to which the environment is orderly and clear in terms of expectations, and the extent to which it maintains control and is responsive to change).

A large number of researchers and educators believe that the area of learning environments is of interest and value (Moos, 1968; Walberg & Anderson, 1968; Aldridge, Fraser, Taylor & Chen, 2000; Fraser, 2002, 2007; Martin-Dunlop & Fraser, 2008). Numerous research studies have revealed that student perceptions of the classroom environment account for an appreciable amount of variance in learning outcomes, often beyond that attributable to background student characteristics (Fraser, 1989, 1994; Fraser & Fisher, 1982; Haertel, Walberg & Haertel, 1981; Walberg, 1976; Waxman, 1989; Dorman, 2001). Fraser (1998) states that the quality of the classroom environment in schools is a significant determinant of student learning and students' positive perceptions of learning environments will pave the way for meaningful learning.

Decades of research in the field of learning environments have led to the development of a variety of economical, valid and widely applicable questionnaires for assessing students' perceptions of classroom environments. There are now hundreds of research studies that explore learning environments at various grade levels (primary, secondary, tertiary) and in a variety of classrooms such as science and mathematics, chemistry, computer, biology, geography, physics and language.

Studies on science and mathematics classroom environments have a long tradition in the field and studies such as Wolf and Fraser (2008) focused on science and mathematics learning environments with the aim of promoting these environments. Studies such as Soerjaningsih, Fraser, and Aldridge (2001) provide insightful ideas about the nature of computer classrooms environments. Moss and Fraser (2001) focused on biology classroom environments. Geography is another subject area which has been explored in a number of learning environment studies (e.g. Fraser & Chionh, 2000).

Psychosocial environments of physics classrooms have also been the subject of studies such as Terwel, Brekelmans, Wubbels & van den Eeden (1994). Chemistry classroom environments have also been the target of exploration in different studies (e.g. Hofstein, Cohen & Lazarowitz, 1996). The studies on language and language-related classroom environments are more recent and few studies (e.g. Chua, Wong, Thanq & Chen, 2011; Wei, Brok & Zhou, 2009; Wilks, 2000, cited in Fraser, 2002, p.6) are available that report evaluation, exploration or promotion of language learning classroom environments.

This study is the first one that reports evaluation, exploration or promotion of translation classroom learning environments. The growth of learning environment studies can also be viewed from another perspective. Interest in learning environments spread from the USA to The Netherlands where it was picked up by Theo Wubbels and colleagues (Wubbels & Levy, 1993; Wubbels & Brekelmans, 1997, 1998, 2006), and to Australia, where it was carried forward by Barry Fraser, the prominent figure of the field (Fraser, 1998; 2007). Learning environment research has since spread further afield to Asia (Fraser, 2002; Quek, Wong & Fraser, 2005) and South Africa (Aldridge, Laugksch & Fraser, 2006).

In Australia, Fraser and colleagues initially elaborated the Individualised Classroom Environment Questionnaire (ICEQ) (Fraser, 1990), but this was followed by other widely used instruments such as the Science Laboratory Environment Inventory (SLEI), Constructivist Learning Environment Survey (CLES) and the WIHIC (Fraser, 1998).

In Asia, the study of learning environments has been undertaken in Brunei (Scott & Fisher, 2004), Indonesia (Margiant, Aldridge & Fraser, 2004; Soerjaningsih et al., 2001), Taiwan (Aldridge, Fraser & Huang, 1999), Singapore (Khoo & Fraser, 2008), Japan (Hirata & Sako, 1998), India (Koul & Fisher, 2005), Korea (Lee, Fraser & Fisher, 2003) and Thailand (Puacharearn, 2004). It should be noted that this study is one of the few learning environment studies conducted in Iran to date.

The learning environment field of research, comprehensive and well-established, is able to present a holistic picture of the effects of constructivist education in action and is able to show us how to move towards more constructivist practices in translation classrooms. In this way, the Constructivist Learning Environment Survey (CLES) will be of great help.

3. About the CLES

The CLES was developed to assist researchers and teachers to assess the degree to which a particular classroom's environment is consistent with a constructivist epistemology, and to assist teachers to reflect on their epistemological assumptions and reshape their teaching practice (Fraser, 2002).

The first version of the CLES (Taylor, Fraser & Fisher, 1993) consisted of twenty-eight items included in four scales (viz. Autonomy, Prior Knowledge, Negotiation, and Student Centeredness). Later it was revised and another scale was added as a response to the lack of any critical theory perspective in this instrument. The result was a thirty-item questionnaire with five scales: Personal Relevance, Uncertainty, Critical Voice, Shared Control, and Student Negotiation (Taylor, Fraser & Fisher, 1997). A description of scales is provided in Table 1. Each item can be responded to on a five-point Likert scale ranging from Almost Never to Almost Always. The Likert Scale is a five (or seven) point scale which is used to allow the individuals to

express how much they agree or disagree with a particular statement. There are different versions of the CLES for both science and for mathematics as well as for teachers, and for students in actual and preferred forms.

The initial development of the CLES was guided by four criteria:

1) Consistency with the literature on constructivist education. A review of literature identified dimensions considered important in constructivist classrooms.
2) Consistency with other instruments in the field of learning environment research. Guidance was obtained by examining all scales in existing classroom environment instruments.
3) Coverage of Moos's general categories. The CLES takes into account the three general categories of dimensions identified by Moos (1974) for conceptualising all human environments. These are 'Relationship Dimensions' (the nature and intensity of personal relationships), 'Personal Development Dimensions' (directions of personal growth and self-enhancement), and 'System Maintenance and System Change Dimensions' (the extent to which the environment is orderly, is clear in terms of expectations, maintains control, and is responsive to change). Since a reasonably complete picture of environment includes Relationship Dimensions, Personal Development Dimensions, and System Maintenance and System Change Dimensions, the CLES included scales in each of these categories.
4) Economy. To achieve economy in terms of the time required for answering and scoring, the CLES has only five reliable scales, each containing a small number of items.

Scale	*Scale Description*
Personal relevance	Extent to which school activities and knowledge is relevant to students' everyday out-of-school experiences.
Uncertainty	Extent to which opportunities are provided for students to experience that knowledge is evolving and culturally and socially determined.
Critical voice	Extent to which students feel that it is legitimate and beneficial to question the teachers' pedagogical plans and methods.
Shared control	Extent to which students have opportunities to explain and justify their ideas, and to test the viability of their own and other students' ideas.
Student negotiation	Extent to which students share with the teacher control for the design and management of learning activities, assessment criteria, and social norms of the classroom.

Table 1: Description for Each Scale of the CLES

The CLES has been used in a variety of studies which evaluate psychosocial aspects of different classrooms in different educational settings (e.g. Nix, Ledbetter & Fraser, 2005; Johnson & McClure, 2004; Dorman, 2001; Harwell, Gunter, Montgomery, Shelton & West, 2001; Waggett, 2001; Aldridge et al., 2000). In this study, the CLES was used as a guide for the development of an instrument that would be able to investigate translation classrooms against constructivist ideas. In the following part, at first a brief account of translation classrooms in Iranian universities will be presented and then the development, validation and application of the Constructivist

Translation Classroom Environment Survey (CTLES) will be discussed in detail.

4. Translation classrooms in Iranian universities

After passing Iranian university entrance exam, students are accepted for a BA degree in translation studies based on their selections they made before taking the exam. The students are supposed to complete 133 to 135 credits to graduate and get a BA. About 70 to 72 credits are completed for specific courses of translation. The students are expected to be able to translate different texts at the time they graduate. During the courses, different texts on economy, politics, literature, journalism, etc. with their translations are given to the students; those texts are overloaded with a great number of new words which are learned for the exam. Another point to be mentioned here is that the direction of translation is mostly form English into Persian.

Theories are taught, but their application in translation practice is not fully explained. What to translate is said but not how to translate; dos and don'ts are given; but not how to (Farrahi Avval, 2012). For assessment, selected texts in English are given to the students and are supposed to be translated into Persian. The translations are exactly copied from the course book and the teacher corrects them based on their own ideas and not based on a certain theory or criteria.

Translation students are often given a de-contextualised text, and are required to write a translation in their own time, hand it in for marking by the lecturer who then spends most of the class hour going over the piece, highlighting problems.

Jamalimanesh (2009) states that Iranian translation students' problems are largely attributable to the following factors: (1) Attitude toward their occupation: they do not recognise the importance of translation, so they study casually and carelessly; (2) Weak bilingual foundation: both their comprehension and expression of Persian and English languages are not good enough. (3) Rhetoric and style: students have no clear consciousness of style, and have had little chance to appreciate various styles before they begin to study translation. Correspondingly, they translate without considering the style of the original and often mix different styles together.

Evidently translation instructors must be highly qualified, and have extensively studied the theories of translation, linguistics, literature, aesthetics and other related branches of learning. Not many teachers of translation in Iranian universities have received proper training in translation. They are holders of post graduate degrees in English literature or linguistics. Any instructor in the department of English who shows interest in teaching translation may be assigned the course. There are no requirements whatsoever. Hence, the trainers are at best merely interested rather than specialised in translation.

Translation teaching in Iranian universities is suffering from lots of deficiencies (Jamalimanesh, 2009; Farrahi Avval, 2012), some of which were mentioned above. To the best of our knowledge this study appears to be the first comprehensive and systematic study which delves through Iranian university students' satisfaction with their translation classrooms. Grounded in constructivism, the present study can be considered as a good step to improve learning and teaching in these classrooms

5. Development and administration of the CTLES

Almost all of the items on the Personal relevance and Uncertainty scales of the CLES were edited and reworded to reflect translation classroom environments. Some other items in other scales were also rephrased to be suitable for translation classrooms. For example, the item 'I talk with other students about how to solve problems' was written in CTLES as 'I talk with other students about how to translate difficult texts.'

The CTLES was then distributed among 523 (M=253 and F=270) Iranian university students in twenty-five translation classes in four universities. Among these twenty-five classes, five were held at the Islamic Azad University of Abadeh, four at the University of Kashan, four at Shiraz University and twelve at the Islamic Azad University of Marvdasht. With regard to age, most of the participants were between twenty-two and thirty (N=437); however, a few aged more than thirty (N= 47) were also included.

In general, students in the Azad University of Abadeh formed about 38.62 per cent (N=202), the University of Kashan 30.59 per cent (N=160) and Shiraz University 22.9 per cent (N=120) and the Islamic Azad University of Marvdasht 7.83 per cent (N=41) of the whole sample.

6. Field testing and validation of the CTLES

The students' responses on the Likert scale including the: almost never, seldom, sometimes, often and very often alternatives, were scored 1, 2, 3, 4 and 5 respectively. The data were analysed using SPSS and various analyses were conducted to check the validity and reliability of the CTLES: factorial validity, internal consistency reliability and the ability to differentiate between the perceptions of students in different classrooms.

Factor analysis allows the researchers to condense a large set of variables or scale items down to a smaller, more manageable number of dimensions or factors. It does this by summarising the underlying patterns of correlation and looking for 'clumps' or groups of closely related items (Pallant, 2005). This technique is often used when developing scales and measures, to identify the underlying structure. Before conducting the factor analysis, the strength of the relationship among the variables needs to be explored (Pallant, 2005). If the items of the questionnaire are measuring the same underlying trait they will correlate with each other. In order to check the inter-correlation among the items, the correlation matrices for actual and preferred forms of the CTLES were provided. Tabachnick and Fidell (2001) and Pallant (2001) recommend an inspection of the correlation matrix for evidence of coefficients greater than 0.3. Few correlations above this level may make factor analysis inappropriate. There is no exact criterion concerning the number of coefficients above 0.3 but the number of coefficients greater than 0.3 was not limited in the correlation matrices provided for two forms of the CTLES.

ITEM	Factor Loading				
	PR	UN	CV	SC	SN
A1	.675				
A2	.546				
A3	.439				
A4	.534				
A5	.483				
A6	.673				
A7		.426			
A8		.492			
A9		.652			
A10		.482			
A11		.567			
A12		.742			
A13			.546		
A14			.728		.365
A15			.562		
A16			.672		
A17			.452		
A18			.689		
A19				.768	
A20				.562	
A21				.672	
A22				.562	
A23				.672	
A24				.562	
A25					.563
A26					.452
A27					.398
A28					.672
A29					.561
A30					.620

Table 2: Factor Loadings for the Actual Form
Note. PR = Personal Relevance; UN = Uncertainty; CV = Critical Voice; SC = Shared Control; SN= Student Negotiation.

ITEM	Factor Loading				
	PR	UN	CV	SC	SN
P1	.526				
P2	.492				
P3	.378				
P4	.672				
P5	.561				
P6	.562				
P7		.672			
P8		.487			
P9	.434	.671			
P10		.492			
P11		.387			
P12		.624			
P13			.627		
P14			.542		
P15			.618		
P16			.561		
P17			.591		
P18			.489		
P19				.561	
P20				.518	
P21				.487	
P22				.681	
P23				.561	
P24				.482	
P25					.398
P26					.631
P27					.535
P28					.581
P29					.685
P30					.729

Table 3: Factor Loadings for the Preferred Form
Note. PR = Personal Relevance; UN = Uncertainty; CV = Critical Voice; SC = Shared Control; SN = Student Negotiation.

Two statistical measures were also generated by SPSS to help assess the factorability of the data: Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Pallant, 2005). For the factor analysis to be considered appropriate, the Bartlett's test of sphericity should be significant ($p<0.05$). The KMO index ranges from 0 to 1 and the minimum value for a good factor analysis is 0.6 (Tabachnick & Fidell, 2001).

The KMO index was higher than 0.6 (.78 and .82 for actual and preferred forms respectively) and the result of the Bartlett's test of sphericity was significant ($p<0.05$). These two measures also attested to the factorability of the data for factor analysis.

In the present study, validation of data has been provided for the individual as unit of analysis. Class mean can also be used as the unit of analysis (e.g. MacLeod and Fraser, 2009; Wei et al., 2009) but the use of the individual as the unit of analysis can provide spurious results because an unjustifiably small estimate of the sampling error is employed in tests of statistical significance (Dorman, 2001).

The results of our exploratory factor analyses for actual and preferred forms are provided in Table 2 and Table 3 respectively. Loadings of less than 0.30, a commonly used cut-off, have been eliminated. As it can be seen from Table 1 and 2, most items load strongly on their hypothesised scale. There are a few exceptions, however. Item number 14 in the actual form and item number 9 in the preferred form have factor loadings on both their own scales (i.e. Critical Voice and Uncertainty, respectively) and other scales (i.e. Student Negotiation and Personal Relevance, respectively).

To have parallel scales in both forms, and to keep the number of item in CTLES equal to that of CLES, all the thirty items were retained and the refined version of the CTLES consisted of five six-item scales.

6.1 Internal consistency reliability of the refined CTLES

Table 4 reports the internal consistency (alpha reliability coefficient) for the refined CTLES, with separate reports for actual and preferred forms and for the use of the individual student as the unit of analysis. Table 4 suggests that each scale of the refined CTLES has acceptable internal consistency in all cases.

Scale	**Alpha Reliability**	
	Actual Form	**Preferred Form**
Personal Relevance	.76	.87
Uncertainty	.71	.79
Critical Voice	.83	.81
Shared Control	.82	.78
Student Negotiation	.77	.72

Table 4: Internal Consistency Reliability (Alpha Coefficient) for Actual and Preferred Forms and for Individual as the Unit of Analysis

6.2 The ability of the refined CTLES to differentiate between classrooms

Another desirable characteristic of the actual form of any classroom environment instrument is that it must be capable of differentiating between the perceptions of students in different classrooms (Fraser & Griffiths, 1992). That is, students in the same class should perceive their class relatively similarly, while mean within-class perceptions should vary from classroom to classroom. This characteristic was explored for each scale of the actual form of the refined CTLES for the total sample of 523 Iranian students described

previously. This involved performing for each scale a one-way ANOVA, with class membership as the main effect and using the individual as the unit of analysis. The results of these analyses, reported in Table 5, indicate that each scale differentiated significantly (p<.001) between classrooms. The Eta^2statistic, which is a ratio of 'between' to 'total' sums of squares (Cohen & Cohen, 1975), indicated that the proportion of variance explained by class membership ranged from 17% for the Personal Relevance scale to 22% for the Uncertainty scale.

Scale	ANOVA Results Eta^2
	Actual Form
Personal Relevance	0.17*
Uncertainty	0.22*
Critical Voice	0.18*
Shared Control	0.19*
Student Negotiation	0.21*

Table 5: Ability to Differentiate between Classrooms for Individual as Unit of Analysis
*p<0.001

Based on the analyses reported above, it is clear that the refined CTLES exhibited satisfactory factorial validity and internal consistency reliability and that the actual form of each scale was able to differentiate between classes.

6.3 Differences between actual and preferred learning environment
Data collected using the CTLES were used in a research application involving investigation of whether there were differences between students' actual and preferred classroom environment scores on the scales of Personal Relevance, Uncertainty, Critical Voice, Shared Control and Student Negotiation.

The average item mean and average item standard deviation were calculated for each actual and preferred scale of the refined the refined version of CTLES for the individual as the units of analysis. The five pairs of scores were computed through SPSS for conducting different paired-sample t-tests between the scores of the same scales of the actual and preferred forms. The idea here is that 'the greater the degree of concordance between one's ideal classroom and the actual classroom within which one finds oneself, the greater the degree of satisfaction there is likely to be' (Williams & L. Burden, 1998). The results of these paired-sample t-tests are provided in Table 6. As it is clear, there are significant differences (p<0.05) between scores on Personal Relevance, Uncertainty, Critical Voice, Shared Control and Student Negotiation scales in the actual and preferred classroom environments.

Surprisingly, the results reported in this section clearly reveal that students preferred a more constructivist translation classroom environment than the one that they perceived as being actually present in terms of the five scales of Personal Relevance, Uncertainty, Critical Voice, Shared Control and Student Negotiation. In other words, the students were not satisfied with these five scales of their translation classroom environments. These results confirm the idea put forward by some researchers that the translation pedagogy in Iran is suffering from some deficiencies and needs some kinds of

reform (e.g. Jamalimanesh, 2009; Farrahi Avval, 2012). These differences between students' actual and preferred environments in our study in Iran are consistent with past research which has explored the congruence between actual and preferred environments in a number of countries around the world (Fisher, Fraser & Bassett, 1995; Yarrow, Millwater & Fraser, 1997).

		PAIRED DIFFERENCES					t	df	**sig. P<0.05**
		Mean dif	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PR (Actual) - PR (Preferred)	-.245	.8779	.0383	-.318	-.167	-6.33	522	**.000**
Pair 2	UN (Actual) – UN (Preferred)	-.728	.9227	.0403	-.8045	-.645	-17.9	522	**.000**
Pair 3	CV (Actual) – CV (Preferred)	-1.06	1.247	.0545	-1.170	-.955	-19.4	522	**.000**
Pair 4	SC (Actual) – SC (Preferred)	-.050	.4653	.0203	-.0900	-.010	-2.45	522	**.014**
Pair 5	SN (Actual) – SN (Preferred)	-.041	.2853	.0124	-.0646	-.015	-3.21	522	**.001**

Table 6: The Results of Different Paired-sample T-Tests between the Scores of All Participants on the Six Scales of Actual and Preferred Forms
Note. PR = Personal Relevance; UN = Uncertainty; CV = Critical Voice; SC = Shared Control; SN = Student Negotiation.

7. Conclusion

This paper aims to stimulate and to facilitate further research on the application of constructivism in translation classrooms by developing a new instrument, the Constructivist Translation Classroom Environment Survey (CTLES), which assesses five scales of the actual and preferred climate of constructivist translation classes. The CTLES in both actual and preferred forms has been presented in Appendix A.

The CTLES was field-tested and validated with a sample consisting of 523 Iranian university students in twenty-five translation classrooms. Factor analyses led to a version with satisfactory internal consistency reliability, discriminant validity, and factorial validity in both its actual and preferred versions. Noteworthy features of the CTLES include its consistency with the literature on constructivism, specific relevance to translation classes, and economy of administration and scoring time.

We hope educational researchers and teachers will use the CTLES to pursue several research and practical applications of constructivist education ideas in translation classroom environments. Researchers will have the possibility to consider the CTLES to monitor students' views of their translation classes, investigate the impact of constructivist translation classroom environments on student outcomes, and provide a basis for improving these learning environments. In particular, there is scope for future research with the CTLES which replicates common lines of past research such as: using learning environment scales as dependent variables in studies of determinants of classroom environment (Aldridge & Fraser, 2008); investigation of associations between student outcomes and classroom

learning environment (Wong, Young & Fraser, 1997); use of learning environment criteria in assessing educational programs (Martin-Dunlop & Fraser, 2008); and combining qualitative and quantitative methods in learning environment research (Aldridge et al., 1999); using feedback on students' perceptions of actual and preferred learning environment to direct improvements in classrooms (Aldridge, Fraser & Sebela, 2004).

Furthermore, this study was a response to the lack of learning environment research in Iran. By reporting data specifically for an Iranian sample, it paves the way for future research on translation classroom learning environments in Iran. Using the CTLES, this study showed that the Iranian university students participating in this study were not satisfied with their current translation classroom environment and preferred a more constructivist translation environment on all scales. Translation classroom environments in Iranian universities should be improved so that classroom activities and knowledge can be relevant to students' everyday out-of-school experiences (i.e. Personal Relevance) and opportunities are provided for students to experience that knowledge is evolving and is culturally and socially determined (i.e. Uncertainty). These classrooms should be redesigned so that students can share with the teacher control for the design and management of learning activities, assessment criteria, and social norms of the classroom (i.e. Student Negotiation). Opportunities should be provided in these classrooms so that students have the chance to explain and justify their ideas, and to test the viability of their own and other students' ideas (i.e. Shared Control). Students in these classrooms should feel that it is legitimate and beneficial to question the teachers' pedagogical plans and methods (i.e. Critical Voice). This study is of great help for those educators who want to create constructivist, student-centred, and efficient translation classroom environments.

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Appendix A- the CTLES

Actual form

No	Category	Statements	AN	S	ST	O	VO
1	***Personal relevance***	I learn about translation in the world outside of the classroom					
2		My new learning starts with problems about the world outside of classroom.					
3		I learn about translation as a part of my out-of-classroom life					
4		I get a better understanding of translation in the world outside of classroom.					
5		I learn interesting things about translation in the world outside of classroom					
6		What I learn has nothing to do with translation in my out-of-class life					
7	***Uncertainty***	I learn that translation theories cannot provide perfect answers to all the problems I may face in translation					
8		I learn that the theories of translation have changed over time					
9		I learn that the field of translation is influenced by people's values and opinions					
10		I learn about the different translation theories.					
11		I learn that I should use different methods in translating different texts					
12		I learn that people have different ideas about translation.					
13	***Critical voice***	It's OK for me to ask the teacher 'why do I have to learn this?'					
14		It's OK for me to question the way I'm being taught					
15		It's OK for me to complain about translation activities that are confusing					
16		It's OK for me to complain about anything that prevents me from learning					
17		It's OK for me to express my opinion					
18		It's OK for me to speak up for my rights					
19	***Shared control***	I help the teacher to plan what I'm going to learn					

20		I help the teacher to decide how well I am learning					
21		I help the teacher to decide which activities are best for me					
22		I help the teacher to decide how much time I spend on translation activities					
23		I help the teacher to decide which activities I do					
24		I help the teacher to assess my learning					
25	***Student negotiation***	I get the chance to talk to other students					
26		I talk with other students about how to translate difficult texts					
27		I explain my understandings and my ideas to other students					
28		I ask other students to explain their thoughts					
29		Other students ask me to explain my ideas					
30		Other students explain their ideas to me					

Preferred Form

No	Category	Statements	AN	S	ST	O	VO
1	***Personal relevance***	I should learn about translation in the world outside of the classroom					
2		My new learning should start with problems about the world outside of classroom.					
3		I should learn about translation as a part of my out-of-classroom life					
4		I should get a better understanding of translation in the world outside of classroom.					
5		I should learn interesting things about translation in the world outside of classroom					
6		What I learn should have nothing to do with translation in my out-of-class life					
7	***Uncertainty***	I should learn that translation theories cannot provide perfect answers to all the problems I may face in translation					
8		I should earn that the theories of translation have changed over time					
9		I should learn that the field of translation is influenced by people's values and opinions					
10		I should learn about the different translation theories.					
11		I should learn that I should use different methods in translating different texts					
12		I should learn that people have different ideas about translation.					
13	***Critical voice***	It should be OK for me to ask the teacher 'why do I have to learn this?'					
14		It should be OK for me to question the way I'm being taught					
15		It should be OK for me to complain about translation activities that are confusing					
16		It should be OK for me to complain about anything that prevents me from learning					
17		It should be OK for me to express my opinion					
18		It should be OK for me to speak up for my rights					

19	***Shared control***	I should help the teacher to plan what I'm going to learn					
20		I should help the teacher to decide how well I am learning					
21		I should help the teacher to decide which activities are best for me					
22		I should help the teacher to decide how much time I spend on translation activities					
23		I should help the teacher to decide which activities I do					
24		I should help the teacher to assess my learning					
25	***Student negotiation***	I should get the chance to talk to other students					
26		I should talk with other students about how to translate difficult texts					
27		I should explain my understandings and my ideas to other students					
28		I should ask other students to explain their thoughts					
29		Other students should ask me to explain my ideas					
30		Other students should explain their ideas to me					