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# Validation of Attributional Complexity Scale in Iranian Context and an Investigation into the Effect of Knowing Another Language on Social Perception

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**Abstract:**

*The present study attempted to validate Attributional Complexity Scale (ACS) in Iranian context. Fletcher et al. (1986) developed the so called ACS in order to capture individual differences in the propensity to generate complex explanations to the behaviors of others. Also, the influences of EFL students' age and gender on attributional complexity were examined. This study contained attributional constructs that range along a simple-complex dimension. Also, the effect of the higher attributional complexity that prefers complex explanations for the causes of behavior as well as the effect of being motivated to understand behavior on reducing error and bias in social judgment were introduced. People's strong tendency to overestimate internal factors, such as one's disposition, and underestimate the external factors was regarded as well. To do different phases of the present research, 200 EFL university learners comprising 115 females and 85 males participated for the scale validation of ACS and finding out the effects of age and gender as well as the role of knowing another language on improvement of participants' social perception. The results implied that both age and*

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*gender did not have any effect on learners' AC. Also, learning another language increased people's social perception.*

**Key words:** Attributional Complexity, Social judgment, behavior, Social Perception, Iranian Context

## 1. Introduction

More recently, the significance of attributional complexity has attracted researchers and educationalists. Indeed, attributional complexity is a psychological construct that describes the degree to which an individual is interested in understanding the causes of other's behavior and considers many different possible causes (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). Those higher in attributional complexity are theoretically "like good social psychologists" in that they are more likely to consider dispositional factors, situational factors, and factors operating from the past (Fletcher et al., 1986, p. 883). In contrast, those lower in attributional complexity are theorized to be less likely to think about the causes of behavior or to consider multiple causes. Research has shown that attributionally complex individuals are relatively less likely to fall prey to various errors of social judgment and in some cases achieve greater accuracy, which may provide insight into the psychological basis of good social judgment. Specifically, error and bias in social judgment appears to be significantly reduced when an individual is interested in understanding behavior, able to think about several possible causes of behavior, and given time to deeply process social information (Fletcher, Reeder, & Bull, 1990). On the other hand, an individual difference (can be thought of as a personality variable) refers to the extent that an individual prefers complex explanations for behavior. Attributional patterns and variations across cultures

are crucial, and call for higher attributional complexity (AC) and attributional knowledge to reduce cultural distance.

Social perception and cognition traditionally have been associated with the proposition that people perceive and think about the social world differently from what would be expected based solely on the stimulus information and principles of formal logic. Social perception was founded on the idea that internal factors such as values, needs, and expectancies influence the outcome of perception, so that it could not be accounted for entirely in terms of stimulus qualities (e.g. Postman et al 1948).

Within the last decades many research studies have been conducted in different areas of attribution and attributional complexity. However, there are still rooms for investigating the influences of different factors on this trait. Also, we are not sure about the validity of this scale in Iranian context. In this regard, the main concern in the present study is to see whether attributional complexity scale enjoys psychometric properties for assessing EFL students' attributions. After proposing and validating the related scale the effects of both age and gender will be examine on the participants. Then, the effect of learning another language on increasing learners' social perception will be investigated.

## 2. Literature Review

### *2.1. Attributional Complexity*

According to Fletcher, Danilovics, Fernandez, Peterson, and Reader (1986), " Attributional Complexity is a psychological construct that describes the degree to which an individual is interested in understanding the causes of others behavior and considers many different possible causes" (Fletcher, 1981). In fact attributional complexity refers to the capability of discriminating and integrating dimensions related to social

judgment in order to understand social behavior (Funder, 2001). An individual difference (can be thought of as a personality variable) referring to the extent that an individual prefers complex explanations for behavior.

Fletcher and colleagues (1986) developed the Attributional Complexity Scale to measure the complexity of the attributional schemata that people use to explain human behavior. The scale measures seven attributional constructs: (1) a motivational component, (2) preference for complex rather than simple explanations, (3) metacognition concerning explanations, (4) awareness of the extent to which people's behavior is a function of interaction with others, (5) a tendency to infer abstract or causally complex internal attributions, (6) a tendency to infer abstract, contemporary, external causal attributions, and (7) a tendency to infer external causes operating from the past.

Fletcher and his associates developed the so called Attributional Complexity Scale (ACS) in order to capture individual differences in the propensity to generate complex explanations to the behaviors of others. The scale was constructed to measure seven attributional constructs that range along a simple-complex dimension: *Level of interest or motivation*, meaning that attributionally complex people possess higher levels of intrinsic motivation to explain and understand human behavior; *Preference for complex explanations*, implying that complex individuals generate behavioral explanations that contain a greater number of relevant causes; *Metacognitive awareness*, that is, complex individuals tend to think about the cognitive processes underlying behavioral attribution; *Awareness of social influences*, referring to the tendency of complex individuals to take the power of the social situation into account when forming causal attributions; *Abstract or complex internal attributions* – the degree of complexity in explanations

involving internal traits, dispositions and beliefs; *Contemporary external attributions*, meaning that complex people acknowledge abstract, non-salient behavioral causes in a person's environment; and finally *awareness of external causes operating from the past*.

Fletcher et al. (1986) were able to validate these subdimensions as components of the general construct of attributional complexity. Viewing the above from a deception-detection perspective, we predict that people high on the attributiona l complexity measure would perform better on a lie-detection task than people with simple attributional schemata. The rationale behind this prediction is that previous studies have shown that the reliance on rigid, stereotypic assumptions about liars' behavior is associated with lower detection accuracy (Fletcher, 1981), and that successful lie-detectors provide flexible arguments when motivating their veracity judgments (Ekman & O'Sullivan, 1991).

### *2.2. Attributional complexity and social judgment*

Given that those with higher attributional complexity prefer complex explanations for the causes of behavior, yet there seems to be little relationship between attributional complexity and intellectual ability, one may wonder if the attributionally complex are idly complicated in thought with no real benefit for social judgment. However, high scorers seem to be socially astute as they are less prone to make a variety of classic attributional errors. For example, when asked to write an essay defending an opinion contrary to one's initial position (a dissonance-producing counter-attitudinal essay), those higher in attributional complexity are more likely to externally justify writing the essay, and are therefore less likely to change their initial opinion (Stalder & Baron, 1998). At least three studies have also found that attributional complexity is associated with significant reductions in committing the fundamental

attribution error (Blumberg & Silvera, 1998; Devine, 1989; Follett & Hess, 2002). However, it is not the case that the attributionally complex are simply more likely to make external rather than internal attributions for behavior, because it has been demonstrated that attributional complexity has a near zero correlation with locus of control (Fletcher et al., 1986). Fletcher et al. (1990) found that attributionally simple individuals are less likely to make this error when depth of information processing is restricted, while attributionally complex individuals are less likely to commit the Fundamental Attribution Error when in depth processing is encouraged. Finally, in conditions where participants do not have to justify their impressions, attributionally complex individuals are less likely to form erroneous group stereotypes (Schaller, Boyd, Yohannes, & O'Brien, 1995).

The attributionally complex also seem to follow attributional rules better than their lower scoring counterparts. When given problems in which one needs to determine whether a behavior was caused by the person, circumstance, or stimulus, those higher in attributional complexity make more correct attributions, especially when the problems increase in difficulty (Fletcher, 1981). Along with enhanced ability to follow attributional rules and reductions in error, attributional complexity seems to be related to increased accuracy in social judgment as well. Fletcher et al.(1990) found that in conditions where adequate time

### *2.3. Attributional complexity and behavior*

Attributional complexity is contained within attribution theory. Social psychological studies have consistently found that people have a strong tendency to overestimate internal factors, such as one's disposition, and underestimate the external factors driving people's behavior. This tendency, known as the correspondence bias (Gilbert &Malone, 1995), is typically

examined using the attitude–attribution paradigm (first reported in Jones &Harris, 1967). Participants read a short essay on a controversial social issue and indicate the writer's true opinion. Participants are told that the author either chose the position to advocate in the essay, or was assigned a specific position to argue in the essay. As might be expected, when the writer is free to choose a position to endorse, participants indicate that the position advocated in the essay corresponded with the writer's true attitude. However, even when it is clear that the author of the essay was writing an assigned position, participants still rate the author's own opinion as consistent with the arguments of the essay. Persons with High attributional complexity connote more complex explanations of the behavior of others than do low complexity. The attributional complexity scale has made important contributions to the understanding of social cognition and error. Error and bias in social judgment appears to be significantly reduced when an individual is motivated to understand behavior, able to consider several possible causes for behavior, and given time to deeply process social information. Because attributional complexity seems to greatly influence how an individual thinks about his/her social world, it is appropriate to seek to know more concerning the social reputation and behavior of the attributionally complex. Directly observing what attributionally complex individuals do is important because it might offer some insight into how they interact with others and why they tend to have better social judgment.

Although it is assumed that they have better judgment because they think deeply and elaborately about social information, it may also be that they behave in ways that facilitate better social judgment. For example, attributionally complex individuals might ask more questions and gather more information about their social worlds. Researchers infrequently gather directly observed behavioral data and it is crucial to

know what people actually do, in addition to what they self-report (Funder, 2001). Little is also known concerning the possible social consequences of attributional complexity, and the opinions that others have of an individual may be one such consequence. In this regard, a research on attributional complexity with college student samples has indicated that mild and moderate depression are associated with increased attributional complexity but more severe depression may be related to decreased attributional complexity. In fact, severe depression is associated with reduced attributional complexity.

### *2.4. The Overattribution Effect: Ability and Motivation.*

The present section considers the possibility that before the overattribution effect can be reduced on any measure, 1) subjects must have the ability to generate and consider multiple causes for behavior and 2) in addition, subjects must be motivated to engage in complex causal reasoning. To the extent that either factor is missing, I suggest that subjects will take advantage of well- practiced heuristic causal explanations (Nisbett and Ross 1980). Fletcher, Danilovics, Fernandez, Peterson, and Reeder (1986) suggested that people differ in the complexity of the attributional schemata they use in explaining human behavior. In general, Fletcher et al. suggested that people high in attributional complexity are able to consider many possible causes for behavior (e.g., internal, external) and can engage in complex (i.e., flexible) causal reasoning. In contrast, attributionally simple people are not able to engage in this type of flexible, complex causal reasoning. As with many abilities, attributional complexity is asymmetrical (Reeder and Brewer 1979). Whereas attributionally complex individuals can use either complex or simple schemata in explaining behavior, low-complexity individ- uals are restricted to using simple schemata. Explanations of the overattribution effect have appealed to the notion of the lazy processor (Taylor 1981;

Tetlock 1985). For example, Reeder and Brewer (1979) suggested that in the attitude attribu- tion paradigm, subjects tend to misapply the overlearned rule that acts correspond to dispositions. This rule works in most settings (Jones, & Harris, 1967); without specific cues that the rule may be inappropriate, subjects are efficient information processors. Fletcher et al. (1986) recognized that it is impossible for people to produce complex explanations for all behavior, and argued that motivation may be the type of cue that would stimulate careful information processing. Indeed, Tetlock (1985) found that motivation, operationalized as personal accountability, encouraged subjects to be discriminating and complex information processors who recognized that behavior is only sometimes diagnostic of underlying attitudes or dispositions. In addition, information that contradicts expectancies also seems to motivate complex information processing. For example, when subjects expect an essay writer to have an extreme attitude and when the essay prepared is relatively weak, subjects question the extremity of the essayist's attitude (Jones et al. 1971). When motivation is lacking, Fletcher et al. suggested that both high- and low-complexity people are likely to use simple attributional schemata or heuristic rules to generate causal explanations (e.g., that behavior corresponds to dispositions). Thus they suggested that differences between high- and low complexity people are likely to be evident when people have both the motivation and the time to engage in attributional processing. Although their research was devoted to developing and validating the attributional complexity scale, Fletcher et al. made a specific prediction with regard to the over attribution effect (or fundamental attribution error, as they cited it). They predicted that "complex individuals are less prone to this error than people with simple attribution schemata" (p. 883).

### *2.5. Social Perception*

Social Perception is the process by which we form impressions of other people and make inferences about them. For example, on the first day of a new class, when the professor walks into the room, I may perceive him to be short, poorly dressed, and socially awkward; he may initially remind me of previous teacher I didn't like. But later on, once I have gathered more information, I may re-evaluate him as humorous, intelligent, and an excellent teacher.

To know the minds of others, we must attend to and perceive the available cues, whether in their verbal or nonverbal behavior, that contain information about their inner qualities. The field of social cognition emerged from the study of this process of person perception, which focused on the perceiver's ability to discern others' states (e.g., emotions) and traits (Jones et al. 1971).Researchers in this tradition have generally assumed that cognitive representations of actors (and of the contexts in which they behave) mediate behavioral responses to the social world (Fiske & Taylor, 1991). These representations confer meaning onto the sensory input that is received, and in so doing, they potentiate corresponding responses. In short, thinking is for doing.

## 3. Methodology

The present study will be designed in three major phases. The first phase includes an array of different steps to design and validate attributional complexity scale. This phase starts by designing the scale and proceeds by administrating the scale and determining its validity in Iranian context accordingly. The second phase is finding the relationship between participants' attributional complexity and their age as well as their gender. In the last stage, social perception of English and non-English

students is investigated to find out whether knowing another language affect on peoples social perception.

### *3.1. Participants*

In the first phase, a community sample of 200 EFL university learners comprising 115 females and 85 males participated in this study for the scale validation of Attributional Complexity Scale with no expectation of incentives. In all, the age of all the participants ranged from 22 to 40 years. All participants were advanced students of different fields of English language study like English Translation, English Teaching, and English Literature. They held degrees ranging from undergraduate student to PhD (45), undergraduate students to MA (55), MA degree (85), and BA degree (15). The questionnaires before and after validation were distributed among EFL learners of various institutes and universities in Borujerd namely Science and Research University of Borujerd Branch, Azad University of Borujerd, Ayatollah Borujerdi University, Pardis English Institute. Finally, the study took 5 months to be completed and was held at different private language institutes and universities of Borujerd

### *3.2. Instrumentation*

In the first phase of gathering data for validation of Attributional Complexity Scale, the proposed questionnaire was distributed among EFL participants. But in the second phase the participants were asked to fill out the validated Attributional Complexity Scale regarding their age and gender. These instruments were used for EFL university students.

### *3.3. Procedure*

For the first step of the procedure, the professors of certain classes were contacted and encouraged to cooperate. Then, the questionnaires were distributed among the participants. The

gathered data were put into Statistical Package for Social Sciences (SPSS), to be analyzed.

Rasch rating scale model (RSM) and Exploratory Factor Analysis (EFA) with principal component analysis and varimax rotation was run. Factorability of the scale was examined based on Bartlett's test of sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy. To discover the relationship between students' attributional complexity and their gender independent-samples t-test was run. Pearson Product-Moment Correlation coefficient formula was used to find the relationship between students' attributional complexity and their age.

### *3.4. Data Collection and Analysis*

The advanced participants from various universities and institutes of Borujerd took part in the present study after their class hours or in the break time between classes. Collection of the data happened from April to July of 2014. Regarding to validating attributional complexity scale, the process of data collection took place in two different phases: before validation and after that. Indeed, the respondents had to indicate their extent of agreement on the 5-Likert Scale of attributional complexity scale ranging from 1 (strongly disagree) to 5 (strongly agree). In order to design and validate Attributiona Complexity scale, Racsh model and Exploratory Factor Analysis were used. To find the relationship between Iranian EFL learners' attributional complexity with their age and gender independent-samples t-test were run. Pearson Product-Moment Correlation coefficient formula was used. Also, to find out the effect of learning another language on people's social perception independent-samples t-test was used.

## 4. Results

Participants were requested to respond to five Likert-type statements dealing with different items to assess participants' attributional complexity (Appendix I). After validation, in the second stage participants were asked to reply the validated scale (Appendix II). Then, the effects of their age and gender were studied. Also, the effect of learning another language on students's social perception was investigated. The findings were structured along with the following list of research questions

1) Does the attributional complexity scale enjoy psychometric properties for assessing EFL students' attributions?

First, the uni-dimensionality of the scale was assured through Rasch measurement model using Winsteps software. Item separation index was 5.29 with an item reliability of .97, and a person separation index was 3.21 with a person reliability of .92, which shows that measurement was acceptable.

According to Bond & Fox (2007) items which do not fit the Rasch model have outfit and infit mean square (MNSQ) indices outside the acceptable range of 0.70-1.30. Misfitting items show multidimensionality and should be deleted for further analysis. Results can be seen in Table 4.1. As Table 1 indicates there is only one item which did not fit (item 33). This item was deleted for further analyses.

**Table 1. Rasch model results for attributional complexity scale**

| ENTRY NUMBER | TOTAL SCORE | TOTAL COUNT | MEASURE | MODEL S.E. | INFIT MNSQ | INFIT ZSTD | OUTFIT MNSQ | OUTFIT ZSTD | PT-MEASURE CORR. | PT-MEASURE EXP. | EXACT MATCH OBS% | EXACT MATCH EXP% | ITEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 623 | 172 | .29 | .04 | 1.29 | 3.5 | 1.30 | 3.5 | A .22 | .30 | 14.5 | 15.8 | AC26 |
| 3 | 1077 | 183 | -.49 | .06 | 1.27 | 1.9 | 1.29 | 1.9 | B .15 | .21 | 27.3 | 27.7 | AC3 |
| 10 | 921 | 178 | -.18 | .04 | 1.20 | 2.0 | 1.26 | 2.4 | C .26 | .26 | 15.2 | 20.5 | AC10 |
| 35 | 837 | 190 | .08 | .04 | 1.24 | 3.1 | 1.21 | 2.6 | D .40 | .34 | 12.8 | 15.0 | AC35 |
| 4 | 1074 | 184 | -.47 | .05 | 1.07 | .6 | 1.15 | 1.0 | E .17 | .21 | 26.6 | 27.4 | AC4 |
| 8 | 764 | 182 | .13 | .04 | 1.10 | 1.3 | 1.14 | 1.9 | F .19 | .30 | 9.3 | 14.6 | AC8 |
| 20 | 987 | 183 | -.27 | .05 | 1.11 | 1.0 | 1.14 | 1.2 | G .15 | .25 | 23.5 | 22.5 | AC20 |
| 6 | 654 | 183 | .31 | .04 | 1.13 | 1.7 | 1.14 | 1.7 | H .25 | .32 | 12.6 | 16.2 | AC6 |
| 1 | 699 | 184 | .24 | .04 | 1.09 | 1.3 | 1.10 | 1.3 | I .31 | .32 | 13.0 | 15.1 | AC1 |
| 30 | 740 | 180 | .15 | .04 | 1.09 | 1.3 | 1.08 | 1.1 | J .36 | .32 | 15.0 | 14.7 | AC30 |
| 27 | 970 | 182 | -.24 | .05 | 1.05 | .5 | 1.09 | .8 | K .26 | .25 | 20.9 | 21.9 | AC27 |
| 18 | 690 | 180 | .23 | .04 | 1.08 | 1.0 | 1.07 | .9 | L .50 | .31 | 11.1 | 14.5 | AC18 |
| 11 | 712 | 183 | .21 | .04 | 1.05 | .7 | 1.05 | .6 | M .34 | .31 | 13.7 | 14.6 | AC11 |
| 22 | 706 | 180 | .20 | .04 | 1.03 | .5 | 1.04 | .6 | N .24 | .31 | 13.3 | 14.4 | AC22 |
| 7 | 884 | 182 | -.07 | .04 | 1.02 | .2 | 1.04 | .5 | O .19 | .28 | 15.9 | 17.9 | AC7 |
| 13 | 641 | 180 | .31 | .04 | 1.02 | .3 | 1.04 | .5 | P .31 | .31 | 11.7 | 16.2 | AC13 |
| 32 | 1008 | 189 | -.24 | .05 | 1.03 | .4 | .98 | -.1 | Q .27 | .26 | 24.3 | 21.8 | AC32 |
| 19 | 959 | 178 | -.27 | .05 | 1.02 | .2 | 1.03 | .3 | R .26 | .25 | 21.3 | 22.5 | AC19 |
| 14 | 885 | 181 | -.09 | .04 | .99 | -.1 | 1.02 | .3 | r .23 | .28 | 23.8 | 18.1 | AC14 |
| 5 | 723 | 180 | .18 | .04 | 1.02 | .3 | 1.02 | .3 | q .33 | .31 | 12.8 | 14.3 | AC5 |
| 24 | 926 | 182 | -.15 | .04 | .96 | -.4 | .99 | .0 | p .31 | .27 | 22.0 | 19.3 | AC24 |
| 12 | 1041 | 181 | -.43 | .05 | .97 | -.2 | .98 | -.1 | o .19 | .22 | 30.4 | 26.5 | AC12 |
| 21 | 944 | 182 | -.19 | .04 | .95 | -.5 | .98 | -.1 | n .24 | .26 | 29.1 | 20.4 | AC21 |
| 34 | 930 | 186 | -.12 | .04 | .98 | -.2 | .97 | -.3 | m .30 | .28 | 18.8 | 19.1 | AC34 |
| 9 | 877 | 180 | -.08 | .04 | .96 | -.4 | .96 | -.4 | l .31 | .28 | 19.4 | 17.9 | AC9 |
| 28 | 979 | 182 | -.26 | .05 | .93 | -.7 | .94 | -.5 | k .34 | .25 | 23.1 | 22.4 | AC28 |
| 15 | 725 | 182 | .18 | .04 | .92 | -1.2 | .94 | -.9 | j .25 | .31 | 20.3 | 14.3 | AC15 |
| 17 | 637 | 179 | .31 | .04 | .92 | -1.0 | .93 | -.8 | i .22 | .31 | 17.3 | 16.2 | AC17 |
| 23 | 920 | 184 | -.12 | .04 | .93 | -.8 | .91 | -.9 | h .37 | .27 | 22.8 | 18.6 | AC23 |
| 16 | 875 | 176 | -.11 | .04 | .88 | -1.3 | .90 | -1.1 | g .29 | .28 | 20.5 | 18.6 | AC16 |
| 25 | 837 | 181 | -.01 | .04 | .90 | -1.3 | .90 | -1.3 | f .30 | .29 | 19.3 | 16.1 | AC25 |
| 2 | 880 | 184 | -.05 | .04 | .89 | -1.3 | .88 | -1.5 | e .39 | .29 | 20.1 | 17.6 | AC2 |
| 31 | 674 | 177 | .24 | .04 | .86 | -1.9 | .89 | -1.5 | d .18 | .31 | 19.2 | 14.8 | AC31 |
| 29 | 673 | 178 | .24 | .04 | .82 | -2.5 | .83 | -2.4 | c .46 | .31 | 20.2 | 15.1 | AC29 |
| 36 | 691 | 189 | .28 | .04 | .80 | -2.9 | .79 | -2.9 | b .34 | .32 | 22.8 | 15.8 | AC36 |
| 33 | 679 | 182 | .25 | .04 | .63 | -5.7 | .64 | -5.4 | a .21 | .31 | 25.8 | 15.5 | AC33 |
| MEAN | 828.9 | 181.6 | .00 | .04 | 1.01 | .0 | 1.02 | .1 | | | 19.2 | 18.2 | |
| S.D. | 137.4 | 3.5 | .24 | .00 | .13 | 1.7 | .14 | 1.6 | | | 5.4 | 3.8 | |

Then, Exploratory Factor Analysis (EFA) for assessing construct validity and Cronbach's alpha for assessing reliability were used.

First, Exploratory Factor Analysis (EFA) with principal component analysis and varimax rotation was run. Factorability of the scale was examined based on Bartlett's test of sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy. Criteria for retaining factors were based on eigenvalues greater than 1, the screeplot, factor loading greater than .40. Items with cross-loadings and low loadings were removed.

KMO statistic was .72 and Bartlett's test of sphericity was significant which indicate that the scale is factorable. Results of EFA (Table 2) showed a four-factor solution for attributional complexity among EFL learners which accounted for 52% of the variance.

**Table 2. Results of EFA for attributional complexity scale**

**Rotated Component Matrix[a]**

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| AC3 | .627 | | | |
| AC27 | .622 | | | |
| AC4 | .601 | | | |
| AC19 | .583 | | | |
| AC24 | .547 | | | |
| AC12 | .544 | | | |
| AC21 | .541 | | | |
| AC10 | .527 | | | |
| AC28 | .515 | | | |
| AC25 | .488 | | | |
| AC18 | | .878 | | |
| AC35 | | .875 | | |
| AC29 | | .859 | | |
| AC17 | | .401 | | |
| AC8 | | | .710 | |
| AC31 | | | .671 | |
| AC1 | | | .616 | |
| AC22 | | | .616 | |
| AC2 | | | .527 | |
| AC15 | | | -.401 | |
| AC5 | | | | .786 |
| AC30 | | | | .768 |
| AC36 | | | | .574 |
| AC11 | | | | .555 |

Then, subscales of the validated attributional complexity scale were proposed. Ten items loaded on first factor. As all the items are related to thinking deeply for doing things, this factor was named deep thinking.

Four items loaded on the second factor. As all the items are related to the impact people can have on other people, this factor was named influence on others.

Six items loaded on the third factor. As all the items are related to lack of intrest in understanding other people's behavior, this factor was named unwillingness to understand people's behavior.

Four items loaded on the fourth factor. As all the items are related to the kind of relation people may have with others, this factor was named relation with others.

Internal consistency of the scale and its subscales was examined with Cronbach's alpha. Results can be seen in Table 3.

**Table 3. Internal consistency of the scale and its subscales with Cronbach's alpha.**

| factor | Cronbach's alpha |
|---|---|
| deep thinking | .74 |
| influence on others | .71 |
| named unwillingness to understand people's behavior | .72 |
| relation with others | .69 |

2) Is there a significant relationship between students' attributional complexity and their gender?

To see whether there is a significant difference between males' and females' attributional complexity, independent-samples t-test was run. Descriptive statistics for both males and females can be seen in Table 4.

**Table 4. Descriptive statistics of the relationship between students' attributional complexity and their gender**

| | gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| ATTRIBUTION.COMPLEXITY | FEMALE | 135 | 109.8505 | 13.60597 | 1.17102 |
| | MALE | 66 | 108.6316 | 12.86906 | 1.58407 |

First, Based on Levene's test, appropriate t was selected. As Table 5 shows, there is no significant difference between males and females ($t= .60$, $df= 199$, $p>.05$). Therefore, males and females do not differ in their level of attributional complexity.

**Table 5. Independent Samples Test of the relationship between students' attributional complexity and their gender**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | |
|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference |
| ATTRIBUTION.COMPLEXITY | Equal variances assumed | .590 | .443 | .607 | 199 | .545 | 1.21886 |
| | Equal variances not assumed | | | .619 | 135.784 | .537 | 1.21886 |

3) Is there a significant relationship between students' attributional complexity and their age?

To answer this research question, participants' age was divided into three groups of 16 to 23, 24 to 31, and 32 and higher. Descriptive statistics and also means plot for these three groups can be seen in Table 5.

**Table 5. Descriptives for three age groups**

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| 16-23 | 63 | 107.9453 | 13.89856 | 1.75105 | 104.4450 | 111.4457 | 82.00 | 139.00 |
| 24-31 | 78 | 109.0310 | 13.89055 | 1.57279 | 105.8991 | 112.1628 | 82.00 | 146.00 |
| 32< | 60 | 111.5755 | 11.91511 | 1.53823 | 108.4975 | 114.6535 | 89.00 | 138.00 |
| Total | 201 | 109.4503 | 13.34861 | .94154 | 107.5936 | 111.3069 | 82.00 | 146.00 |

To see whether these differences are statistically significant, one-way analysis of variance (ANOVA) was performed. Result can be seen in Table 6. As Table 4.6 indicates, there is no

statistically significant difference among the three groups with regard to their attributional complexity [F (198, 2)= 1.20, p>.05].

**Table 6. one-way ANOVA**

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 427.387 | 2 | 213.694 | 1.202 | .303 |
| Within Groups | 35209.696 | 198 | 177.827 | | |
| Total | 35637.084 | 200 | | | |

4) Does learning other language help to increase social perception of the learner?

To answer this research question, independent-samples t-test was used (Table 7). First, descriptive statistics for both groups are shown in Table Table 7.

**Table 7. Group statistics for both English and non-English students**

| | major | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| AC | NON-ENGLISH | 201 | 116.3850 | 14.22693 | 1.00349 |
| | ENGLISH | 201 | 137.5511 | 15.75086 | 1.11098 |

As Table 7 indicates, there is a statistically significant difference between English and non-English major students with regard to their attributional complexity [t (400) = 14.13, p<.05). As the mean of the English major (137.55) is higher than that of the non-English students (116.38), it can be said that English major students have a higher social perception than non-English students. In fact, learning another language will increase students' social perception (Table 8).

**Table 8. Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | |
|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference |
| AC | Equal variances assumed | 2.334 | .127 | -14.138 | 400 | .000 | -21.16610 |
| | Equal variances not assumed | | | -14.138 | 395.928 | .000 | -21.16610 |

## 5. Conclusions and Discussions

The present study aimed at finding out whether or not Attributional Complexity Scale is valid in Iranian context. To this goal, four research questions were posed. The first question asked whether the attributional complexity scale enjoy psychometric properties for assessing EFL students' attributions. By analyzing the results reported in table 1, some items that weren't valid, omitted from the proposed scale. Then, the uni-dimensionality of the scale was assured through Rasch measurement model using Winsteps software to validate and confirm a model. Exploratory Factor Analysis (EFA) for assessing construct validity and Cronbach's alpha for assessing reliability were used. Then, subscales of the validated attributional complexity scale were proposed. In this phase of study, the validated scale was distributed among EFL participants in order to answer the next two research questions. The second question, however, dealt with finding out the relationship between students' attributional complexity and their gender. To see whether there is a significant difference between males' and females' attributional complexity, independent-samples t-test was run. The results showed that EFL advanced participants' gender do not have any effect on their attributional complexity. And the third research question asked whether there is a significant relationship between

students' attributional complexity and their age. To see whether these differences are statistically significant, one-way analysis of variance (ANOVA) was performed. The results demonstrated that the age of the participants do not have any effect on their attributional complexity. At last, to find whether learning other language help to increase social perception of the learner independent samples t-test between English students and non-English students showed that English major students have a higher social perception than non-English students. As a matter of fact, a kind of improvement in social perception can be seen among those who know another language.

The findings of the present study are to a large extent in line with the studies conducted by Hamilton 1980, Harvey et al 1981b, Funder 1982. These theorists at least imply that people's age and gender are rarely affected on their distinctions in their attributional activities. Also, Fletcher and colleagues (1986) developed the so called Attributional Complexity Scale (ACS) in order to capture individual differences in the propensity to generate complex explanations to the behaviors of others. But there is little evidence one way or another on the possibility of the influence of people's age and gender on their judgments of others behaviors.

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