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AMBIGUITY INTOLERANCE OF UNIVERSITY STUDENTS FROM RAWALPINDI/ISLAMABAD

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Abstract

The idea of understanding how young people deal with ambiguity inspired the present research. A survey from 200 social sciences undergraduate students was conducted from two universities of Rawalpindi and Islamabad: Foundation University Rawalpindi Campus (FURC), and National University of Sciences and Technology (NUST), Islamabad. By employing a convenient sample technique, an equal number of students with equal gender representation were selected. Budner's scale for ambiguity intolerance was used to collect the data. The overall result showed that among the selected students, the students from FURC have higher ambiguity intolerance in comparison to students from NUST. Concerning gender, female students from both universities were more intolerant towards ambiguity as compared to their male counterparts. The major source of ambiguity intolerance, in the case of female students of FURC, was the complexity and for female students of NUST, it was novelty. Among male students, the major source of ambiguity intolerance in both universities was complexity and insolubility. Due to convenient sampling, the results of the study cannot be generalized. However, the findings of the study can act as a starting point to explore the topic with more rigorous researches.

Keywords
Ambiguity Intolerance, Novelty, Complexity, Insolubility, Budner Scale

1. Introduction

Ambiguity Intolerance of University Students from Rawalpindi/Islamabad:

In life, we come across many situations that are novel, uncontrollable that we never encountered before. We have to cope with these situations which are sometimes exciting or threatening. The people who cannot bear uncertainties either avoid such ambiguous situations or they experience anxiety and intense psychological discomfort. Different definitions and theoretical debates are available around the concept of ambiguity. Nonetheless, for ambiguity intolerance, Budner (1962) was the first one to give this concept (Furnham, 1994; Furnham & Ribchester, 1995). He defined it as "the tendency to perceive ambiguous situations as sources of threat" (Budner, 1962). The literature in social sciences has explored uncertainty and ambiguity through various standpoints. For example, recent studies focus on this topic concerning project management (Walker *et al.,* 2017), energy governance (Kovacic & Di Felice, 2019), climate change (Bosomworth, & Gaillard, 2019), and very recently the Covid-19 pandemic (Durodié, 2020). When it comes to youth, the students and ambiguity have a close relationship with each other. In a student's life, students encounter many ambiguities in the form of quizzes, assignments, and projects which are assigned to them in different courses. It is very essential to overcome such situations without losing a nerve. Ebeling & Spear (1980) conducted an experiment to look for ambiguity tolerance of undergraduate students. They concluded that students who were more tolerant of ambiguous situations performed well on problem-solving tasks as compared to those with lower ambiguity tolerance. Similarly, the study of fashion design students showed that creative individuals exhibit a high level of ambiguity tolerance than individuals who are less creative (Robinson *et al*., 2019). Concerning the medical students, a study found out that the vulnerability to stress and poor coping was the reason for over concern about the mistakes and the intolerance of ambiguity (Leung *et al*.,2019). The review of the existing body of literature showed that the main focus of the concept of tolerance of ambiguity was mainly on students, entrepreneurs, and teachers. Yet, most of the scholarly literature available on the topic focused on western countries. The present research aimed to fill the gap and ventured a small effort from the context of Pakistani universities. The study used the classic concept of ambiguity tolerance and its corresponding scale (Budner, 1962). The components of the scale such as novelty, complexity, and insolubility hold relevance to the present research. Despite being old, this scale has been widely used in recent researches (Robinson *et al*., 2017; Robinson *et al*., 2019; Rosiers & Eyckmans, 2017). The current research aimed to determine the attitude of the undergraduate students, from social sciences, towards ambiguity when they have some problem-solving situation. The literature already established a relationship of tolerance of ambiguity with arts and social sciences (Budner, 1962; Robinson *et al*., 2019; Stoycheva, 2010; Tatzel, 1980). Therefore, to replicate the study in Pakistan's context, we also gather data from social sciences students of the selected university. This data could provide insight into how the students of the social

sciences differ within their group with respect to their institutions and gender. The research dealt with a very small sample which was collected conveniently from two universities: Foundation University Rawalpindi Campus (FURC), and National University of Sciences and Technology (NUST), Islamabad. Yet, it can be used by the researchers, teachers, and parents as a starting point to understand the attitude of students when they deal with the novel, complex, and insoluble situation(s).

2. Literature Review

The current literature on tolerance of ambiguity provides an understanding of the concept for age (Van Den Bos & Hertwig, 2017) and gender (Li & He, 2016; Aksoy, 2019). It is pertinent to look at how the concept has evolved over a while (since its inception in the year 1962 to the year 2019) and what insights we get on the concept concerning learners. The term ambiguity is often used interchangeably with uncertainty (Budner, 1962; Mosca *et al*., 2018; Norton, 1975). Norton (1975) highlighted that there was not much difference between the two terms. Uncertainty is a mental condition resulting from an encounter to ambiguity arising situation, event, or interaction (Schere, 1982). Similarly, ambiguity is also akin to the same specific mental state. The closely knitted concept of tolerance of ambiguity and uncertainty was described by Ely (1989), that the ambiguity tolerance is the acceptance of uncertainties. In-line with the concept, White (1999) viewed ambiguity tolerance as a reaction to uncertainties for avoiding its negative effect on the progress. The concept of ambiguity intolerance was introduced by Budner (1962). His work in the area was a major breakthrough. By defining ambiguity intolerance as a tendency of perceiving and interpreting ambiguous situations as a threat, he suggested three major sources of ambiguity:

- *Novelty*, also called newness or uniqueness ("no familiar cues"), situations that are new for an individual which he never confronted before.
- *Complexity* (“great numbers of clues”), situations that are difficult to deal with unclear information.
- *Insolubility*, ("cues suggest different structures"), information or situation that is mysterious and cannot be explained by previous knowledge.

Stoycheva (2003) elucidated that individuals' experience in an ambiguous situation is the determining factor in their degree of tolerance and intolerance towards ambiguity. Through this, their reaction in ambiguous situations can be predicted. Frenkel-Brunswick (1949); Furnham & Ribchester (1995) pointed out that individual differences towards tolerance of ambiguity are apparent through the representation, direction of actions, and the effect of these actions on their situation. Ilardo’s (1973) argument in the same vein was that the individuals protect themselves from information by withdrawing themselves and by getting involved in different groups and group ideologies. They show low critical ability (Feather, 1967) and interact with only those partners who are familiar with their perception. The research that highlighted creativity in individuals identified that an individual can perform creatively when he is open to new

experiences and avoids relying on early conclusions. When he encounters a vague problem, it is to be kept in mind that he should not skip to effortless task achievement (Torrance & Safter,1999). In a similar vein, ambiguity tolerance was associated with liveliness in adults. The results were consistent with a creative personality that portrays impulsivity, openness, and instincts (Tegano, 1990). Concurrently empirical findings propose that ambiguity makes people think twice from taking one of two sides of a bet because oblivious knowledge is distressing and alarming (Heath & Tversky, 1991). It is suggested by the evidence that people with higher ambiguity tolerance match to the Budner definition (Davis & Sherman, 1987). The relevance of ambiguity tolerance with openness suggests that both traits are similar to one another in nature (McCrae, 1996). According to John & Srivastava (1999), openness means honest, wide, and higher mental and pragmatic life. The researchers tried giving various explanations for the relationship of ambiguity tolerance to social and psychological differences of individuals. The individuals with lower tolerance of ambiguity were rigid in their cognitions (MacDonald, 1970; Tatzel 1980). The lower tolerance of ambiguity was related to inflexible roles and dim view towards life (English, 1971; Galbreath & Feinberg, 1973; MacDonald 1970). Trow (1977) related ambiguity tolerance to status frustration. According to Hassan & Khalique (1981), tolerance of ambiguity was related to anxiety. Keenan & McBain (1979) associated it with mental stress and the need for structure (Budner, 1962; Chabassol & Thomas, 1975). Some people are very rigid in their mental structures. If these structures are isolated there is very little chance of projection or conflicting information (Arnold, 1999; Ehrman, 1993). Individuals who can tolerate ambiguity tend to see the world with fewer difficulties. Elaborating the concept further, the researchers related the concept of ambiguity tolerance to cognitive complexity. It gives individuals consent to deal with the complex situations by detecting pertinent information. Then, the individual assimilates this information in multifarious means by applying strategies on the difficult tasks (Amernic & Beechy, 1984). Furthermore, individuals who can tolerate ambiguity should outperform in novel and multifaceted learning conditions. Whereas those who are intolerant may surrender or escape from uncertain situations (Jonassen & Grabowski, 1993). Intolerance of ambiguity, however, does not only confine to the intrinsic motives and motivation only. The external pressure also affects the amount of time that an individual can allocate for exploring problems and deliberation on solutions.

The external pressures could prevent the individual from trying out alternatives which can lead to a creative resolution of the problem (Amabile, 1990; Sternberg & Lubart, 1995). The researchers (Einhorn & Hogarth, 1985; Ghosh & Ray, 1992) found that when we have to choose something under uncertainty, the most essential thing is how we react to risk and that ambiguous situation. The choice of subject also corresponds to tolerance of ambiguity. Budner (1962) established that students who have higher tolerance of ambiguity tend to choose the medical field that is unstructured (psychiatry). Whereas students with low tolerance of ambiguity will opt

for more structured tasks. Tatzel (1980) also suggests that type of education is related to ambiguity tolerance. The students of arts are more ambiguity tolerant (Robinson, Workman, & Freeburg, 2019) than business students (Tatzel, 1980; Stoycheva, 1998). While linking creativity to ambiguity tolerance Sternberg and Lubart (1995) found that when a person does not have a clear-cut solution to the problem or he lacks information regarding that problem, tolerance of ambiguity plays a vital role in the assembling and reassembling of perception and alternative ways. The student life is prone to ambiguity and they have to tolerate that ambiguity to produce beneficial results. In studies by Stoycheva (1998) and Glutnikova (2000), it was found that students who were studying in university had greater ambiguity tolerance as compared to their age mates who are not studying in university. However, other studies did not validate the relation between university attendance and ambiguity tolerance (Kuh, 1976). The tolerance and/or intolerance of ambiguity are related to the personality characteristics and level of performance (Visser, 2003; DeRoma *et al*., 2003; Owen & Sweeney, 2002). The review of literature on tolerance of ambiguity depicted that some researchers defined it as a personality trait (Jach & Smillie, 2019) but most of the researchers took it as a cognitive trait (MacDonald 1970; Tatzel 1980). It can be concluded that the need for tolerance of ambiguity is desired for the psychological well-being and development of an individual. Therefore, as the first step to the discussion, the present study was conducted to understand the ambiguity tolerance of the students from the selected universities. It fills the research gap on tolerance of ambiguity for data from Pakistani students. The study looked at the concept concerning gender and different institutions where students were studying. The present study sought to understand the selected students' attitude towards new situations (novelty), the situations where multiple cues were required to solve the problem (complexity), and the situations which were paradoxical with multiple cues having multiple implications (insolubility). It further identified how the students from the selected universities (FURC and NUST) differ in their attitude towards ambiguity. It also detected if the tolerance of ambiguity with regards to the gender dimension.

3. Method

The present study was a quantitative study that aimed at exploring respondents' attitudes towards tolerance of ambiguity through survey method. The sample was drawn from the students of the social sciences from Foundation University Rawalpindi Campus (FURC) and the National University of Sciences and Technology (NUST). The sample was conveniently selected from respective universities. The data was gathered from overall 200 students; 100 from FURC and 100 from NUST with equal gender representation from both institutions. This number excluded non-responses and incomplete questionnaires (N=48). Participation in the survey was completely voluntary.

3.1.The Instrument: Budner's Scale

The participants were asked to complete Budner's scale of ambiguity intolerance (1962) with some demographic information. The questionnaire

consisted of sixteen items that were focused on three areas as the source of ambiguity: novelty (Questions number: 2, 9, 11, 13) complexity (Questions number: 4, 5, 6, 7, 8, 10, 13, 14, 15, 16) and insolubility (Questions number: 1, 3, 12).

For responses, a 7-point Likert scale was used, where 1 represented strongly disagree and 7 represented strongly agree. As instructed in the scoring of the scale, scores of even-numbered questions were reversed. Therefore, 1 became 7, 2 became, 6, 3 became 5, 4 remains the same, 5 became 3, 6 became 2, and 7 became 1. After reversing the score of all even-numbered questions, the sum of all 16 questions was calculated. The score represented the level of tolerance and intolerance of every respondent.

The average score of the scale identified by Budner (1962) was 56. When respondents get a higher score, it means that they have intolerance of ambiguity and vice versa. The intolerance of ambiguity showed that the person was not comfortable with a lack of information and uncertainty. The person feels threatened than looking at new prospects or opportunities. On the contrary, the low score than the standard average reflected high tolerance of ambiguity. Here new or/and complex situations were taken positively and as an opportunity to reflect based on someone's instincts and knowledge.

These scores were accumulated based on their gender and institutions to show a comparative picture.

4. Findings

The standard average for the tolerance of ambiguity score was 56. The higher average score of FURC students reflected ambiguity intolerance. As shown in Figure 1, the average score by female students of FURC was 63.82 and 61.86 for male students. In the case of NUST students, the average score was closer to the standard average. The score of females was slightly higher at 56.94 than the standard average. In the case of male students, it was lower than the standard average, 55.86. The result showed that the overall female students had a relatively low tolerance of ambiguity as compared to male students. Moreover, the students of FURC had higher ambiguity intolerance when compared to NUST students.

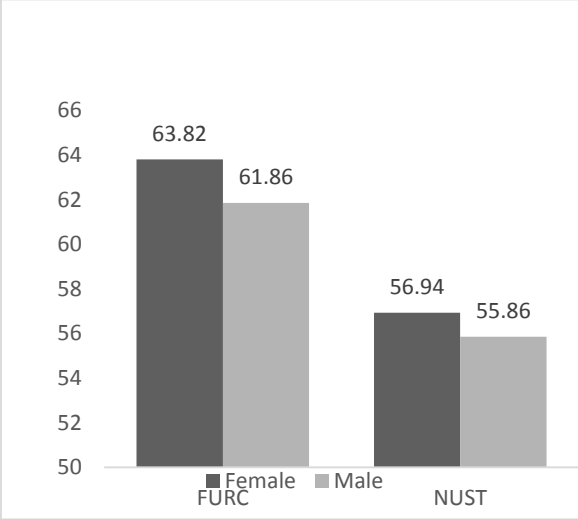

Figure 1: Ambiguity Intolerance among University Students

To identify what source of ambiguity within the scale was dominant, the researchers looked at the data for each source (novelty, complexity, and insolubility) separately. The data showed major sources of tolerance and intolerance of ambiguity among students of FURC and NUST. The overall score for all respondents on the questions pertaining to novelty was 3,277 (Female= 1,674, Male= 1603). The overall score for complexity related questions was 6,352 (Female= 3,202, Male= 3,150). The overall score for insolubility

questions was 2,289 (Female= 1,162, Male= 1,127).

Figure 2 showed a comparative analysis of the ambiguity intolerance on the scale of Novelty, Complexity, and Insolubility.

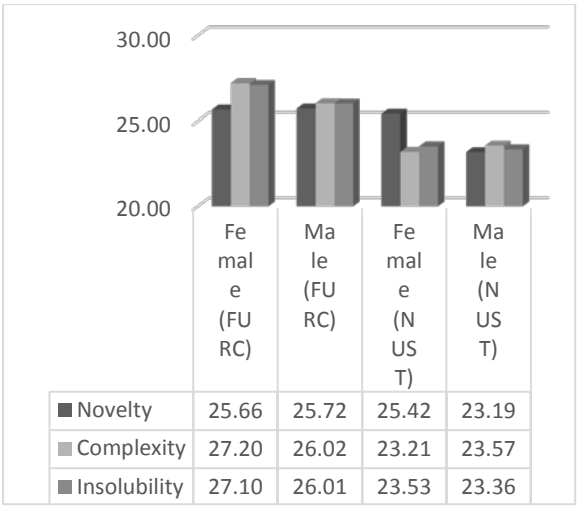

Figure 2: Sources of Ambiguity Intolerance among Students

With respect to institution and gender, in the case of female students of FURC, the major source of intolerance of ambiguity was the complexity of the situation (27.20%, 1728)

which was closely followed by insolubility (27.10%, 622)? The data of male respondents of FURC showed that complexity (26.02%, 1653) and insolubility (26.01%, 597) were the major sources of intolerance of ambiguity. The novelty was handled relatively with more tolerance (25.72%, 843). However, the contrast between complexity, insolubility, and novelty was not as striking as reflected through the results of the responses of Female students of FURC.

The scoring percentage of female students of NUST on the scale of novelty, complexity, and insolubility showed a completely different picture. Here, female students were more intolerant towards novelty (25.42%, 833) as compared to complexity (23.21%, 1474) and insolubility (23.53%, 540). Although there was not much difference between their tolerance of complexity and insolubility, they were relatively more tolerant of complexity. The comparison of female students of NUST with their female counterparts in FURC showed that in general, they were comparatively more tolerant of ambiguity. The responses of the male students of NUST showed that overall they were more tolerant of ambiguity in comparison with their female counterparts at NUST and students of FURC. There was no striking difference in their tolerance towards three major sources of novelty, complexity, and insolubility. However, complexity is the major source (23.57%, 1497) of low tolerance followed by insolubility (23.36%, 530) and novelty (23.19%, 760).

5. Discussion and Conclusion

The tolerance and intolerance of ambiguity reflect how people perceive different ambiguous situations. Are they scared by ambiguous situations? Or do they take them as opportunities to exercise their creativity and chances to deliberate on situations and evaluate available information for exploring new avenues for resolving the complexity? The answer depends on the dominant reaction; tolerance or intolerance. As Budner (1962) put it, the tolerance of ambiguity is the thinking pattern of people concerning their perception of situations which are characterized by novelty, complexity, or insolubility. The present research used the scale by Budner (1962) to determine the attitude of university students towards uncertain and

ambiguous situations. It is pertinent to find out about students' attitudes because ambiguity makes people very cautious about their choices before taking the bet because hidden information is distressing and alarming (Heath & Tversky, 1991).

With respect to institutions, the students of FURC had higher intolerance to ambiguity than the students from NUST. The overall data showed that the major source of ambiguity intolerance, irrespective of institution and gender, was complexity. In the order, it was followed by novelty and insolubility. We suggest that the main aspect of ambiguity intolerance, that is complexity, can be addressed through: a) Clear guidelines by the teacher while sharing a task with students. b) The students can also be trained to deconstruct the structure of the instructions given to them by the teacher. c) They can be guided to identify different components within the instructions to understand the grading criteria. d) The use of rubrics for clarifying marking criteria can be one of the ways to reduce complexity in instructions, especially for a subject that requires creativity (Marvaniya *et al.*, 2018; Vincent-Lancrin *et al*., 2019; Zedelius *et al.*, 2019; Zlatkin-Troitschanskaia *et al*., 2019). The existing research (Li & He, 2016) already identified gender differences for ambiguity intolerance. The males were generally found to be more tolerant of ambiguity than females (Aksoy, 2019). The present study also identified the same pattern. However, the underpinning factors for the intolerance were different for female and male students. The female students generally take complexity as a threat to their understanding of the situation. The novelty of the situation posed as an opportunity, yet, the pressure of insolubility was higher. The higher intolerance to ambiguity reflected that, among the female participants, clear cut guidelines and instructions were very important. The data of the specific questions showed that a proper schedule, clarity of the work to be done, small and simple problems, lucidity of answers and polices were very important to them. The analysis of novelty showed that the female students of NUST take novel situations as a threat. The analysis of the questions on novelty, in the scale, reflected that settling to new places, unfamiliarity with the situation or problem, irregular life and unexpected happenings and gatherings where they have to

deal with strangers can create intolerance. The result on the complexity scale showed that female students of NUST had the highest tolerance of ambiguity in comparison with their male counterparts in NUST. They also scored higher than male and female students of FURC. Moreover, it is important to note that intolerance of complexity, in male students of NUST, was comparatively very low than male and female students of FURC. On the scale of insolubility, male students of NUST showed the highest tolerance as compared to their counterparts in NUST and FURC. The analysis of the questions related to insolubility showed that male students of NUST were more tolerant of the problems posed to them for resolution. They showed their agreement to statements that pose insufficient information for solving a problem as an opportunity. For future research on this topic and with specific reference to Pakistan, the researchers can gather the data from different universities across Pakistan. This scale can be

used to study tolerance of ambiguity beyond academic settings as well depending on the relevance of this concept in other domains. They can combine the tolerance of ambiguity scale with other scales to get deeper understating. The useful scales in this regard could be, communication apprehension, socio-cultural adaptation, academic performance, and psychological disorders, to name a few. Besides, teachers and parents should create an environment that enhances creativity and innovation in students. The environment should be conducive to practice dealing with ambiguous situations and how to turn them into opportunities for creating knowledge and new experiences. The students should be trained to gather information on their own, along with some clear guidelines, so they can know how to tap the information available from multiple sources. The complexity of the situation and insolubility is creating a threat for students in their learning. They should be trained to decipher and dissect information so they can reduce the stress related to ambiguity. The students should strengthen their coping strategies to address the stress created due to ambiguity. The ambiguous and complex situations should be taken as a part of the learning process rather than a situation that leads to success and failure only. Pertaining to this, developing a reading habit is very important. The knowledge which is driven from reading and other visual and oral information opportunities helps in developing the knowledge database and coping strategies for dealing with the stress related to uncertain and ambiguous situations. Therefore, students should allocate some time during the day for this activity.

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