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Assessing The Reliability of Human Social Scoring System and Its Wireframing: A Scientific Study in The Realm of Human Computer Interaction

Javaria Khalid[1,4], Aneela Abbas[1], Rida Akbar[2], Muhammad Ali Javed[2], Rabbia Ijaz[3], Amna Khalid[4], Aminah Ali[5], Abdullah Faseeh[5], Faiza Mouqadas[4]
[1]

Abstract:

Social interaction lies at the heart of any society, driven by mutual influences among individuals. An innovative concept, "The Human Social Scoring System (HSSS)," has been proposed to establish a social ranking system that assesses individuals' social conduct and assigns them scores. Today, various products, services, apps, movies, and more are reviewed and rated to inform decision-making.This research introduces the concept of scoring individuals, which facilitates the formation of opinions about their social standing. The study's primary objective isto investigate if a person's score or rank can impact opinion formation. Do individuals rely on such scores for decision-making? What are the concerns regarding the credibility of reviewers and the review platforms? This research also explores the correlation between online reviews and the reliability of HSSS. To this end,a questionnaire was designed to evaluate the significance, reliability, credibility, and correlation of HSSS, with data collected from 265 diverse-age participants (49% males and 51 % females). Various analysis techniques were used to interpret the data, including ANOVA (analysis of variance), Standard Aggregate Averages,Z-Test, and Pearson correlation. The Z-Test results indicate significant support for HSSS among males and females at a significance level of α=0.05. The Post Hoc test further reveals that support for HSSS is solid among the 31-40 age group.To assess the feasibility of the concept, students were selected as test participants.A detailed wireframe was designed to score and rank them based on personal, professional, and educational behavior. The results strongly endorse the research objectives and align with previous literature.

Keywords: *Human-Computer Interaction; Human - Human Interaction; Human Social Scoring System (HSSS); Social Ranking; Opinion Formation; Wireframing.*

1. Introduction

As technology continues to progress, the realm of social media undergoes constant transformation, causing shifts in our perspectives and perceptions. Nowadays, it has become the norm to spend time conducting online research and engaging with other consumers before making purchasing decisions [1]. In the past, the opinions of friends and family played a significant role in purchase decisions. However, things have changed drastically. Nowadays, when it comes to buying anything, whether it's a luxury car or hiring housekeeping services, spontaneity has been replaced by well-informed decisions backed by personal recommendations and online reviews.

[1]Department of CS, University of Chenab, Gujrat. Pakistan;

[2]Lecturer, The University of Lahore & PhD Scholar, University of Education Lahore Pakistan;

[2]MS Scholar, University of Bergen, Norway;

[3]Department of CS, University of Engineering & Technology, Lahore, Pakistan;

[4]Department of CS & IT, Government College Women University Sialkot, Pakistan;

[5]Department of CS, University of Punjab, Pakistan;

Nevertheless, negative electronic word-of-mouth poses significant challenges. Products and services are ranked based on reviews and recommendations, with the highest scoring ones being highly recommended, and vice versa [2] [3]. This paper introduces the concept of the Human Social Scoring System (HSSS), inspired by the "Nosedive" episode of Black Mirror. The HSSS involves a social rating system that encourages people to exhibit exemplary behavior in their social circles.China's Suzhou city takes inspiration from the "Nosedive" episode and implements a similar system called the "Civility Code" through a new application [4].

1.1 Problem statement

The idea of scoring social behavior, as depicted in the web series, is remarkably close to reality, and China has embraced this concept. The Chinese government has launched an application to rate social conduct and enhance the socioeconomic standing of its citizens. 'Data aggregators will track comprehensive information on shopping and financial transactions. The Human Social Scoring System, which is successfully practiced in the UK and China, is a novel rating system used to score and rank individuals [5]. Various techniques are employed to assess employee performance and behavior based on their social profiles [6].

The concept of Human Social Scoring entails a society where individuals are rated based on their behavior and interactions following social interactions. Those with higher social ratings are perceived as more credible and trustworthy. This ranking system can be beneficial for the government in various aspects,such as determining eligibility for air travel, admissions to prestigious institutions, job applications, and access to perks and amenities. Conversely, individuals with low scores can be identified by authorities as potentially problematic due to their questionable records, eventually placing them in a gray area or even a blacklisted category. Similar to the practice of scoring and ranking car rental services like Uber and CREAM based on customer reviews, many people heavily rely on and are greatly influenced by community-providedreviews [7]. The objective of this study accounts for:

1. The Significance of online reviews in opinion formation.
2. The Reliability of the people upon the scoring and ranking given by the other people.
3. The concern of the people about the credibility of reviewers, and the forums used to give reviews.

To evaluate the significance, reliability, and credibility of the Human Social Scoring System (HSSS),a questionnaire was distributed to a sample of 265 respondents. The data collected from the respondents were then categorized based on different confounding variables including 'Gender' and 'Age. Out of the total respondents (131), 49.4% are males and (134) 50.6% are females, all belonging to different age groups

i.e. (144) 54% are between 21 to 30 yrs., (36) 14% are under 20 yrs., (33) 13% are between 31 to 40 yrs., (27) 10% respondents are between 41 to 50 and (25) 9% are above 50 years. After analyzing the data from 265 respondents, the correlation between online reviews and the reliability of the Human Social Scoring System (HSSS) was calculated. The results, obtained through a Z-Test, indicate that both male and female respondents significantly support HSSS and acknowledge its credibility at a significance level of $\alpha =$

0.05. Furthermore, in the Post Hoc test, it was found that the age group of 31-40 years exhibited a stronger inclination towards HSSS and its credibility. Moreover, Pearson correlation analysis revealed a relationship between different variables, with the highest correlation value of 0.917 observed between the significanceof online reviews and the reliability of HSSS.

This research focuses on utilizing students as a test group to implement the Human Social Scoring System (HSSS), which assesses and assigns scores based on their academic, domestic, and professional conduct. Additionally, a high-fidelity wireframe was developed to create a blueprint of the app, enabling the evaluation, and ranking of students. To establish their social scoring profiles, students are required to register using their national ID cards, and a virtual ID is assigned for authentication purposes. Higher-rated students have the advantage of gaining admission to prestigious educational institutions and accessing better job opportunities. Consequently, the social score becomes the key factor in determining their eligibility and suitability for numerous opportunities. However, this study may face criticism as it has the potential to marginalize certain students by limiting their chances of admission to top-notch universities and restricting their access toother opportunities. Proponents argue that implementing such a social scoring app can contribute to a more respectful and civilized society. Conversely, critics argue that such a system may marginalize individuals with lower scores, depriving them of diverse opportunities.

The subsequent sections of the paper are structured as follows: Section 2 provides a comprehensive literature review, examining various background studies relevant to the Human social Scoring System. Section 3 outlines the research methodology employed in the study. Section 4 presents the evaluation of the hypotheses, while Section 5 discusses the findings obtained from various statistical techniques and presentstheir results. In Sections 6 and 7, the implementation of the Human Social Scoring system is discussed, along with its limitations. Finally, Section 8 concludes the entire study, summarizing the key findings andimplications.

2 Literature Review

In their study [8], the authors proposed a social credit system that relies on a Decision Support System to generate credit scores for borrowers. These credit scores, as explained in [9], are numerical expressions derived from analyzing individuals' credit files, reflecting their creditworthiness. Credit rating is widely acknowledged as a crucial method for assessing an individual's creditworthiness, and financial institutionsmake use of credit scoring to distinguish between good and bad borrowers. Typically, a good borrower is someone who consistently repays their loans. The creditworthiness of individuals plays a vital role in the decision-making process of financial credit firms when providing loans. In today's context, credit firms have the advantage of utilizing social network information to assess risk. Additionally, an individual's social standing can be determined through various data sources and techniques, including online social networks. Social scoring has a significant impact on people's lives, with businesses now monitoring the online behavior of millions and billions of individuals to predict their repayment behavior. Notably, China has been expanding its "social credit" system, which restricts individuals with low scores from taking a plane and train rides [10]. Interestingly, there are similarities between the Chinese social credit system andthe concept depicted in the Republic of Black Mirror, where individuals are assigned scores based on theirbehavior, which can either increase or decrease [11].

Black Mirror is an exceptional British anthology series that explores intriguing concepts. It takes cur-rent phenomena such as talent shows, the influence of social media, and smartphones in our daily lives as a starting point and imagines their development in the future, showcasing how they could impact our day-to-day actions. Beyond being a science fiction series, Black Mirror carries a deeper message and introducesthe idea of scoring human social behavior through a social scoring app. In this envisioned future, people areassigned ratings based on their social interactions, resulting in a numerical score. For instance, individualswith a score of 4/5 would have easier access to luxurious apartments compared to those with lower scores.However, it's important to note that even individuals belonging to privileged sections of society can experience a decrease in their scores if they display poor behavior or lose their temper during social interactions.This concept highlights the significance of social behavior and its impact on an individual's overall rating,irrespective of their social status [12]. Social networking platforms such as Facebook and Twitter provide

users with the opportunity to connect with each other and share their opinions, views, and reviews within virtual communities. Decatur [13] highlights that opinion leaders tend to utilize various media sources andhold a significant influence over others. This process of opinion formation is also influenced by the information presented by the media and how it is framed [14]. The media plays a crucial role in interpreting, analyzing, and presenting information, which can amend the existing perspectives and beliefs of the audience. Furthermore, a study was conducted to assess the effectiveness of opinion formation and examine how positive and negative reviews impact the opinions of others regarding different products, services, andapplications in the context of online purchases [15, 16].

Truthful, dependable, and honest reviews tend to build clients' trust and are prone to instigate individuals to form their judgments about products and services. According to "Bright Local & Spiegel ResearchCentre", 95% of people consider online business reviews before making any buying decision [17]. The authors further stated that 92% of buyers are reluctant to buy a product if there are negative or overly positivecustomer reviews. People usually evaluate reviews of products and apps by developing an opinion before buying any product or hiring any services. The researchers in [18] state that 84% of patients consider onlineassessments of physicians before visiting them.

Depicting the notion of opinion formation based on positive and negative reviews; how evaluation andscoring can change the views and opinions of the people; help in decision-making for buying products or getting services [19]. In the context of reported cases of harassment in higher educational institutes in Pakistan, implementing a scoring system based on unethical conduct could have had an impact on reducing their scores and subsequently affecting their social standing. Similarly, scoring individuals who are blacklisted by the Global Banking Fraud Survey due to their involvement in fraudulent activities, financial fraud, andcorruption can serve as a warning sign for potential employers considering hiring them. By incorporating these scoring mechanisms, it becomes possible to provide valuable indicators to others about the ethical track record of the individuals in question [20].

To address the problem at hand, we propose a system that utilizes scores based on social behaviors and interactions. Depending on these scores, the system will grant or deny access to a range of opportunities. Individuals with a five-star rating will have privileges such as reserving first-class seats, gaining admission to esteemed colleges and universities, and accessing various other opportunities. Conversely, those who display disobedient behavior will be included in the government blacklist. As a result, this research holds significant implications for addressing various social concerns, particularly those related to financial fraudand scams, which will be discussed in detail in the upcoming section.

3 Research Approach and Design

This article presents an idea called the "Human Social Scoring System," which suggests scoring in- individuals based on their social interactions to determine the opportunities granted or denied. Those with high scores would enjoy privileges such as first-class travel, access to prestigious institutions, top job positions, and reservations in luxury hotels. On the other hand, individuals with low scores would be excluded from these services and labeled as "Black Zoned". By taking on societal problems like harassment, financial fraud, and scams, this research has far-reaching implications. To evaluate the reliability of the Human Social Scoring System and test our hypotheses, a quantitative approach was employed, involving the distribution of questionnaires to 275 individuals with diverse backgrounds. However, some surveys were excluded dueto ambiguity and fake responses. Independent and confounding variables impacting the system's reliabilitywere identified through a comprehensive literature review. Feedback from the questionnaire-based survey was collected to understand the factors influencing opinion formation.

Statistical techniques such as ANOVA, Pearson Correlation, and Z-test were utilized to test hypotheses and draw inferences from experimental results. Additionally, a high-fidelity wireframe was provided to offer a visual representation of the proposed student rating system, which assesses and ranks student behavior to determine their scores. The data collection process involved distributing questionnaires, which were designed using Google Docs, to a total of 275 individuals with diverse backgrounds. However, 10 surveys were excluded from theanalysis due to ambiguity. It was observed that several respondents double-checked their answers, providedfake responses, or left multiple questions blank. The collected responses were then analyzed to determine the extent to which individuals rely on the opinions of others in decision-making and identify the specific factors that influence their opinions.

The proposed methodology is given below in Fig. 1 elaborates that the reliability of the Human Social Scoring System (HSSS) relies on various independent and confounding variables, which were identified through an extensive review of relevant literature. To assess the influence of these factors on opinion formation, a questionnaire-based survey was conducted to gather feedback from individuals. Multiple statistical techniques, including ANOVA, Pearson Correlation, and Z-test, were employed to test hypotheses and draw inferences from the experimental results. These analyses helped to determine the significance ofdifferent factors and establish relationships relevant to opinion formation within the framework of HSSS. Furthermore, a high-fidelity wireframe was proposed to provide a visual representation, offering a clear understanding of how a student rating system would evaluate and rank student behavior, displaying their resulting scores. This wireframe serves as a visual blueprint, showcasing the potential implementation andvisualization of the proposed system.

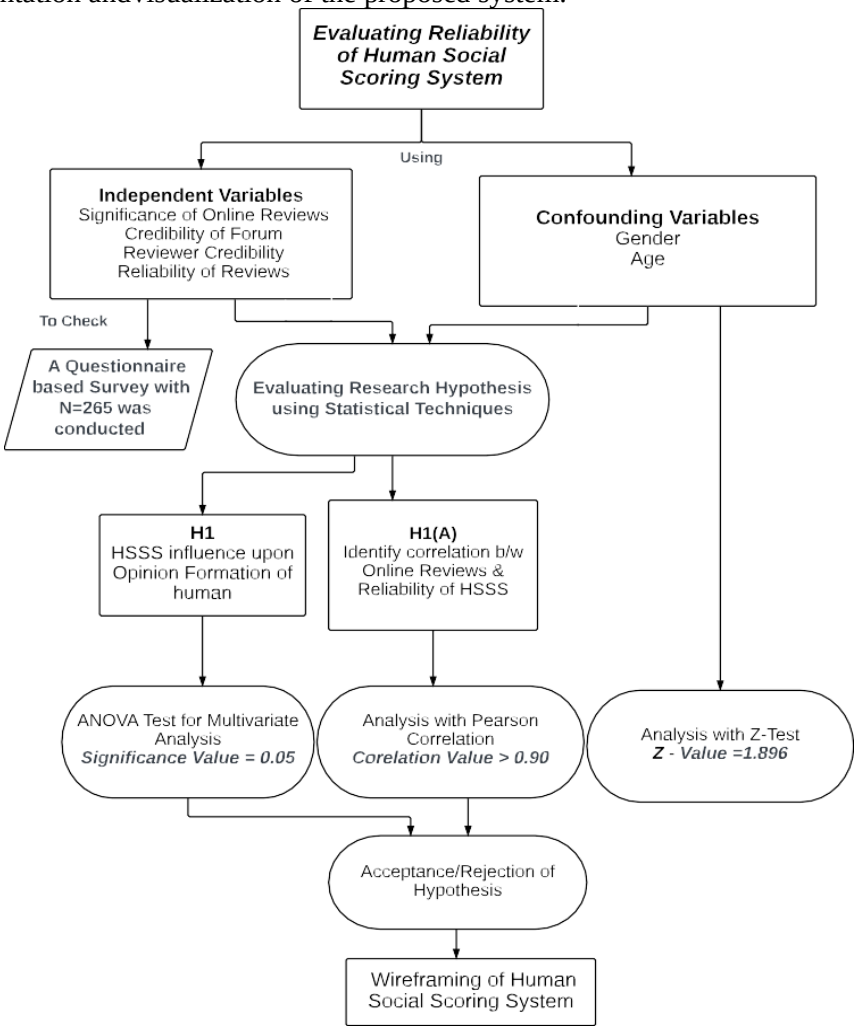


Figure 1: Schematic Flow Chart for Research Framework

Following the literature review, a questionnaire was developed to assess the significance of different factors in opinion formation and gauge people's perception of the reliability of social scoring as shown in Fig. 2. It was distributed to individuals representing diverse personas, and the collected data was analyzed using various statistical techniques. Based on the findings, a prototype for scoring students, which served asthe test bed for this study, was proposed. This prototype aims to provide a practical implementation of the social scoring system specifically tailored for evaluating and ranking student performance.

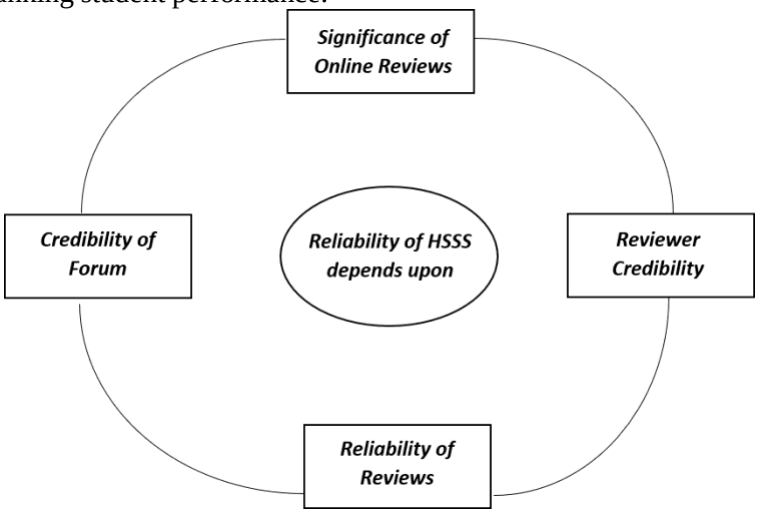


Figure 2: Factors that Influence Opinion Formation

Below given Table 1 below denotes different variables determining the solvency of opinions. It presents the survey questions used to measure the construct and its sources. The authors in the articles [21-24] also stated that these factors make opinion formation more credible.

Table 1: Theoretical Construct Items

Construct	Questions	Adapted From
Significance of Online Reviews	1. If you have little experience with a product then you will search for information on the web about the product. 2. Do you read online consumer reviews before purchase? 3. High ratings for products affect your purchase decision. 4. Online customer reviews are just biased and do not influence the decision of yourpurchase decision	Gunden, N., (2017) [21].
Credibility of Forum	1. If the website forum that presents the reviews concerns to company that I want to buy the product, it affects your purchase decision. 2. The internationality of the website forum that presents thereviews affects your purchase decision. 3. Online customer reviews make it easier for youto search and find information about products. 4. The online product review websites help influence your online purchase decisions.	Constantinides, Efthymios & Holleschovsky, Nina. (2016) [22].
Reviewer Credibility	1. The reviewer's frequency of posting reviews affect your purchase decision. 2. If thereviewers use the nick name or the real nameaffect your purchase decision. 3.Is Reviewerage has influence upon his/her purchase decision. 4. If the reviewers use the nick name orthe real name affect my purchase decision.	Victor, Vijay & Thoppan, Jose & Nathan, Robert & Maria, Fekete Farkas. (2018) [23].
Reliability of Reviews	1. Online reviews are generally trustworthy. Likewise, human review rating is trustworthy.2. Online Human Review Rating is reliable. 2. Do you think the Online Human Review Rating is biased? 4. The source credibility of online human review rating has a significant effect on their judgment.	Ali, Y., Bayram, M., (2012) [24].

4 Results and Findings

The experimental findings of the proposed model are presented in a quantitative aspect. We placed theproposed method to the test using the data we gathered.

4.1 Dataset

Survey results were calculated by using a 5-point Likert scale in which 1 represents strongly disagree to5 means strongly agree. A questionnaire was designed using Google Docs and filled out by 275 people. 265(92.9%) questionnaires were finally accepted for further data analysis to improve the responses for better decisions that would otherwise limit our ability to gather insightful information and undermine the validityof our findings.

4.2 Experimental Setup

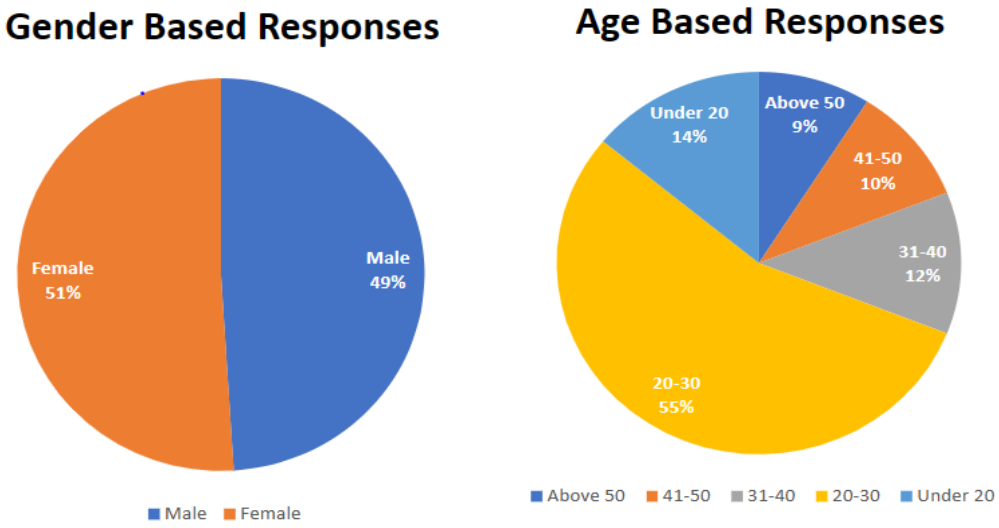
In this study, we used Google Docs to form the questionnaire to get the response electronically, so that,we can approach the respondents on a large scale and summarize the results conveniently. To analyze the data and compile the results, "SPSS 13.0 package tool" was used. To design a wireframe, a prototyping tool was used.

4.3 Gender-Based Grouping of Respondents

Fig. 3a explains that 265 respondents are categorized into male and female participants. (131) 49.4%of them are males and (134) 50.6% are females.

4.4 Age-wise Grouping of Respondents

Fig. 3b shows age wise representation of total 265 respondents that took part in the survey, among them (144) 54% respondents are b/w 21 to 30 years., (36) 14% are under 20 years., (33) 13% respondents arebetween 31 to 40 years., (27) 10% respondents are between 41 to 50 and (25) 9% are above 50 years.



(a) Gender Based Responses **(b)** Age Based Responses

Figure 3: Ratio of Male/Females and different Age Groups Participated in Survey

5 Discussion on Hypothesis

The first hypothesis of our research is:

- Does Human Social Scoring System influence opinion formation of Humans?

5.1 Statistical Analysis of Hypothesis I

H0: Scoring by persons X, Y, Z about A/B cannot change the judgments of other people about personA/B.

H1: Scoring by persons X, Y, Z about A/B can change the judgments of other people about person A/B.

We will evaluate our hypothesis by taking average mean of several factors, included in the questionnaire. According to the aggregate value of each section results have been analyzed to find whether HSSS is a reli-able scoring technique or not. Fig. 4 defines the aggregate values of different HSSS categories. Henceforth,we can conclude that each of these categories have average value greater than 3.45 which means all of these factors factors influence upon the reliability of HSSS and the opinion formation of individuals. Subsequently, we rejected H0 and accepted H1.

5.2 ANOVA Test for Multi-Variate Analysis

To evaluate the reliability of the survey and test the hypotheses, an ANOVA (Analysis of Variance) test was conducted. This statistical test allowed us to determine whether the various factors being investigated are independent of each other. By performing a multivariate analysis using the ANOVA test, we could assess both the null and alternative hypotheses. The results of the ANOVA test indicate that all the factors examined in the study exhibit significant differences. This conclusion is drawn based on the alpha value of 0.05, suggesting that the observed variations in the factors are not due to random chance. Thus, we can infer that these factors have distinct influences on the formation of an individual's opinions. As shown in Table 2, The ANOVA significance value of 0.05 indicates that all factors examined in the study are statistically significant. To further analyze the relationships between different dependent and independent variables, a Post Hoc test or multiple comparison method can be utilized.

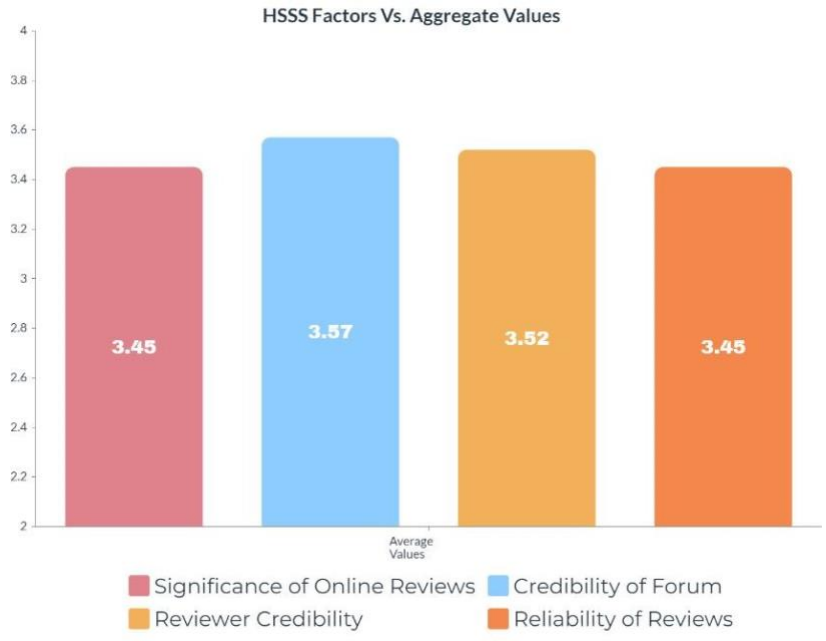


Figure 4: Aggregate Average Results of Factors Affecting HSSS Reliability

Table 2: ANOVA Responses for Multi-Variate Analysis.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.199	5	1.440	2.202	0.052
Within Groups	1035.279	1583	0.654	---	---
Between Groups	7.199	1588	---	---	---

Additionally, the Pearson correlation technique can be employed to determine the correlation and relationship between various variables. In the study context, it can be used to assess the correlation between online reviews and the reliability of the Human Social Scoring System (HSSS). This analysis provides insights into the degree of association between these factors.

5.3 Statistical Analysis of Hypothesis I (A)

H0: There is no correlation between online reviews and the reliability of HSSS.

H1: There is a correlation between online Reviews and the reliability of HSSS. Table 3 concludes thatall these factors are significant in the opinion formation of a person and these sub-hypotheses are evaluatedto accept/ negate our prime hypothesis.

Ha: The results indicate a strong positive correlation (Pearson correlation value of 0.917) betweenthe significance of online reviews and the reliability of the Human Social Scoring System (HSSS). This correlation is statistically significant with a significance value of 0.00. Hence, it can be concluded that thesignificance of online reviews is a key factor that strongly influences people's opinions.

Table 3: Pearson Correlation Sig (2-tailed) N for Independent variables.

	Significance of Online Reviews	Reviewer Credibility	Forum Credibility	Reliability Of Reviews	Reliability Of HSSS
Significance of Online Reviews	1 - 265	.802 .000 .265	.758 .000 .265	.796 .000 .265	.917 .000 .265
Reviewer Credibility	.802 .000 .265	1 - 265	.735 .000 .265	.757 .000 .265	.900 .000 .265
Forum Credibility	.758 .000 .265	.735 .000 .265	1 - 265	.740 .000 .265	.863 .000 .265
Reliability of Review	.796 .000 .265	.757 .000 .265	.740 .000 .265	1 - 265	.898 .000 .265
Reliability of HSSS	.917 .000 .265	.900 .000 .265	.863 .000 .265	.898 .000 .265	1 - 265

Hb: The analysis of results reveals that the Pearson correlation value for the significance of the reviewer's credibility and the reliability of HSSS is 0.900, with a significance value of 0.00. This suggests that the credibility of reviewers also influences people's opinions about others.

Hc: According to the Pearson correlation analysis, it is observed that opinion formation in the Human Social Scoring System (HSSS) is dependent on the reliability of reviews. The resulting Pearson correlationvalue is 0.894, with a significance value of 0.00. This indicates a strong correlation between the reliability of reviews and HSSS, suggesting that it can also influence people's opinion formation.

Hd: The hypothesis states that the reliability of HSSS is associated with the credibility of the forum. However, the resulting Pearson correlation value of 0.863, with a significance value of 0.00, reveals that people are less concerned about the credibility of the forums compared to other factors.

Based on the above results and discussion, it can be concluded that opinion formation in HSSS can be influenced by various factors, including the significance of reviews, reviewer credibility, reliability of reviews, and credibility of the forum. However, these factors have different degrees of influence on opinion formation. Furthermore, after analyzing the confounding variables of gender and age group, we will determine which gender and age group significantly support the reliability of HSSS more than others. To evaluate gender, a Z-test was performed.

5.4 Z-Test for confounding variable Gender

For evaluating Z-test, we consider two simple hypotheses that both variables have the same variance inH1 and do not have the same variance in H0. The results calculated are shown below:

$$\mu 1 - \mu 2 \neq 0$$
$$\mu 1 - \mu 2 = 0$$

Table 4: Test for confounding variable Gender.

Z-Test: Two Sample for Means	**Variable 1**	**Variable 2**
Mean	3.496268657	3.418931298
Known Variance	0.044198	0.038945
Observations	50	50
Hypothesized Mean Difference	0	-
Z	1.89653776	-
P(Z<=z) one-tail	0.029944186	-
Z critical one-tail	0.057888972	-
Z critical two-tail	1.959962995	-

If z < - z Critical two-tail or z Stat > z Critical two-tail, we reject the null hypothesis of Eq.(1). As elaborated in Table 4, the z value 1.896 > -1.959 and 1.896 < 1.959, so we cannot reject the alternative hypothesis of Eq.(2). So, both means do not differ significantly. We reject H0 and we have statistically significant evidence at $\alpha = 0.05$ to infer that both males and females significantly support the reliability of HSSS.

5.5 ANOVA Test for confounding variable Age

Analysis of variance ANOVA is used to find out the effects of our confounding variable Age upon the reliability of HSSS. Our Subjects were divided into different age Groups. The ANOVA examined the difference among various group means in our sample. The analysis is done between the groups and within the groups. The analysis of results of Within Group shows different values for different age groups. In analyzing the reliability of HSSS, the sum of squares value between groups is 0.88 and within group 0.17 with degree of freedom 4 (n-1) and 260 respectively. If the alpha value is < 0.05 we can reject H0. In this result, the significance value of all variables is less than 0.05 so H1 is accepted. Therefore, we can concludethat these factors have a significant but different influence on the reliability of HSSS.

In Table 5, we performed the Tukey HSD test and determined which group is most significant, amongothers. Later, we compared each age group with the other and then computed their significance values. ThePost hoc test is used to look for the difference between age groups, comparing each pair of groups. The total alpha level used for the test is 0.05. If p value< 0.0 there is a significant difference between groups. In the 1st case, there are 294 significant differences between the 1st group and the 3rd group. In the 2nd case, there is a substantial difference between the 2nd and 3rd groups. In the 3rd case, there is a significantdifference between the 3rd and 1st groups. In the 4th and last case, there is no significant difference in any group. From Table 6, we can determine that the most significant age group is (31-40). All other groups arenot as significant as evident from the results in the multiple comparison tables of the Post Hoc test. So, wecan conclude that the age group (31-40) (Mean value is less than others which is 0.57) more significantly supports the reliability of HSSS than other groups.

Table 5: Tukey HSD Test for Confounding Variable Age

					95% Confidence Interval	
(I) Age	**(J) Age**	**Mean Difference (I-J)**	**Standard Error**	**Significance**	**Lower Bound**	**Upper Bound**
Below 20	21 - 30	-.00018	.02434	1.000	-.0670	.0667
	31 - 40	.10422	.03148	.009	.0177	.0197
	41 - 50	.05538	.03326	.457	-.0360	.1467
	Above 50	.04416	.03401	.692	-.0493	.1376
21 - 30	Below 20	-.00018	.02434	1.000	-.0667	.0670
	31 - 40	.10440	.02521	.000	.0352	.1737
	41 - 50	.05556	.02739	.255	-.0197	.1308
	Above 50	.04434	.02830	.520	-.0334	.1221
31 - 40	Below 20	-.10422	.03148	.009	-.1907	-.0177
	21 - 30	-.10422	.02521	.000	-.1737	-.0352
	41 - 50	-.04884	.03390	.602	-.1420	.0443
	Above 50	-.06007	.03464	.415	-.1552	.0352
41 - 50	Below 20	-.05538	.03326	.457	-.1467	.0360
	21 - 30	-.05556	.02739	.255	-.1308	.0197
	31 - 40	-.04884	.03390	.602	-.0443	.1420
	Above 50	-.01123	.03626	.998	-.1108	.0884
Above 50	Below 20	-.04416	.03401	.692	-.1376	.0493
	21 - 30	-.04434	.02830	.520	-.1221	.0334
	31 - 40	-.06007	.03464	.415	-.0.351	.1552
	41 - 50	-.01123	.03626	.998	-.0884	.1108

Table 6: Multiple Comparison according to Age group.

Test	P Value	Significant?
Below 20 vs. 21-30	1.00	No
Below 20 vs. 31-40	0.009	Yes
Below 20 vs. 41-50	0.45	No
Below 20 vs. above 50	0.69	No
21-30 vs. 31-40	0.00	Yes
21-30 vs. 41-50	0.25	No
21-30 vs. Above 50	0.52	No
31-40 vs. 41-50	0.60	No
31-40 vs. Above 50	0.41	No

*Note: Grey background means hypothesis are insignificant

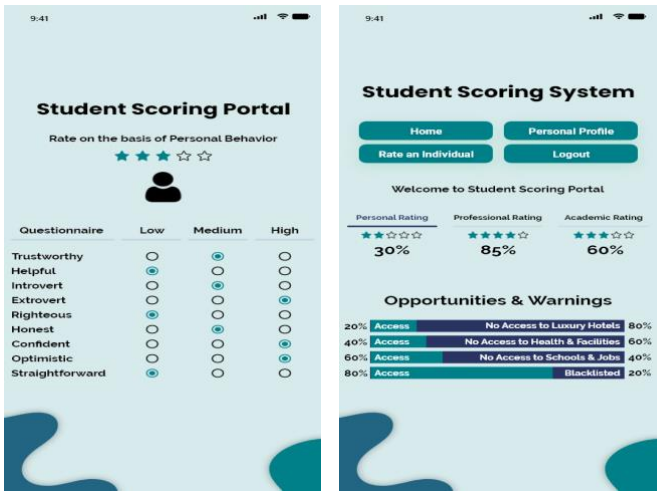
6 Theoretical and Practical Implementations

A practical approach for practically implementing a Human Social Scoring System in society involvesthe use of a Virtual ID Card, similar to a national ID card. This virtual ID card can be linked to a person's national ID. By assigning a unique ID to everyone, their daily social interactions can be tracked and used to generate a score. This virtual ID card can be used for various purposes, including transactions, room and air ticket reservations, admission to institutions, and displaying individuals' ratings/scores whenapplying for services. The current focus of this proposed application is to evaluate students' behavior and interactions with their teachers, peers, and other members of society. We have created High-fidelity wireframes that illustrate the basic structure and key features of the proposed app, which can assess students' behavior and personality.

Figure 5: Virtual Identity Card

Below is given the proposed design of a virtual ID Card (Fig. 5), HSSS Home-Page (Fig. 6a), App Login Page (Fig. 6b, a basic interface to rate students (Fig. 6c), and a dashboard showing the score bars (Fig. 6d) respectively. To establish a profile within the HSSS app, users are required to complete a sign-up process using either a National ID Card or a Virtual ID Card for authentication purposes. Once registration is completed, users will have the ability to rate and score other individuals. This scoring system aims to serveas a means of assessing, regulating, and influencing an individual's actions. The government can utilize these scores to either facilitate or impede an individual based on their behavior and overall rating.

(a) HSSS Home Page **(b)** HSSS App Login Page



(c) Interface to Rate Students **(d)** HSSS Dashboard

Figure 6: HSSS Interface

7 Limitations and Proposed Solutions

The results discussed in previous sections indicate that the outcomes of this research work are supportivein achieving its intended purpose. However, there are still some limitations that restrict the scope of this research. Previous studies have highlighted real-life cases where individuals have been blacklisted and faced limitations in accessing opportunities due to low credit scores. In 2019, the "National Development and Reform Commission of China" reported that 26.82 million air tickets and 5.96 million rail tickets wererejected for citizens on the blacklist. Removal from the blacklist typically takes 2-5 years, but early removalis possible if the blacklisted person takes appropriate remedial measures [13]. Once individuals improve their ratings, they can also enjoy the benefits offered to those with good ratings. Numerous examples have emerged where people have been deprived of opportunities due to a loss of credibility. Liu Hu, who had alow credit score, faced a real-time problem when he was prohibited from flying. According to him, it felt like being constantly controlled by the list [16].

Overall Research limitations of the Human Social ScoringSystem are as follows:

- Our research work covers only specific geographical areas located in Pakistan i.e., Wazirabad, Gujrat, Gujranwala, and Lahore. So, the results of this research cannot generalize outside of that specific areabecause of the absence of geographical diversity.
- Another limitation of the present research study is the lack of awareness among individuals about theHuman Social Scoring System in developing countries like Pakistan.

8 Conclusion

This study aims to explore the applicability and significance of the Human Social Scoring System (HSSS) and shed light on its pivotal role in opinion formation. The previous study indicates that judgmentplays a dominant role in certain decisions and is a factor in all decisions. To assess individuals' reliance on such a scoring app, 265 respondents were included in the study, consisting of 49% The results, analyzedusing a Z-Test, demonstrate that males and females support HSSS and its credibility significantly at a significance level of 0.05. In the Post Hoc test, a specific age group (31-40 years) showed stronger support for HSSS. According to the survey findings, the mean values for different factors such as the Significanceof Online Reviews, Reviewer's Reliability, Credibility of Forum, and Reviews were 3.45, 3.52, 3.57, and 3.45, respectively. The ANOVA multivariate analysis yielded a significance value of 0.05, indicating the significance of all proposed HSSS categories. Pearson correlation analysis revealed a relationship betweendifferent variables, with the highest correlation value observed between the significance of online reviews and the reliability of HSSS (0.917). This suggests a strong correlation between the importance of online reviews and the reliability of HSSS compared to other factors. Furthermore, a High-Fidelity wireframe of the app was proposed to rate students' behavior using a virtual ID. Students can be evaluated based on theirbehavior, social interactions, and professional interactions. HSSS proves to be a highly usable technique, enabling substantial judgments about individuals and subsequent calibration and ranking of people. The scoring app allows low scorers to improve and transition from the "Grey Zoned" by fulfilling appropriate and necessary conditions. This study concludes that implementing such a rating system will lead to better judgments and serve as a foundation for decision-making. In the future, the wireframe can be developed intoa functional application by considering various other parameters and dimensions for students and individuals from diverse fields of life.

Conflicts of Interest: The authors declare that they have no conflicts of interest to report regarding the present study.

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