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Cyber-acculturation through social media exposure: A Q methodology and network analysis

Sholeh Meraji Oskouie[1*], Kamran Mohamadkhani[2], Mohammad Soltanifar[3]

1. Department of Cultural Affairs Management and Media Management, Science and Research Branch, Islamic Azad University, Tehran, Iran. (*Corresponding author: ✉sholehoskouie@yahoo.com, https://orcid.org/0000-0003-1316-0276)
2. Department of Higher Education Administration, Science and Research Branch, Islamic Azad University, Tehran, Iran.
3. Department of Communication Sciences and Knowledge Studies, Science and Research Branch, Islamic Azad University, Tehran, Iran.

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Abstract

Background: Social media has enabled both intentional and incidental user exposure to diverse cultures and subcultures. This exposure fosters the socialization of similar cultural elements or produces changes in original cultural patterns through cyber-acculturation, which arises from continuous contact with culturally distinct groups.

Aims: This study aimed to develop models of social media users' cyber-acculturation in their exposure to cyber-subcultures.

Methodology: Using a Q methodology research design, the study employed convenience snowball sampling and an online questionnaire to collect data from 52 participants, who freely rated 61 statements derived from interviews. Exploratory Factor Analysis, treating participants as variables, was conducted to identify distinct cyber-acculturation models. To further examine the characteristics of each factor, network analysis was applied.

Discussions: Users demonstrated varying patterns of cyber-acculturation. Comparable to the model proposed by Sam and Berry (2006)— which outlines the strategies of assimilation, separation, integration, and marginalization— this study identified five distinct models of social media users' acculturation in exposure to cyber-subcultures: 1) Conservative Socialization Adopters, 2) Media-Literate Non-Adopters, 3) Media-Literate Acculturation Adopters, 4) Change-Aspirant Semi Non-Adopters, and 5) Risk-Taking Socialization Adopters. Each of these categories, to some extent, reflects the integration strategy, particularly motivated by social mobility, self-actualization, well-being, and personal advancement.

Conclusion: Understanding the variations in how users adopt cultural elements enables governance bodies, policymakers, and professionals in media, culture, and education to design and implement more effective measures with greater impact across different user types.

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1. Introduction

Social media platforms eliminate the boundaries of time and region (Wu, 2023) and shape the norms and rules that influence people's lifestyles (Ying, 2020). Their use to connect with others, especially when exposed to new cultures, has become central to many lives (Wen, 2020). They serve as a means of expressing personal feelings and experiences, constructing self-identity (Bhoj et al., 2022), and engaging in activities such as seeking information, fulfilling needs and gratifications, interacting with others, and enjoying entertainment on a global scale (Yu et al., 2019), thus creating digital connectivity (Hoffmann et al., 2022).

Social media also enable socialization, which involves interacting with others to adopt the behavioral patterns and norms essential for membership in society (Çömlekçi, 2020). Socialization through engaging with the social and physical environment is a lifelong (Trültzsch-Wijnen, 2020) dual process, involving both the ways in which society, culture, or groups instruct individuals to become active members and the ways individuals learn and internalize the group's values and norms (Ferris & Stein, 2018). Socialization also fosters social media literacy, particularly through peers, especially among young people (Schreurs & Vandenbosch, 2020).

At the same time, the expansion of the Internet use has produced cybercultures, embraced by millions across diverse societies (Durmus, 2021), which are sociocultural forms that emerge from the interaction among society, culture, and microelectronic technologies (Cardoso, 2021). The meeting of cultures and the resulting changes shape acculturation (Sam & Berry, 2006), a phenomenon in which culturally distinct groups come into continuous direct contact, leading to changes in the original cultural patterns of one or both groups (Wen, 2020). This process can lead to psychological acculturation (i.e., changes in psychocultural orientations) and behavioral acculturation (i.e., changes in language use, media consumption, social interaction, diet, and religion). Socialization and re-socialization often occur during acculturation, but they are not acculturation per se (Sam, 2006). The process and outcomes of acculturation are considered significant, both for their possible negative consequences and for their role in enhancing the understanding of intercultural interactions within multicultural contexts (Yu et al., 2019).

In his acculturation model, Berry illustrates how immigrants orient themselves within a new society, using different strategies including integration (maintaining one's own culture while keeping contact with the majority group), assimilation (not maintaining one's original cultural identity while actively seeking interactions with another culture's members), separation (maintaining one's own culture while avoiding interaction with other cultural groups), and marginalization (a form of social exclusion in which one rejects or feels rejected by both

their original culture and the host culture) (Kizgin et al., 2018; Mao & Ji, 2024; Oskouie et al., 2024; Sibanda & Seyama-Mokhaneli, 2024; Guvercin et al., 2025). In this model, integration is regarded as the most adaptive strategy, promoting personal development and mutual understanding between social groups (Oskouie et al., 2024) and enabling individuals to select and combine desirable features from different social systems while preserving their own cultural background (van der Zee & van Oudenhoven, 2022), whereas separation is a maladaptive form of acculturation (Sibanda & Seyama-Mokhaneli, 2024). Integration is the most common preference, while marginalization is the least. Additionally, individuals may adopt different acculturation strategies in different social contexts (Kunst et al., 2021), and there could also be gender differences in these strategies, motivated by familial obligations and economic factors (Dong et al., 2025). The tendency to learn certain foreign cultural elements through continuous exposure can also occur among majority group members who encounter minority cultures (Kunst et al., 2021) or subcultures.

Subcultures form around shared moral or material concerns and maintain norms and practices that convey distinctiveness while preserving subcultural boundaries. At the same time, they remain connected to the broader milieu by sharing and retaining elements of the dominant culture (Azzopardi et al., 2013). Subcultures can be identified by various distinguishing criteria, including class, race, occupation, residence, region, ethnicity, language, values, religion, diet, and lifestyle (Pastarmadzhieva, 2012). People can also shape cyber-subcultures, which primarily unite in online spaces through shared interests and discussion topics (Zolotukhin et al., 2020). Social networking sites foster subcultures and shape how users— especially young people— meet, express themselves, exchange views, form opinions, and adopt life patterns (Jain & Yadav, 2018 & 2019). Subcultures arising from these online identities influence fashion, individuals within subcultural communities (intracommunity), and outside them (intercommunity), and other subcultures, either directly or indirectly. The growing popularity of social media also drives the formation of subcultural communities through online trends (Bhoj et al., 2022).

On social media, people's daily exposure to these communities and large amounts of content is largely determined by the interests and behaviors of their connections (Sicilia et al., 2020). Media exposure, whether intentional or incidental (Nanz et al., 2022), is shaped by the extent to which audiences encounter specific messages or types of content (de Vreese & Neijens, 2016). It is a multifaceted concept with at least two dimensions: frequency (i.e., how often an individual accesses information across media channels) and extensity (i.e., the breadth of knowledge on a topic gained through media coverage) (Liu et al., 2021). Exposure to content on social media results from a

combination of selective and incidental exposure, shaped by individual choices, friends' posting behavior, and algorithmic content curation (Vraga & Tully, 2021).

Social media users exchange ideas and practices without fully immersing themselves in new cultures or abandoning their own (Dey et al., 2020). In this context, Berry's acculturation framework provides a useful lens for understanding how users navigate multiple online subcultures. Users can adopt foreign practices, values, and identities through remote acculturation, without having lived in those cultures (Li et al., 2019). Hence, the accessibility of digital technologies can foster assimilation, integration, and acculturation beyond users' communities (Dey et al., 2020), as well as cultural adaptation in foreign communities (Akter et al., 2024). Social media enables dynamic intercultural contact, creating a "new social neighborhood" for cultural transmission and digital acculturation that yields digital integration, digital separation, and digital deprivation (Oskouie et al., 2024). Moreover, cross-cultural communication via social media can influence acculturation and integration among migrants (Mitra & Evansluong, 2019). Acculturation can be applied to different levels of adoption including global, national, or ethnic cultures, as well as political or ideological ethos (Yen & Dey, 2019).

Despite the expansion of traditional research on acculturation (Lakey, 2003), studies on goal pursuit (Toth-Bos et al., 2020), motivations, processes, and outcomes of acculturation across different areas of life (Yen & Dey, 2019), and the role of social media in acculturation outcomes and consumption choices (Kizgin et al., 2020)— particularly in relation to exposure to cyber-subcultures— remain scarce. A research gap persists at the intersection of cyber-acculturation, cyber-subcultures, and social media usage. Drawing on acculturation theory, this study aims to develop models of social media users' cyber-acculturation as they are exposed to cyber-subcultures. Accordingly, it addresses the following research question: How do social media users differ in cyber-acculturation when exposed to cyber-subcultures?

2. Methodology

This research employed Q methodology to investigate different models of cyber-acculturation through exposure to cyber-subcultures among social media users. Cyber-acculturation manifests through diverse and subjective perspectives that emerge from users' participation in multiple online (sub)cultures. Q methodology is suitable for this purpose because it systematically discloses subjectivity within a group of people, allowing researchers to better understand their motivations, behaviors (Rieber, 2020), viewpoints, attitudes, opinions, and beliefs (Dieteren et al., 2023). It combines both quantitative and qualitative methods (Bashatah, 2016) to collect and analyze subjective viewpoints

(Akhtar-Danesh, 2017). Its hybrid nature extends beyond qualitative Q sample development and selection as well as quantitative factor analysis (Ramlo, 2016) for analyzing shared viewpoints, where each factor represents a unique perspective on the research topic (Rahma et al., 2020).

Q methodology involves selecting a set of statements and asking participants to sort them on a grid, from most agreement to most disagreement (Zabala, 2014). The complete set of possible expressions on a topic, encompassing all potential viewpoints, is known as the concourse, which is, in theory, infinite. The set of statements constitutes a representative sample of the concourse and is gathered through interviews, literature or mass media, expert consultation, participant observation, and other methods by the researcher (ibid). This collection is then narrowed down to a final, manageable set of representative statements (Zabala, 2014; Morea & Ghanbar, 2024), typically ranging from 40 to 80 (Zabala, 2014), that is balanced and reflects a variety of opinions (Morea & Ghanbar, 2024).

In the data collection, during the distribution of statements, participants engage in Q-sorting (the Q technique), where they arrange the statements on a Q grid according to their preferences, ranging from most agree to most disagree (Zabala, 2014; Rahma et al., 2020)— a ranking procedure similar to the Likert scale (Rahma et al., 2020). Statements can be distributed either in an unforced (free) distribution or a forced distribution on a Q-sort grid. In forced distribution, participants are asked to use a Q-sort grid with a specified scale and place a predetermined number of cards in each position of the scale, resulting in a predetermined arrangement of cards (Khoshgooyan Fard, 2007).

In data analysis, Q methodology applies a standard data reduction method (Zabala, 2014) and a by-person factor analysis, that is, factor analysis conducted on persons (i.e., Q-sorts) rather than variables or traits (Akhtar-Danesh, 2017), to uncover operant subjectivity, which refers to the factor structure representing distinct viewpoints as response categories (Ramlo, 2016). Factor analysis identifies similarities in the holistic patterns of participants' sorting (ranking) of the statements (Coogan & Herrington, 2011). The final outcomes are a small number of distinct sets of sorted statements, known as factors, which reflect the differing viewpoints among participants (Zabala, 2014). Each factor is then interpreted based on its distinguishing statements and their high or low factor scores, which generally reflect the unique characteristics of that factor (Akhtar-Danesh, 2017). Factor interpretation is conducted through the researcher's subjective judgment and differs from the data-driven interpretation used in R factor analysis (Khoshgooyan Fard, 2007).

To further analyze the characteristics of each factor, we employed network analysis. In such networks, each item, object, or entity functions as a node, while the unique ties, associations, or relationships

among nodes function as edges or links (Wajahat et al., 2020; Rani & Shokeen, 2021; Klintwall et al., 2023). In this study, the edges represented the average of the items measuring the relationship between two variables. IBM SPSS Statistics 22 software was employed to conduct exploratory factor analysis to categorize users, and Gephi 0.10.1 was utilized for network analysis to examine the characteristics of each factor.

2.1. Data collection and Sample

In Q methodology, the participant sample does not represent the population but is instead selected for diversity, with the aim of illustrating the range of opinions in the target population (Zabala, 2014; Rahma et al., 2020). Q methodology does not require a large number of participants (Watts & Stenner, 2005; Zabala, 2014) and is typically conducted with relatively few. Because this method clusters people rather than variables, an adequate number of variables should be included to capture differences between participants, rather than relying on a sufficient number of participants to detect differences between variables (Rahma et al., 2020). A general rule is that the number of participants should be about half the number of Q statements (Rieber, 2020) and always fewer than the number of Q statements (Rahma et al., 2020).

This study employed convenience snowball sampling to select potential participants who could provide valuable data (Fikes, 2023). The questionnaire link, created using Google Forms, was distributed via the WhatsApp and Telegram messaging apps and made available to social media users. Of the 53 submitted questionnaires, 52 were complete. Participants' demographic characteristics were as follows: female=18 (34.6%); male=34 (65.4%); single=28 (53.8%); married=24 (46.2%); employed=29 (55.8%); unemployed=1 (1.9%); university student=5 (9.6%); school student=9 (17.3%); retired=9 (17.3%); and housewives=2 (3.8%) (Because some participants fell into more than one category, the total exceeds 100%). Participants educational level was also as follows: less than a high school diploma=9 (17.3%); high school diploma=4 (7.7%); associate degree=1 (1.9%); bachelor's degree=10 (19.2%); master's degree=10 (19.2%); and doctoral degree or higher=18 (34.6%).

2.2. Instrument and Measures

The current study utilized primary sources, including interviews conducted via questionnaires, to create the set of statements. An unforced distribution on a scale ranging from "never" to "very much", scored from 0 to 8, was employed to provide participants with greater discretion in ranking the statements. Based on the findings of the qualitative phase, a total of 61 statements were extracted and included in the questionnaire, along with nine demographic and media-

consumption questions addressing age, gender, employment status, income level, education, marital status, number of children, years of social media use, and average hours spent on non-work-related or non-essential activities on social media. Thirty-five statements were constructed to enable participants to rate the effect of each independent variable on acculturation, and these ratings were subsequently used in the network analysis. Table 1 presents the concourse used in Q methodology.

Table 1. The concourse in Q methodology

Theme	Sub-theme	Category	Number of items
Media literacy	–	–	5
Exposure	–	–	2
Individual knowledge	Knowing other languages	–	1
Individual attitudes	Internal control	–	2
	Personal attitudes	Personal interests	1
		Homophily/ Heterophily	2
	Cultural attitudes	Cultural satisfaction	2
	Individual reactions	–	2
Desires and needs	Social needs	Belonging to social class	1
		Social welfare	2
		Liberation from constraints	1
		Communicative needs	2
	Psychological needs	–	4
	Pleasure and entertainment	–	1
	Self-actualization	–	3
	Need for knowledge	–	1
	Identification	–	1
Psychological characteristics	Traits	–	4
	Problems	–	2
Macro-level factors	Social, political, and economic factors	Superiority	3
		Reference group and peer pressure	2
		Alternative lifestyles	3
	Cultural factors	Attractive, different and new cultural elements	2
		Cultural leveling	2
		Subcultures	1
Influential groups	–	–	9
Total items			61

2.3. Instrument validity assessment

Validity refers to the extent to which a concept is accurately measured in quantitative research. Content validity, and its subset face validity, assess whether an instrument adequately covers the entire domain of

the variable or construct it was designed to measure (Heale & Twycross, 2015). The content and face validity of the final Q methodology statements were evaluated based on the opinions of three media experts with 16, 22, and 35 years of experience in academia, media production, and media management. The content and face validity items in the present study's questionnaire were adapted from Zamanzadeh et al. (2015).

3. Results

Exploratory Factor Analysis (EFA) was conducted on the participants as variables, using several criteria. These included Principal Components (Khoshgooyan Fard, 2007; Akhtar-Danesh, 2017); Varimax with Kaiser Normalization (Khoshgooyan Fard, 2007); eigenvalues greater than 1.6, consistent with recommendations that factors with eigenvalues above 1 should be retained (Watts & Stenner, 2005; Rahma et al., 2020; Meraji Oskuie et al., 2022); factor loadings greater than 0.40 (Meraji Oskuie et al., 2022); total variance explained greater than 0.60 (Berkhout et al., 2017); and Scree Plot (Meraji Oskuie et al., 2022). Z-scores, calculated as the weighted average of the values of the Q-sorts most associated with the factor assigned to a statement (Zabala & Pascual, 2016) and enabling comparisons among measurements (Rieber, 2020), were computed using the regression method (Newman & Ramlo, 2010).

Interpretation typically requires at least two Q-sorts that load significantly on a single factor (Watts & Stenner, 2005), demonstrating the correlation between a Q-sort and the factor (Akhtar-Danesh, 2017). In this study, participants (i.e., Q-sorts) with factor loadings above 0.4 on two or more factors were assigned to the factor with the highest loading. These highly loaded Q-sorts are termed "factor exemplars", representing the shared item pattern or configuration that defines the factor (Watts & Stenner, 2005). The analysis is not fully computerized, and the researcher determines the number of factors to extract, playing a crucial role in decision-making at specific stages— a unique feature of Q methodology. As a general rule, it is preferable to explain as much variance as possible and include as many Q-sorts as possible while using the fewest number of factors (Damio, 2018). Typically, between three and six factors are extracted from a Q study (Watts, 2015). In this study, five factors were extracted using eigenvalues greater than 1.6, resulting in a total variance explained of 64.719%, which exceeds the 43% considered acceptable by Berkhout et al. (2017).

The representative Q-sort (i.e., exemplar) for each factor is derived from the Q-sorts loaded on that factor. It is generated by ranking all statements from the highest positive to the lowest negative Z-scores. The most extreme Z-scores— those located at the edges of the grid— are the most useful for interpreting the factor (Rahma et al., 2020) and are referred to as distinguishing statements (Newman & Ramlo, 2010).

Table 2. Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	21.598	41.535	41.535	21.598	41.535	41.535	10.707	20.590	20.590
2	5.026	9.666	51.201	5.026	9.666	51.201	9.208	17.708	38.298
3	2.825	5.433	56.634	2.825	5.433	56.634	6.984	13.430	51.728
4	2.369	4.556	61.190	2.369	4.556	61.190	3.425	6.586	58.314
5	1.835	3.529	64.719	1.835	3.529	64.719	3.331	6.405	64.719
…*	…	…	…	…	…	…	…	…	…
52	0.003	0.005	100.000						

Extraction method: Principal component analysis
*Data have been removed for the purpose of table summarization.

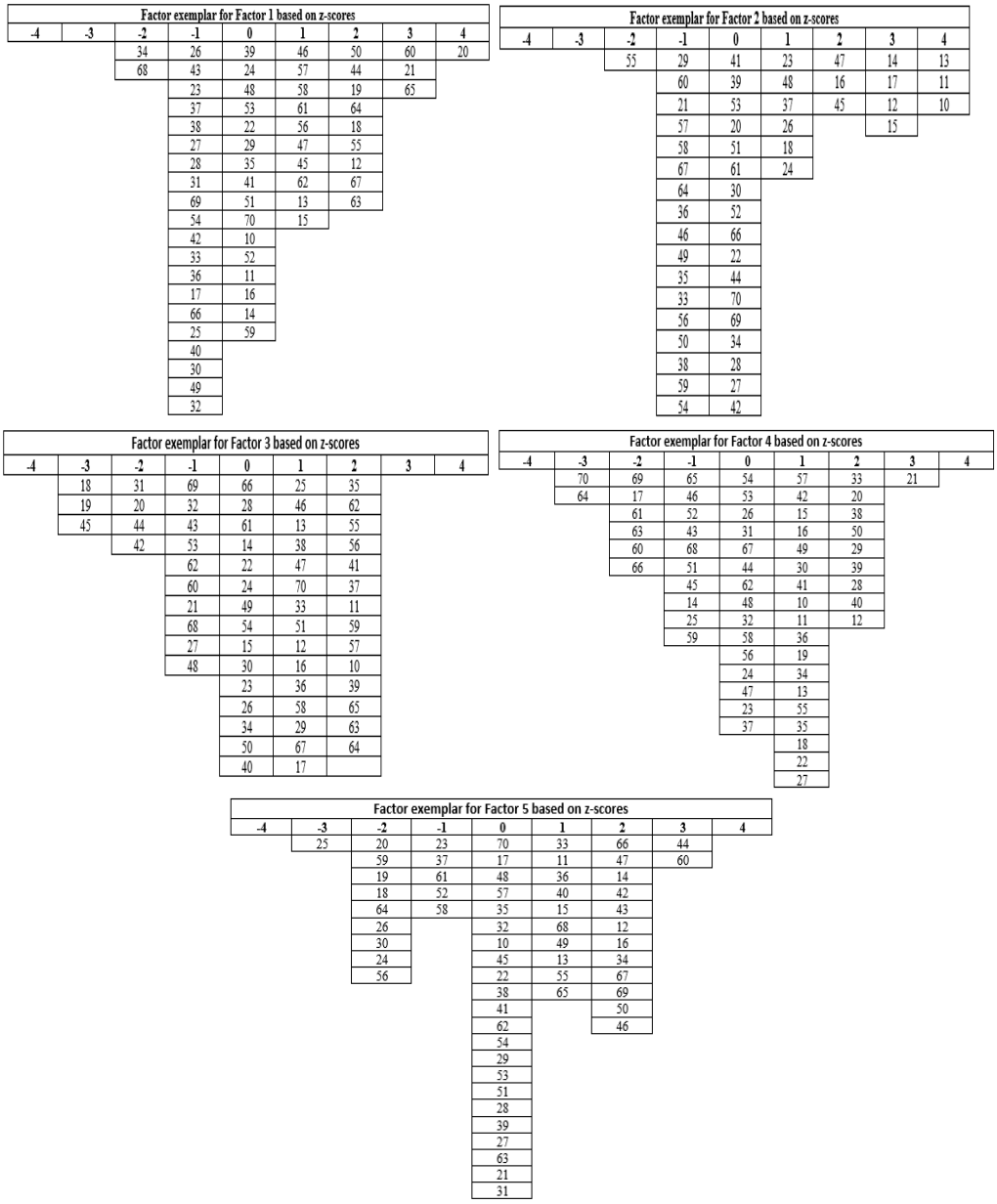
Table 3. Participants and their factor loadings

Factor	Participant codes (From highest to lowest loading)	Factor loading range
1	48, 29, 24, 33, 23, 14, 3, 27, 6, 8, 25, 5, 21, 7, 51, 53, 11, 35	0.817-0.536
2	49, 4, 9, 31, 17, 44, 38, 28, 50, 30, 19, 47, 40, 46, 22	0.797-0.473
3	18, 1, 42, 13, 10, 32, 52, 2, 41, 36, 43, 20	0.748-0.445
4	16, 39, 37, 12	0.769-0.526
5	26, 34, 45	0.714-0.512

In the factor exemplars shown in Figure 1, Z-scores ranging from +3 to −3 were converted to the corresponding Q-sort scale values from +4 to −4 as follows: +4 (2.3 to 3); +3 (1.6 to 2.3); +2 (0.9 to 1.6); +1 (0.2 to 0.9); 0 (0.2 to −0.5); −1 (−0.5 to −1.2); −2 (−1.2 to −1.9); −3 (−1.9 to −2.6); and −4 (−2.6 to −3.3). Each number in the Factor Exemplars indicates the corresponding item number in the questionnaire.

3.1. Reliability

Reliability refers to the consistency of a measurement, indicating that an instrument would yield approximately the same responses from a participant each time it is administered (Heale & Twycross, 2015). The reliability test in Q methodology typically relies on replicability. However, since this method is not intended to generalize findings to the broader population, reliability is not a primary concern (Rahma et al., 2020). Construct reliability (CR) was calculated using Microsoft Excel with Equation (1).



Factor exemplar for Factor 1 based on z-scores

-4	-3	-2	-1	0	1	2	3	4
		34	26	39	46	50	60	20
		68	43	24	57	44	21	
			23	48	58	19	65	
			37	53	61	64		
			38	22	56	18		
			27	29	47	55		
			28	35	45	12		
			31	41	62	67		
			69	51	13	63		
			54	70	15			
			42	10				
			33	52				
			36	11				
			17	16				
			66	14				
			25	59				
			40					
			30					
			49					
			32					

Factor exemplar for Factor 2 based on z-scores

-4	-3	-2	-1	0	1	2	3	4
		55	29	41	23	47	14	13
			60	39	48	16	17	11
			21	53	37	45	12	10
			57	20	26		15	
			58	51	18			
			67	61	24			
			64	30				
			36	52				
			46	66				
			49	22				
			35	44				
			33	70				
			56	69				
			50	34				
			38	28				
			59	27				
			54	42				

Factor exemplar for Factor 3 based on z-scores

-4	-3	-2	-1	0	1	2	3	4
	18	31	69	66	25	35		
	19	20	32	28	46	62		
	45	44	43	61	13	55		
		42	53	14	38	56		
			62	22	47	41		
			60	24	70	37		
			21	49	33	11		
			68	54	51	59		
			27	15	12	57		
			48	30	16	10		
				23	36	39		
				26	58	65		
				34	29	63		
				50	67	64		
				40	17			

Factor exemplar for Factor 4 based on z-scores

-4	-3	-2	-1	0	1	2	3	4
	70	69	65	54	57	33	21	
	64	17	46	53	42	20		
		61	52	26	15	38		
		63	43	31	16	50		
		60	68	67	49	29		
		66	51	44	30	39		
			45	62	41	28		
			14	48	10	40		
			25	32	11	12		
			59	58	36			
				56	19			
				24	34			
				47	13			
				23	55			
				37	35			
					18			
					22			
					27			

Factor exemplar for Factor 5 based on z-scores

-4	-3	-2	-1	0	1	2	3	4
	25	20	23	70	33	66	44	
		59	37	17	11	47	60	
		19	61	48	36	14		
		18	52	57	40	42		
		64	58	35	15	43		
		26		32	68	12		
		30		10	49	16		
		24		45	13	34		
		56		22	55	67		
				38	65	69		
				41		50		
				62		46		
				54				
				29				
				53				
				51				
				28				
				39				
				27				
				63				
				21				
				31				

Figure 1. Factor exemplars

$$CR = \frac{(\sum \lambda)^2}{(\sum \lambda)^2 + (\sum \delta)} \quad (1)$$

where λ represents the factor loading and δ the measurement error (Rosli et al., 2021). A commonly accepted cutoff for the reliability of a composite is 0.70, indicating that 70% of the variance reflects the

construct of interest, while 30% represents measurement error (Aguirre-Urreta et al., 2013). The construct reliability for each factor was as follows: CR_{F1}=0.928, CR_{F2}=0.913, CR_{F3}=0.874, CR_{F4}=0.701, and CR_{F5}=0.622, demonstrating acceptable reliability for most factors.

3.2. User acculturation models

To analyze user acculturation models, distinguishing statements— which differentiate factors and give them their identity and meaning— and consensus statements, which have relatively similar scores across all factors (Khoshgooyan Fard, 2007), were identified by ranking statements in Microsoft Excel based on Z-scores. In the current study, distinguishing statements with scores greater than +1 (indicating higher alignment with agreement responses) and less than −1 (indicating higher alignment with disagreement responses) were used to analyze each factor. After extracting the distinguishing statements, the demographic characteristics of participants corresponding to each factor, as well as the characteristics of users' media consumption for that factor, were analyzed.

As network analysis can be applied in Q methodology (Lee, 2017), the mean scores of the items— reflecting the relationships between variables— were used as the edge weights in the network analysis. The thickness of these edges represents the strength of the connections between nodes (Oskuie et al., 2023). The weighted out-degree index was employed to analyze the networks. In weighted networks, degree centrality is calculated as the sum of the weights of a node's direct connections and represents node strength (Strength Centrality). This measure is based on tie weights rather than the number of ties (Candeloro et al., 2016). Out-degree centrality refers to the number of edges directed outward from a node or, in weighted networks, the sum of the weights of the outgoing edges. In this study's directed network, edges represent the perceived influence of one node on another (Oskuie et al., 2023). The abbreviations of the nodes are presented in Table 4.

Following the above-mentioned steps, the narratives for each factor were interpreted. Factor interpretation involves the researcher describing the perspectives represented by each factor, accomplished by comparing and contrasting the positions of statements in the reconstructed Q-sorts, which represent each factor (Damio, 2016) and are characterized by self-reference and interpretation (Ramlo, 2016).

To differentiate the factors based on the narratives, each was assigned a descriptive name that reflects its defining characteristics: 1) Conservative Socialization Adopters, 2) Media-Literate Non-Adopters, 3) Media-Literate Acculturation Adopters, 4) Change-Aspirant Semi Non-Adopters, and 5) Risk-Taking Socialization Adopters. In the following sections, for each factor, the distinguishing statements, the acculturation network model, and the associated narratives are presented.

Table 4. Abbreviations of nodes in the network analysis models

Glt=Guilt/Shame	Wants=Needs and Desires
Fear=Fear	PrDev=Personal Development
Nint=Lack of Interest	PrCh=Personal Change
NA=Negative Attitude toward National Culture	NExp=New Experiences
PA=Positive Attitude toward Different Cultures	Smlr=Similarity to Admired Individuals
Esc=Escape	HSCW=Higher Social Classes & Wealthier Nations
SRes=Social Resistance	HBCult=Higher and Better Cultures
SCB=Belonging to Social Class	GPowr=Greater Socio-Political & International Power
SMob=Social Mobility	PrPrs=Peer Pressure
Blife=Better Life	RfPrs=Reference Group Pressure
Librtn=Liberation	Lux=Luxurious Lifestyles
AtnS=Attention Seeking	HWB=High Wellbeing Lifestyles
Compt=Competition	MoLS=Modern Lifestyles
FelB=Feeling Better About Oneself	Atrct=Attractiveness
Bdif=Being Different	New=Novelty
VariS=Variety-Seeking	GCult=Dominant Global Culture
Satis=Satisfaction	Scult=Subcultures
Entrt=Entertainment	Acult=Acculturation

Factor 1. Conservative socialization adopters

Users in this group adopt cultural elements from their national culture as well as from culturally similar societies.

Table 5. Distinguishing statements for Factor 1

Z-Score	Statements with the highest disagreement	Z-Score	Statements with the highest agreement
-1.82398	34. I draw on examples from individuals and media content from different cultures on social media in order to be different from others.	2.90545	20. I do not draw on examples from individuals with cultures different from mine on social media because I am not interested in doing so.
-1.32282	68. I draw on examples from norm-breaking individuals on social media.	1.95275	65. I draw on examples from individuals with knowledge, expertise, and skills on social media.
-1.19404	26. To resist the socio-cultural pressures and obligations of my national culture, I draw on examples from individuals and media content that are different from my national culture on social media.	1.80886	21. I draw on examples from individuals and media content that reflect my own culture, values, attitudes, lifestyle, age group, and gender on social media.
-1.16427	43. I take risks when drawing on examples from social media, following behaviors and attitudes that may have negative consequences for me.	1.64458	60. I draw on examples from individuals and groups belonging to my national culture on social media.

Z-Score	Statements with the highest disagreement	Z-Score	Statements with the highest agreement
-1.10198	23. I do not have a positive feeling toward my national culture, so I draw on examples from individuals and media content on social media that are different from it.	1.59594	63. I draw on examples from educational and informative content on social media.
-1.08735	37. I draw on examples from culturally different individuals and content on social media for entertainment and enjoyment.	1.52716	67. I draw on examples from successful individuals with better lifestyles on social media.
-1.07478	38. I draw on examples from individuals and media content from different cultures on social media to overcome my shortcomings and achieve my dreams.	1.36860	12. I consciously choose what information to share publicly or privately on social media.
-1.06960	27. I draw on examples from individuals and media content from a different social class than mine on social media in order to feel a sense of belonging to that class.	1.28602	55. I draw on examples from lifestyles on social media that are happier, healthier, and have greater welfare than my own.
-1.05385	28. I draw on examples from individuals and media content from a different social class than mine on social media in order to change my own social class.	1.28222	18. I do not draw on examples from individuals with cultures different from mine on social media because I feel guilt or shame.
-1.04615	31. I draw on examples from individuals and media content from different cultures on social media to attract the attention of others.	1.21676	64. I draw on examples from business advertising content on social media.
-1.01057	69. I draw on examples from celebrities and influencers (like famous Instagram figures) on social media.	1.05242	19. I do not draw on examples from individuals with cultures different from mine on social media because I feel fear.
		1.01893	44. I draw on examples from social media in accordance with the norms and conventions of society.

Figure 2 presents the network analysis model of responses associated with Factor 1.

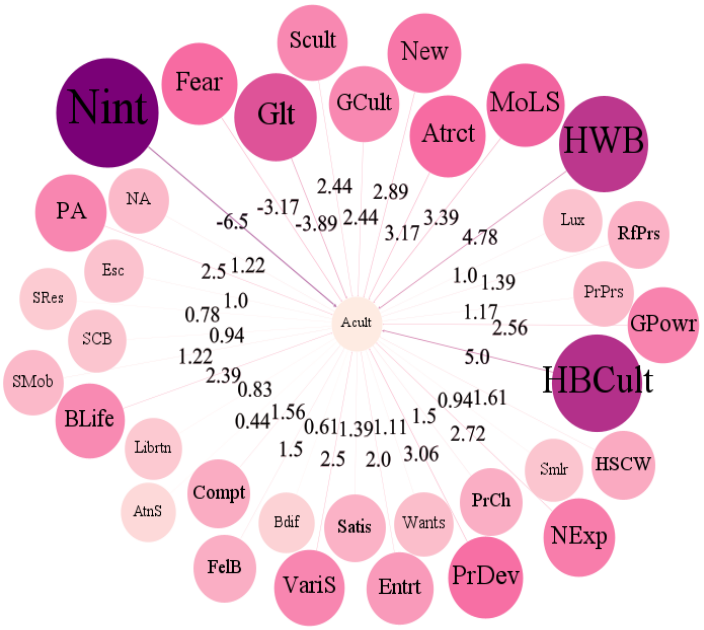


Figure 2. User acculturation model in Factor 1

The narrative of the conservative socialization adopters. Users in this group are not interested in acculturation when exposed to cultures different from their own, due to feelings of guilt, shame, or fear. They are conservative and risk-averse, as they do not adopt cultural elements from norm-breaking individuals or from behaviors and attitudes that may lead to undesirable consequences. They are socialization adopters, in that they adopt cultural elements from individuals and groups within their national culture according to social norms and conventions, as well as from peers with similar values, attitudes, lifestyles, age, and gender. Furthermore, they do not hold negative attitudes toward their own culture and do not resist the cultural and social pressures imposed by their national context.

Factor 2. Media-literate non-adopters

We used the term "adopter" in its basic form to represent the simultaneous, dual processes of acculturation and socialization. Users in Factor 2 neither adopt cultural elements from their national culture (i.e., socialization) nor from different cultures (i.e., acculturation).

Figure 3 illustrates the network analysis model of responses associated with Factor 2.

The narrative of the media-literate non-adopters. Members of this group are neither socialization adopters nor acculturation adopters. They exhibit a high level of self-confidence and are unwilling to change; hence, they do not adopt cultural elements from social media, as well as cultural elements aligned with societal norms and conventions. They are risk-averse, as adopting behaviors and attitudes

that differ from their own may lead to undesirable consequences. They are highly media-literate, knowing how to use applications effectively, share information consciously on social media, and create content using various tools on these platforms. In addition, compared to other groups, they are more likely to hold postgraduate degrees. These users are exposed to both similar and dissimilar individuals and content on social media— sometimes even in non-Persian languages.

Table 6. Distinguishing statements for Factor 2

Z-Score	Statements with the highest disagreement	Z-Score	Statements with the highest agreement
-1.54175	55. I draw on examples from lifestyles on social media that are happier, healthier, and have greater welfare than my own.	3.27759	10. I know how to install or delete apps on my mobile phone.
-1.10584	29. I draw on examples from people and media content from a different social class than mine on social media to have a better life.	2.62904	11. Using social media apps is easy for me.
-1.04551	60. I draw on examples from individuals and groups belonging to my national culture on social media.	2.32260	13. I can distinguish between accurate and inaccurate information on social media
-1.00367	21. I draw on examples from individuals and media content that reflect my own culture, values, attitudes, lifestyle, age group, and gender on social media.	1.96875	15. On social media, I encounter people or content that are different from my culture.
-1.00281	57. I draw on examples from people and media content from different cultures on social media that I find attractive.	1.77086	12. I consciously choose what information to share publicly or privately on social media.
		1.71467	17. I use non-Persian content on social media from cultures different from mine without needing subtitles or translations.
		1.66735	14. I can create content on social media using various tools.
		1.50689	45. I do not want to change, so I do not draw on examples from social media.
		1.25574	16. On social media, I encounter people or content similar to my culture.
		1.09842	47. I usually have high self-confidence.

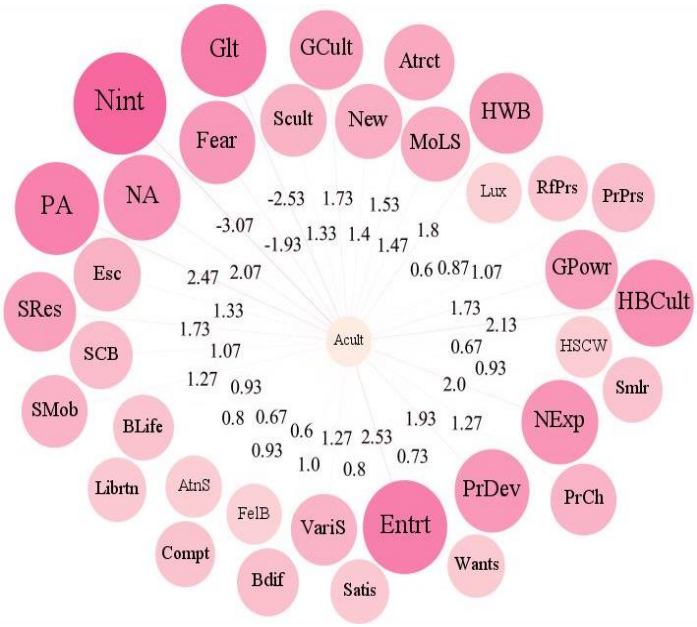


Figure 3. User acculturation model in Factor 2

Factor 3. Media-literate acculturation adopters

Users in Factor 3 adopt cultural elements only from cultures different from their own (i.e., through acculturation).

Figure 4 presents the network analysis model of responses associated with Factor 3.

Table 7. Distinguishing statements for Factor 3

Z-score	Statements with the highest disagreement	Z-score	Statements with the highest agreement
-2.55595	18. I do not draw on examples from individuals with cultures different from mine on social media because I feel guilt or shame.	1.43324	64. I draw on examples from business advertising content on social media.
-2.26906	19. I do not draw on examples from individuals with cultures different from mine on social media because I feel fear.	1.43139	63. I draw on examples from educational and informative content on social media.
-2.15320	45. I do not want to change, so I do not draw on examples from social media.	1.32669	65. I draw on examples from knowledgeable, educated, and expert individuals on social media.
-1.68399	31. I draw on examples from individuals and media content from different cultures on social media to attract the attention of	1.28467	39. I draw on examples from culturally different individuals and content on social media to improve personally,

Z-score	Statements with the highest disagreement	Z-score	Statements with the highest agreement
	others.		intellectually, individually, and socially.
-1.64199	20. I do not draw on examples from individuals with cultures different from mine on social media because I am not interested in doing so.	1.28211	10. I know how to install or delete apps on my mobile phone.
-1.59269	44. I draw on examples from social media in accordance with the norms and conventions of society.	1.26331	57. I draw on examples from people and media content from different cultures on social media that I find attractive.
-1.26922	42. I draw on examples from individuals and media content different from my culture on social media to be similar to my favorite people.	1.22438	59. I draw on examples from the dominant global culture, which differs from my national culture, on social media.
-1.12827	69. I draw on examples from celebrities, influencers, and famous people (like Instagram celebrities) on social media.	1.19003	11. Using social media apps is easy for me.
-1.10557	32. I draw on examples from individuals and media content different from my culture on social media to compete with others.	1.17763	37. I draw on examples from culturally different individuals and content on social media for entertainment and enjoyment.
-1.07637	43. I take risks when drawing on examples from social media, following behaviors and attitudes that may have negative consequences for me.	1.13757	41. I draw on examples from culturally different individuals and content on social media to experience things that are new to me.
-1.00176	53. Influenced by people and groups who serve as my reference points for evaluation and decision-making (reference groups), I draw on examples from individuals and media content from different cultures on social media.	1.08969	56. I draw on examples from modern and new lifestyles different from my own on social media.

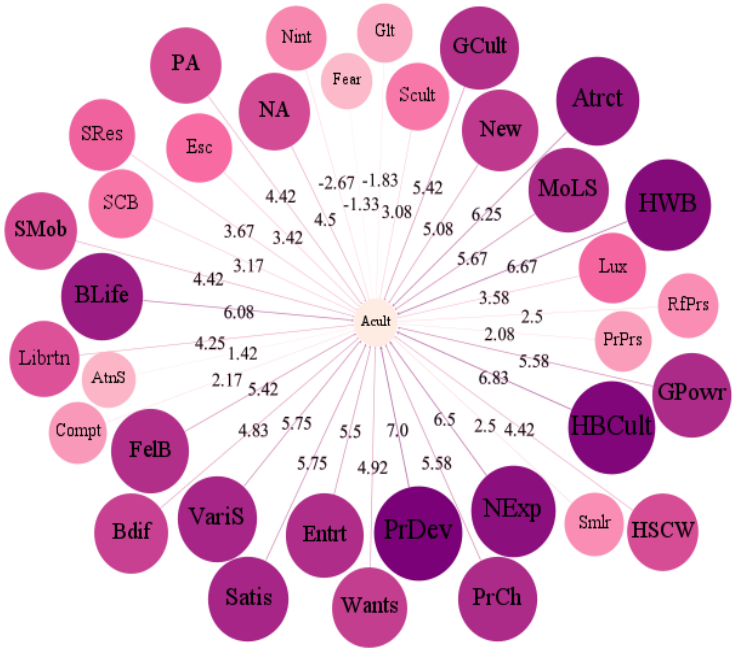


Figure 4. User acculturation model in Factor 3

The narrative of the media-literate acculturation adopters. This group adopts cultural elements from global and dominant cultures that differ from their national culture, especially from modern, new, and different lifestyles; knowledgeable and professional individuals, attractive content, and successful people with better lifestyles; and from entertainment, humor, tourism, music, and sports content. They do so to grow personally, intellectually, individually, and socially, as well as to be entertained, enjoy themselves, and experience new things. However, their acculturation is not motivated by a desire to attract others' attention, resemble individuals they admire, or compete with others. They are risk-averse and avoid adopting behaviors and attitudes that may lead to undesirable consequences, as well as cultural elements from famous individuals, celebrities, or influencers, or due to pressure from reference groups. These highly media-literate users demonstrate a low level of socialization and a high degree of acculturation to cultures different from their own.

Factor 4. Change-aspirant semi non-adopters

Individuals in Factor 4 are generally neither fully socialization adopters nor acculturation adopters, but they nonetheless adopt cultural elements from different cultures to a considerable extent in pursuit of changing their social class and status.

Table 8. Distinguishing statements for Factor 4

Z-score	Statements with the highest disagreement	Z-score	Statements with the highest agreement
-2.45851	70. I draw on examples from social-political activists on social media.	1.86180	21. I draw on examples from individuals and media content that reflect my own culture, values, attitudes, lifestyle, age group, and gender on social media.
-2.09891	64. I draw on examples from business advertising content on social media.	1.59800	12. I consciously choose what information to share publicly or privately on social media.
-1.71695	69. I draw on examples from celebrities, influencers, and famous people (like Instagram celebrities) on social media.	1.58563	40. I draw on examples from individuals and media content different from my culture on social media to change myself.
-1.66747	17. I use non-Persian content on social media from cultures different from mine without needing subtitles or translations.	1.56708	28. I draw on examples from individuals and media content from a different social class than mine on social media in order to change my own social class.
-1.66395	61. I draw on examples from individuals and media content belonging to small and non-dominant cultural groups that differ from my culture on social media.	1.48190	39. I draw on examples from culturally different individuals and content on social media to improve personally, intellectually, individually, and socially.
-1.49250	63. I draw on examples from educational and informative content on social media.	1.27413	29. I draw on examples from people and media content from a different social class than mine on social media to have a better life.
-1.37298	60. I draw on examples from individuals and groups belonging to my national culture on social media.	1.17387	50. I draw on examples from individuals, groups, and communities on social media that have a higher and better culture than my own.
-1.23505	66. I draw on examples from individuals with physical attractiveness on social media.	1.14582	38. I draw on examples from individuals and media content from different cultures on social media to overcome my shortcomings and achieve my dreams.
-1.18159	65. I draw on examples from knowledgeable, educated, and expert individuals on social media.	1.11387	20. I do not draw on examples from individuals with cultures different from mine on social media because I am not interested in doing so.
-1.13274	46. I draw on examples		

Z-score	Statements with the highest disagreement	Z-score	Statements with the highest agreement
	from social media in my life.		
-1.05230	52. Under the influence of pressure from peers and similar groups, I draw on examples from individuals and media content different from my culture on social media.		

Figure 5 demonstrates the network analysis model of responses associated with Factor 4.

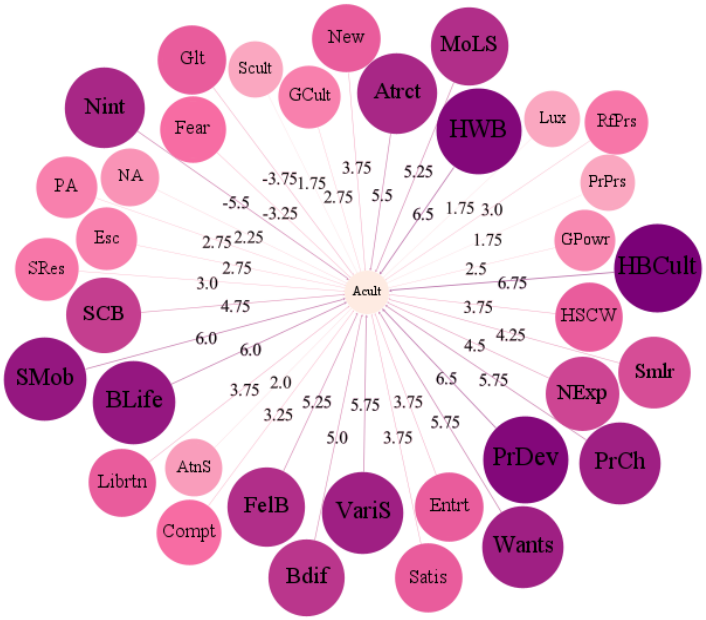


Figure 5. User acculturation model in Factor 4

The narrative of the change-aspirant semi non-adopters. This group claims they do not adopt cultural elements either from individuals or content different from themselves, from individuals and groups belonging to their national culture, or from subcultures. Despite this claim of lacking socialization and acculturation, these individuals in fact adopt cultural elements on social media from individuals and media content similar to their own culture, values, attitudes, lifestyle, age, and gender. On social media, they do not adopt cultural elements from those culturally different from them unless they are seeking to change themselves or their social class, to progress, to achieve a better life, to compensate for deficiencies, or to fulfill their aspirations. Under such conditions, they exhibit a high degree of acculturation. Additionally,

these individuals do not adopt cultural elements from political activists, business-related advertising content, famous individuals, celebrities, influencers, or peer groups, and they do not use educational and informational content or non-Persian-language content.

Factor 5. Risk-taking socialization adopters

Users in Factor 5 generally do not adopt cultural elements from different cultures, but they do adopt from their own culture. However, when they do acculturate, they are risk-takers and do not consider the consequences.

Table 9. Distinguishing statements for Factor 5

Z-score	Statements with the highest disagreement	Z-score	Statements with the highest agreement
-2.09826	25. I draw on examples from individuals and media content different from my national culture on social media in order to distance myself from my national cultural and social environment.	1.67574	60. I draw on examples from individuals and groups belonging to my national culture on social media.
-1.86198	20. I do not draw on examples from individuals with cultures different from mine on social media because I am not interested in doing so.	1.67067	44. I draw on examples from social media in accordance with the norms and conventions of society.
-1.78015	59. I draw on examples from the dominant global culture, which differs from my national culture, on social media.	1.58860	46. I draw on examples from social media in my life.
-1.74301	19. I do not draw on examples from individuals with cultures different from mine on social media because I feel fear.	1.54843	50. I draw on examples from individuals, groups, and communities on social media that have a higher and better culture than my own.
-1.74235	18. I do not draw on examples from individuals with cultures different from mine on social media because I feel guilt or shame.	1.49155	69. I draw on examples from celebrities and influencers (like famous Instagram figures) on social media.
-1.60700	64. I draw on examples from business advertising content on social media.	1.40610	67. I draw on examples from successful individuals with better lifestyles on social media.
-1.49438	26. To resist the socio-cultural pressures and obligations of my national culture, I draw on examples from individuals and media	1.39585	34. I draw on examples from individuals and media content from different cultures on social media in order to

Z-score	Statements with the highest disagreement	Z-score	Statements with the highest agreement
	content that are different from my national culture on social media.		be different from others.
-1.35608	30. I draw on examples from individuals and media content different from my culture on social media to free myself from social constraints.	1.28625	16. On social media, I encounter people or content similar to my culture.
-1.31401	24. I have a positive feeling toward cultures different from my national culture; therefore, I draw on examples from individuals and media content different from my national culture on social media.	1.10685	12. I consciously choose what information to share publicly or privately on social media.
-1.28613	56. I draw on examples from modern and new lifestyles different from my own on social media.	1.10579	43. I take risks when drawing on examples from social media, following behaviors and attitudes that may have negative consequences for me.
-1.05297	23. I do not have a positive feeling toward my national culture, so I draw on examples from individuals and media content on social media that are different from it.	1.06683	42. I draw on examples from individuals and media content different from my culture on social media to be similar to my favorite people
-1.04831	37. I draw on examples from culturally different individuals and content on social media for entertainment and enjoyment.	1.04001	14. I can create content on social media using various tools
		1.02047	47. I usually have high self-confidence.

Figure 6 illustrates the network analysis model of responses associated with Factor 5.

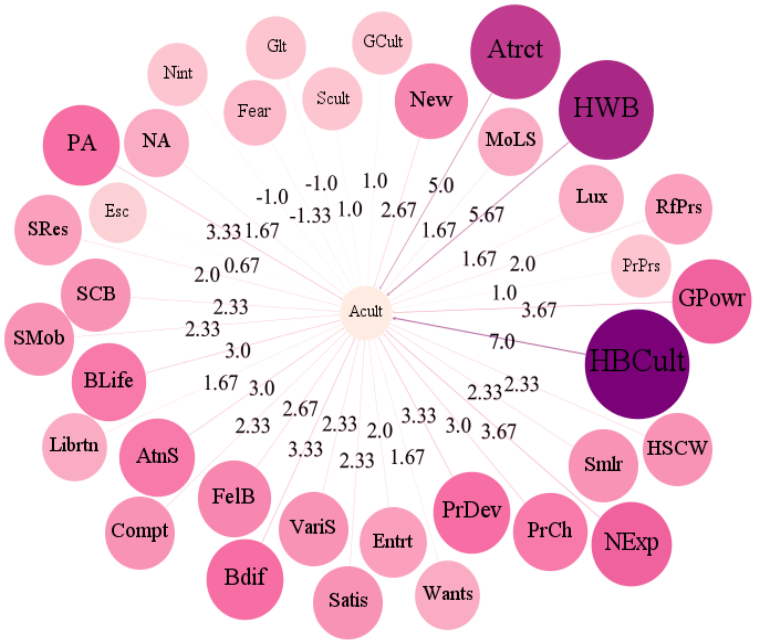


Figure 6. User acculturation model in Factor 5

The narrative of the risk-taking socialization adopters. Members of this group adopt cultural elements from social media, particularly from individuals and groups belonging to their national culture and aligned with their society's norms and conventions. They do not adopt cultural elements to distance themselves from their national socio-cultural environment, resist its pressures and constraints, or escape social restrictions. They are socialization adopters in that they do not hold positive attitudes toward different cultures and generally avoid adopting cultural elements from them, showing little interest in acculturation, especially from global or dominant cultures. On social media, they are mainly exposed to individuals and content culturally similar to themselves. Despite this homophily, they adopt cultural elements from cultures different from their own to differentiate themselves from others and to resemble individuals they admire. Moreover, when adopting elements of a different culture, they are risk-takers, embracing behaviors and attitudes that may have undesirable consequences— without fear, guilt, or shame.

4. Discussion

This study aims to develop models of acculturation among social media users exposed to cyber-subcultures, based on the assumption that users behave similarly to migrants in new cultural environments when exposed to new cultures and subcultures. The findings indicate that participants exhibit significant differences in their cyber-acculturation. Comparable to the different forms of acculturation observed in new

cultural environments— including assimilation, separation, integration, and marginalization (Li et al., 2019)— as proposed by Sam and Berry (2006), the present study identifies five distinct models of user cyber-acculturation through exposure to cyber-subcultures: 1) Conservative socialization adopters, 2) Media-literate non-adopters, 3) Media-literate acculturation adopters, 4) Change-aspirant semi non-adopters, and 5) Risk-taking socialization adopters. All of these categories, to some extent— even minimally— involve adopting cultural elements, particularly from perceived better or superior cultures, motivated by social mobility, self-actualization, well-being, and personal advancement. This aligns with Berry's integration strategy, in which migrants combine aspects of both cultures in ways that are highly beneficial for personal growth and intercultural understanding (van der Zee & van Oudenhoven, 2022).

The Conservative Socialization Adopter cyber-acculturation model closely aligns with the separation strategy, which rejects adopting the host society's culture (Hoffmann et al., 2022) and, in its digital form, involves using platforms exclusively to interact with and reinforce connections among in-group members (Dey et al., 2020). The Media-Literate Non-Adopter cyber-acculturation model resembles the marginalization strategy, in which individuals neither maintain their original identity nor adopt host cultural elements (Cleveland & Xu, 2019). In fact, resistance to change and cultural diversity significantly affect individuals' degree of marginalization (Lassiter et al., 2018). The cyber-acculturation model of Media-Literate Acculturation Adopters is consistent with the assimilation strategy (Cleveland & Xu, 2019), where individuals withdraw their cultural identity and actively seek interactions with members of another culture (Kizgin et al., 2018).

The Change-Aspirant Semi Non-Adopter cyber-acculturation model partly resembles that of the Media-Literate Acculturation Adopters, aligning with the assimilation strategy (Cleveland & Xu, 2019). At the same time, users in this model assert that they do not adopt either similar or different cultural elements, thereby exhibiting the marginalization strategy (Cleveland & Xu, 2019). These individuals appear to make their acculturation contingent upon changes in social class and status, triggering social mobility— the movement between social classes or statuses (Swargiary, 2025). Indeed, acculturation enables individuals to adopt and perform codes that allow them to be recognized within cultural groups (Balakrishnan et al., 2025). The cyber-acculturation model of Risk-Taking Socialization Adopters primarily aligns with the separation strategy (Cleveland & Xu, 2019; Mao & Ji, 2024), a maladaptive approach (Sibanda & Seyama-Mokhaneli, 2024), while also, to some extent, exhibiting the integration strategy (Cleveland & Xu, 2019).

Cultural adaptation and acculturation are facilitated by the Internet and social networks, which offer tools for communication, access to

information, interaction, and socialization (Çömlekçi, 2020). Social media platforms influence cultural identity by shaping individuals' beliefs, attitudes, values, and behaviors, and they facilitate the acculturation process by assimilating individuals into diverse cultural identities, both explicitly and implicitly (Balakrishnan et al., 2025). While there may be inclinations toward heterophily— an individual's tendency to maintain a higher proportion of relations with members of other groups (Oskouie et al., 2024)— culture is nonetheless structured through similarities shared within a group (Balakrishnan et al., 2025). People tend to form groups with those they agree with. Network homophily—also a significant characteristic of social media— refers to the degree to which pairs of individuals are similar in certain attributes (Oskuie & Oskouie, 2024). Homophily can be embodied in socialization, in which individuals influence one another over time and become increasingly similar through interaction, and also in selection, in which individuals tend to choose friends based on an initial perception of similarity (Thakur et al., 2025). This type of selectiveness in exposure to like-minded content and people, boosted by platform algorithms, has the potential to result in isolation, echo chambers, filter bubbles, restrictions in exposure to diversity, radicalization, and polarization, as well as decreased tolerance for disagreeing views, with adverse effects on democracy (Oskuie & Oskouie, 2024). Indeed, digital globalization can lead to cultural leveling, or a two-way process of cultural homogenization, making distinct cultures increasingly similar to each other, particularly due to Western cultural diffusion. However, people often prefer content relevant to their region and language, and media consumption is motivated by cultural proximity, though cross-cultural content consumption has been enabled by media globalization (Oskouie et al., 2024). Cultural patterns evolve gradually (Balakrishnan et al., 2025). Hence, the adoption of cultural elements from both different and similar cultures, accelerated by social media, can gradually result in cultural change.

5. Conclusions

This study identified five types of user cyber-acculturation models in relation to exposure to cyber-subcultures. These models help address the existing gap in the literature. The study extends Berry's theoretical framework to the online context and contributes theoretically by adapting and expanding acculturation theory to account for users' exposure to cyber-subcultures. Nonetheless, the findings are limited by the number of participants in the Q methodology and by the characteristics of the selected sample. Future research using the Q methodology is recommended to investigate a broader range of user categories. Another limitation lies in the cultural characteristics of Iranian users. Further studies are recommended to integrate Q methodology and network analysis as valuable tools for gaining deeper

insights into user cyber-acculturation across different socio-cultural contexts. By distinguishing user differences, this study has identified the factors influencing users' cyber-acculturation in exposure to cyber-subcultures. These findings can inform more effective media and educational content production, as well as media, cultural, and educational policies, regulations, and measures by providing a clearer understanding of user cyber-acculturation differences.

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Conflict of interest
The authors declared no conflicts of interest.

Ethical considerations
The authors have completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or falsification, double publication and/or redundancy, submission, etc. This article was not authored by artificial intelligence.

Data availability
The dataset generated and analyzed during the current study is available from the author on reasonable request.

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References
Aguirre-Urreta, M.I.; Marakas, G.M. & Ellis, M.E. (2013). "Measurement of composite reliability in research using partial least squares: Some issues and an alternative approach". *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*. 44(4): 11-43. https://doi.org/doi.org/10.1145/2544415.2544417.

Akhtar-Danesh, N. (2017). "A comparison between major factor extraction and factor rotation techniques in Q-methodology". *Open Journal of Applied Sciences*. 7(4): 147-156. https://doi.org/10.4236/ojapps.2017.74013.

Akter, A.; Tan, K.H. & Muslim, N. (2024). "Versatility of social networking sites in meeting the acculturation needs of migrant populations between 2019 and 2023". *Humanities and Social Sciences Communications*. 11(1): 1-17. https://doi.org/https://doi.org/10.1057/s41599-024-03341-6.

Azzopardi, J.; Formosa, S.; Scicluna, S. & Willis, A. (2013). *Key Issues in Criminology*. JANUS III. https://doi.org/https://doi.org/10.13140/2.1.4212.3203.

Balakrishnan, K.; Angusamy, A.; Palraj, N. & Triasuti, E. (2025). "Influence of social

media exposure factors on cultural acculturation: Ethnic identity as a mediator". *SEARCH Journal of Media and Communication Research.* https://doi.org/10.58946/search-Special Issue.CLESS2024.P1.

Bashatah, L.S. (2016). "Q-methodology: What and how". *Journal of Research & Method in Education*. 6(5): 37-43. https://doi.org/10.9790/7388-0605053743.

Berkhout, J.J.; Teunissen, P.W.; Helmich, E.; van Exel, J.; van der Vleuten, C.P. & Jaarsma, D.A. (2017). "Patterns in clinical students' self-regulated learning behavior: a Q-methodology study". *Advances in Health Sciences Education.* 22(1): 105-121. https://doi.org/10.1007/s10459-016-9687-4.

Bhoj, R.; Thapa, R. & Chowdhury, A.R. (2022). "Effects of recreation of subcultures on social media on the subculture, inter-subculture community and intra-subculture community individuals". *Fashion, Style & Popular Culture*. 11(3-4): 555-571. https://doi.org/doi.org/10.1386/fspc_00147_1.

Candeloro, L.; Savini, L. & Conte, A. (2016). "A new weighted degree centrality measure: The application in an animal disease epidemic". *PloS one.* 11(11). https://doi.org/10.1371/journal.pone.0165781.

Cardoso, L.M. (2021). "Cyberculture: Redefining culture and literature in cyberspace". *33rd Pattaya International Conference on Business, Literature, Psychology & Music*.

Cleveland, M. & Xu, C. (2019). "Multifaceted acculturation in multiethnic settings". *Journal of Business Research.* 103: 250-260. https://doi.org/doi.org/10.1016/j.jbusres.2019.01.051.

Çömlekçi, M.F. (2020). "Social media use among international students: Cultural adaptation and socialization". *TRT Akademi*. 5(10): 668-685. https://dergipark.org.tr/en/pub/trta/issue/56639/726277.

Coogan, J. & Herrington, N. (2011). "Q methodology: An overview". *Research in Secondary Teacher Education.* 1(2): 24-28.

Damio, S.M. (2018). "The analytic process of Q methodology". *Asian Journal of University Education (AJUE)*. 14(1): 59-75.

----------. (2016). "Q methodology: An overview and steps to implementation". *Asian Journal of University Education.* 12(1): 105. https://files.eric.ed.gov/fulltext/EJ1207820.pdf.

de Vreese, C.H. & Neijens, P. (2016). "Measuring media exposure in a changing communications environment". *Communication Methods and Measures*. 10(2-3): 69-80 .https://doi.org/https://doi.org/http://dx.doi.org/10.1080/19312458.2016.1150441.

Dey, B.L.; Yen, D. & Samuel, L. (2020). "Digital consumer culture and digital acculturation". *International Journal of Information Management.* 51: 102057. https://doi.org/https://doi.org/https://doi.org/10.1016/j.ijinfomgt.2019.102057.

Dieteren, C.M.; Patty, N.J.; Reckers-Droog, V.T. & van Exel, J. (2023). "Methodological choices in applications of Q methodology: A systematic literature review". *Social Sciences & Humanities Open*. 7(1): 100404. https://doi.org/doi.org/10.1016/j.ssaho.2023.100404.

Dong, E.; Yan, Y.; Ji, S.; Li, J.; Wang, T.; Shi, J.; ... & Zhang, S. (2025). "The influences of acculturation strategies on physician trust among internal migrants in Shanghai ,China: a cross-sectional study in 2021". *Frontiers in Public Health*. 13: 1506520. https://doi.org/10.3389/fpubh.2025.1506520.

Durmus, K. (2021). "The impact of cyber culture on new media consumers". *Security Issues and Privacy Concerns in Industry 4.0 Applications*. 229-247. https://doi.org/10.1002/9781119776529.ch12.

Ferris, K. & Stein, J. (2018). *The Real World: An Introduction to Sociology*. W. W. Norton.

Fikes, L. (2023). *Professional Discretion of Child Protective Services Investigators in Foster Care Placements*. Walden University. https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=15965&context=dissertations.

Guvercin, Y.; Chowdhury, S.; Durmaz, B. & Yazici, M. (2025). "Acculturation strategies and their impact on psychological health". *London Journal of Interdisciplinary Sciences.* 4: 70-80. https://doi.org/doi.org/10.31039/ljis.2025.4.305.

Heale, R. & Twycross, A. (2015). "Validity and reliability in quantitative studies". *Evid Based Nurs.* 18(3): 66-7. https://doi.org/10.1136/eb-2015-102129.

Hoffmann, L.; Jónsson, Þ.A. & Meckl, M. (2022). "Migration and community in an age of digital connectivity: A survey of media use and integration amongst migrants in Iceland". *Nordicom Review*. 43(1): 19-37. https://doi.org/https://doi.org/10.2478/nor-2022-0002.

Jain, P., & Yadav, N. (2018 & 2019). "Social media and youth subculture: A sociological study". *Journal of Social Sciences*. 7&8(1): 146-162. https://iisjoss.org/sites/default/files/iisjoss/2018-19/PDF/14.pdf.

Khoshgooyan Fard, A. (2007). *Q Methodology*. IRIB Research Center. [in Persian]

Kizgin, H.; Dey, B.L.; Dwivedi, Y.K.; Hughes, L.; Jamal, A.; Jones, P.; … & Williams, M.D. (2020). "The impact of social media on consumer acculturation: Current challenges, opportunities, and an agenda for research and practice". *International Journal of Information Management*. 51: 102026. https://doi.org/doi.org/10.1016/j.ijinfomgt.2019.10.011.

Kizgin, H.; Jamal, A.; Dey, B.L. & Rana, N.P. (2018). "The impact of social media on consumers' acculturation and purchase intentions". *Information Systems Frontiers*. 20(3): 503-514. https://doi.org/doi.org/10.1007/s10796-017-9817-4.

Klintwall, L.; Bellander, M. & Cervin, M. (2023). "Perceived causal problem networks: reliability, central problems, and clinical utility for depression". *Assessment*. 30(1): 73-83. https://doi.org/10.1177/10731911211039281.

Kunst, J.R.; Lefringhausen, K.; Skaar, S.W. & Obaidi, M. (2021). "Who adopts the culture of ethnic minority groups? A personality perspective on majority-group members' acculturation". *International Journal of Intercultural Relations*. 81(20-28). https://doi.org/doi.1016/j.ijintrel.2021.01.001.

Lakey, P.N. (2003). "Acculturation: A review of the literature". *Intercultural Communication Studies*. 12(2): 103-118.

Lassiter, C.; Norasakkunkit, V.; Shuman, B. & Toivonen, T. (2018). "Diversity and resistance to change: Macro conditions for marginalization in post-industrial societies". *Frontiers in Psychology.* 9: 812. https://doi.org/10.3389/fpsyg.2018.00812.

Lee, B. (2017). "The fundamentals of Q methodology". *Journal of Research Methodology*. 2(2): 57-95. https://doi.org/dx.doi.org/10.21487/jrm.2017.11.2.2.57.

Li, C.; Guo, S.; Wang, C. & Zhang, J. (2019). "Veni, vidi, vici: The impact of social media on virtual acculturation in tourism context". *Technological Forecasting and Social Change.* 145: 513-522. https://doi.org/doi.org/10.1016/j.techfore.2019.01.013.

Liu, Y.; Li, X.; Liang, Z. & Wu, X. (2021). "Media exposure, perceived efficacy and positive experience as predictors of personal and social risk perceptions of mishandled vaccine in China". *Asian Journal of Communication*. 31(2): 105-123. https://doi.org/https://doi.org/https://doi.org/10.1080/01292986.2021.1888305.

Mao, Y. & Ji, H. (2024). "Acculturation in China: Acculturation strategies, social support, and self-assessment of Mandarin learning performance of international students in Chinese universities". *Journal of Multilingual and Multicultural Development.* 1-19. https://doi.org/doi.org/10.1080/01434632.2024.2399643.

Meraji Oskuie, S.; Mohamadkhani, K.; Delavar, A. & Farhangi, A.A. (2022). "Instrumentation for the measurement of factors affecting social control of cybercultural transgressions among social media users". *Psychometry*. 10(40). Researchgate.

Mitra, A. & Evansluong, Q. (2019). "Narratives of integration: Liminality in migrant acculturation through social media". *Technological Forecasting and Social Change*. 145: 474-480. https://doi.org/doi.org/10.1016/j.techfore.2019.01.011.

Morea, N. & Ghanbar, H. (2024). "Q methodology in applied linguistics: A systematic

research synthesis". *System*. 120, 103194. https://doi.org/doi.org/10.1016/j.system.2023.103194.

Nanz, A.; Heiss, R. & Matthes, J. (2022). "Antecedents of intentional and incidental exposure modes on social media and consequences for political participation: A panel study". *Acta Politica*. 57(2): 235-253. https://doi.org/https://doi.org/https://doi.org/10.1057/s41269-020-00182-4.

Newman, I. & Ramlo, S. (2010). "Using Q methodology and Q factor analysis in mixed methods research". *Sage Handbook of Mixed Methods in Social and Behavioral Research.* 2: 505-530. https://doi.org/10.4135/9781506335193.n20.

Oskouie, S.M.; Mohamadkhani, K. & Soltanifar, M. (2024). "Cyber-acculturative factors influencing cybercultural production and consumption: A cultural economic perspective". *International Journal of Finance, Accounting, and Economics Studies.* 5(2): 1-21. https://sanad.iau.ir/Journal/ijfaes/Article/1126951.

Oskuie, S.M.; Abbaspour, A.; Delavar, A. & Eshlaghy, A.T. (2023). "A perceived causal relations model for social control of academic transgressions among faculty members". *International Journal of Ethics and Society*. 5(3): 27-40. https://doi.org/10.22034/5.3.27.

Oskuie, S.M. & Oskouie, S.M. (2024). "Cyberactivism and real-world activism: Why are users different?". *Journal of Cyberspace Studies.* 8(1): 27-58. https://doi.org/10.22059/jcss.2024.361160.1089.

Pastarmadzhieva, D. (2012). "Subcultures: From social to political". *Trakia Journal of Sciences.* 10(4): 80-85 .

Rahma, A.; Mardiatno, D. & Hizbaron, D. R. (2020). "Q methodology to determine distinguishing and consensus factors (a case study of university students' ecoliteracy on disaster risk reduction)". In *E3s Web of Conferences*.

Ramlo, S. (2016). "Mixed method lessons learned from 80 years of Q methodology". *Journal of Mixed Methods Research*. 10(1): 28-45. https://doi.org/10.1177/1558689815610998?urlappend=%3Futm_source%3Dresearchgate.net%26medium%3Darticle.

Rani, P. & Shokeen, J. (2021). "A survey of tools for social network analysis". *International Journal of Web Engineering and Technology.* 16(3): 189-216. https://doi.org/doi.org/10.1504/IJWET.2021.119879.

Rieber, L.P. (2020). "Q methodology in learning, design, and technology: An introduction". *Educational Technology Research and Development*. 68(5): 2529-2549. https://doi.org/doi.org/10.1007/s11423-020-09777-2.

Rosli, M.S.; Saleh, N.S.; Alshammari, S.H.; Ibrahim, M.M.; Atan, A.S.; Atan, N.A. (2021). "Improving questionnaire reliability using construct reliability for researches in educational technology". *Internatuinal Journal of Interactive Mobile. Technologies.* 15(4): 109-116. https://doi.org/doi.org/10.3991/ijim.v15i04.20199.

Sam, D.L. (2006). "Acculturation: Conceptual background and core components". In Sam, D.L. & Berry, J.W. (Eds.). *The Cambridge Handbook of Acculturation Psychology* (pp. 11-26).

Sam, D.L. & Berry, J.W. (2006). The Cambridge Handbook of Acculturation Psychology.

Schreurs, L. & Vandenbosch, L. (2020). "Introducing the Social Media Literacy (SMILE) model with the case of the positivity bias on social media". *Journal of Children and Media.* 15(3): 320-337. https://doi.org/doi.org/10.1080/17482798.2020.1809481.

Sibanda, D. & Seyama-Mokhaneli, S. (2024). "This is how we do things". Acculturation of Immigrant Teachers: Elusive Critical Leadership. *Journal of Education Culture and Society.* 15(1): 161-179. https://doi.org/doi.org/10.15503/jecs2024.1.161.179.

Sicilia, M.; Palazón, M. & López, M. (2020). "Intentional vs. unintentional influences of social media friends". *Electronic Commerce Research and Applications.* 42:

100979. https://doi.org/https://doi.org/10.1016/j.elerap.2020.100979.
Swargiary, K. (2025). *Educational Sociology: Theory, Practice, and Contemporary Challenges*. Independently Published.
Thakur, A.; Vemuri, D. & Gledhill, M. (2025). "Exploring like-attracts-like friendships in diagnosed and self-diagnosed populations: A description of 2 systematic reviews". *Social Psychiatry and Psychiatric Epidemiology*. 1-17. https://doi.org/doi.org/10.1007/s00127-025-02884-6.
Toth-Bos, A.; Wisse, B. & Farago, K. (2020). "The interactive effect of goal attainment and goal importance on acculturation and well-being". *Frontiers in Psychology*. 11: 704. https://doi.org/10.3389/fpsyg.2020.00704.
Trültzsch-Wijnen, C.W. (2020). *Media literacy and the effect of socialization*. Springer International Publishing. https://doi.org/doi.org/10.1007/978-3-030-56360-8.
van der Zee, K. & van Oudenhoven, J.P. (2022). "Towards a dynamic approach to acculturation". *International Journal of Intercultural Relations*. 88: 119-124. https://doi.org/doi.org/10.1016/j.ijintrel.2022.04.004.
Vraga, E.K. & Tully, M. (2021). "News literacy, social media behaviors, and skepticism toward information on social media". *Information, Communication & Society*. 24(2): 150-166. https://doi.org/https://doi.org/10.1080/1369118X.2019.1637445.
Wajahat, A.; Nazir, A.; Akhtar, F.; Qureshi, S.; Razaque, F. & Shakeel, A. (2020). "Interactively visualize and analyze social network Gephi". In *3rd International Conference on Computing, Mathematics and engineering Technologies (iCoMET)*.
Watts, S. (2015). "Develop a Q methodological study. Education for Primary Care". *Education for Primary Care*. 26(6): 435-437 . https://doi.org/10.1080/14739879.2015.1101855.
Watts, S. & Stenner, P. (2005). "Doing Q methodological research: Theory, method & interpretation". *Qualitative Research in Psychology*. 2: 67-91. https://doi.org/10.1191/1478088705qp022oa.
Wen, K. (2020). "A review of literature on social media and acculturation". *Open Journal of Social Sciences*. 8: 19-29. https://doi.org/10.4236/jss.2020.86002.
Wu, R. (2023). "The role of social media in the acculturation process of Chinese international students 2022". *4th International Conference on Literature, Art and Human Development (ICLAHD 2022)*.
Yen, D.A. & Dey, B. (2019). "Acculturation in the social media: Myth or reality? Analysing social-media-led integration and polarisation". *Technological Forecasting and Social Change*. 145: 426-427. https://doi.org/doi.org/10.1016/j.techfore.2019.04.012.
Ying, R. (2020). "The digitalization of lifestyle in a digital era: A case study of WeChat in China". *International Journal of Literature and Arts*. 8(3): 119. https://doi.org/https://doi.org/10.11648/j.ijla.20200803.13.
Yu, Q.; Foroudi, P. & Gupta, S. (2019). "Far apart yet close by: Social media and acculturation among international students in the UK". *Technological Forecasting and Social Change*. 145: 493-502. https://doi.org/https://doi.org/10.1016/j.techfore.2018.09.026.
Zabala, A. (2014). "qmethod: A package to explore human perspectives using Q methodology". *The R Journal*. 6(2): 163-173. https://orcid.org/0000-0001-8534-3325.
Zabala, A. & Pascual, U. (2016). "Bootstrapping Q methodology to improve the understanding of human perspectives". *PloS one*. 11(2): e0148087. https://doi.org/10.1371/journal.pone.0148087.
Zamanzadeh, V.; Ghahramanian, A.; Rassouli, M.; Abbaszadeh, A.; Alavi-Majd, H. & Nikanfar, A.R. (2015). "Design and implementation content validity study: Development of an instrument for measuring patient-centered communication". *Journal of Caring Sciences*. 4(2): 165. https://doi.org/10.15171/jcs.2015.017.

Zolotukhin, V.; Zolotukhina, N.; Sedina, N. & Kozyreva, M. (2020). "Socio-cultural and legal aspects of interaction between representatives of different subcultures in the media space". *KnE Social Sciences*. 227-234. https://doi.org/https://doi.org/https://doi.org/10.18502/kss.v4i2.6338.