

# Herd Behavior as a Determinant of Students' Choice of Major to Study in the University

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## Abstract

After graduation from secondary school, students face the decision of selecting a university major, which may be influenced by factors beyond personal preferences, including herd behavior. Although previous research has identified various social and contextual influences on major choice, limited attention has been given to herd behavior as a distinct psychological mechanism, and there remains a lack of culturally grounded instruments to measure this construct, particularly within Middle Eastern contexts. The aims of this study were to construct a scale for the herd behavior effect on students' university major choice (HBMC) and to explore any differences in this effect according to gender and college. A ten-item scale developed by the researcher was administered to a sample of 1,254 students from six universities in Jordan. Exploratory and confirmatory factor analyses confirmed the unidimensional structure for the HBMC scale, and its good psychometric properties ( $\alpha = 0.953$ ). The results also indicated significant gender differences in the herd behavior effect, in favor of males ( $F = 5.281$ ,  $df = 1$ ,  $p < 0.01$ ). These results highlight the importance of psychological and vocational guidance programs to enhance secondary school students' independent thinking in selecting their university major according to their inclinations, abilities, aspirations, and their plans of professional future, rather than blindly imitating of others.

## INTRODUCTION

After graduation from secondary school, students start think of their choice of university major, a decision that may be affected by factors beyond their own preferences, including their friends, family members, others' opinions, and the herd behavior effect. In fact, major choice is a difficult decision for Grade 12 graduates, who are walking toward adulthood with unstable emotions and narrow experience, at the same time they realize if their major choice is wrong, it will lead to a case of dissatisfaction with their future profession (Dani & Desai, 2018).

After secondary school, students face the challenge of choosing their university major, which is affected not only by their own preferences but also by social factors such as family, friends, and herd behavior. The limited experience and information may force students to depend on others' opinions, which can be a rational decision that reduces decision-making risks and is consistent with social learning theories which view social influence as a mean of cognitive efficiency (Dignath et al., 2020; Grawitch et al., 2025). However, social influence may cause students to ignore their abilities and interests, which leads to poor academic performance, low job satisfaction, and inefficient investment in human capital (Dababneh et al., 2021; Gillis & Ryberg, 2021). This situation is described as herd behavior, which is defined as individuals' tendency to align their decisions with others, either rationally through observational learning or irrationally according to social traditions and insufficient information (Camara, 2017; Kameda and Hastie, 2015; Li & Zeng, 2017).

Student independent choice of university major reflects self-determination, an important component of self-actualization—the highest level in Maslow's hierarchy of human needs

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(Maslow, 1943). Studies have shown that decision-making ability is positively correlated with self-actualization (Senthamizh Pavai et al., 2021). Previous studies indicate that students' choice of university major is influenced by many factors. For example, Brahmeh and Sawalmeh (2023) reported that the determinants of first major choice for Yarmouk University students, were secondary school grades, employment opportunities, acceptance probability, and personal willingness. While Al-Qudah et al. (2019) identified family as the most influential social factor, followed by income, parents' qualifications, and secondary examination grades. Ouano et al. (2019) emphasized desire, peer influence, university-related considerations, and future job opportunities as influential factors in major selection. Similarly, Mustafa et al. (2018) found that quality of education, cultural values, educational expenses, and parents' education and occupation are predictors of students' major choices.

Ibrahim et al. (2017) study showed that family members play a role in students' choice of medical laboratory sciences, while Khoo et al. (2015) reported that parents strongly influence major selection through financial support and guidance. Milsom and Coughlin (2015) found that information obtained from family members who previously attended college influenced students' initial major choices. Carnasciali et al. (2013) highlighted the role of gender and parental educational levels in engineering major selection. On the other hand, Khader et al. (2008) identified specialty content, reputation, expected income, and individual ability as key factors influencing medical specialty preferences in Jordan. Collectively, these studies demonstrate that students' major choices are shaped by multiple social, academic, and economic influences, and that major selection has important implications for career development and life satisfaction (Dababneh et al., 2021).

However, despite extensive evidence documenting factors associated with major choice, existing research has largely examined these influences descriptively and has not explicitly conceptualized herd behavior as a distinct psychological mechanism underlying decision-making. Most studies treat social influence as a general background factor rather than measuring the extent to which students align their choices with others' decisions. Furthermore, research within the Jordanian context remains limited, particularly regarding how culturally embedded social norms may intensify collective decision tendencies. According to the Jordanian cultural context, social norms and traditions commonly allow others to intervene and express opinions when individuals make important life decisions, such as choosing a marriage partner, place of residence, or place of work (Al-Karamneh et al., 2025). This highlights a clear need for a culturally grounded and psychometrically validated measure that specifically captures herd behavior in university major selection.

The present study aimed to develop a reliable scale to measure the effect of herd behavior on major selection, to examine its level among Jordanian university students, and to investigate differences according to gender, college type, and their interaction. Specifically, the study sought to evaluate the psychometric properties of the HBMC scale and to assess variations in HBMC scores across participant groups. This study contributes to existing literature by addressing a conceptual gap, providing a culturally appropriate measurement tool, and offering implications for vocational guidance programs that support independent decision-making (Al-Karamneh et al., 2025). This focus is particularly relevant because selecting an appropriate academic major may contribute to a suitable profession and stronger vocational identity (Dababneh et al., 2021), which is associated with better mental health outcomes. According to, Gazo et al. (2024) there is a positive correlation between vocational identity and psychological well-being.

## METHODS

### Design

The study employed a descriptive correlational design to examine relationships among the study variables without manipulating them. Data were collected using a cross-sectional survey, which was considered appropriate for addressing the research objectives by capturing participants' responses at a single point in time.

### Participants

The sample consisted of 1,254 students from six Jordanian universities, selected by convenience sampling: 656 males (52.3%) and 598 females (47.7%), 646 were in scientific colleges (51.5%) and 608 in literary colleges (48.5%). Participation was voluntary, and the study was conducted from October to December 2024.

### Instrument

The Herd Behavior effect on students' Major Choice (HBMC) scale was constructed to explore this effect on students' major choice decisions in Jordan. According to social influence theories and literature of decision-making under uncertainty, the scale first draft of (16) was constructed (Banerjee, 1992; Cialdini & Goldstein, 2004; Sun et al., 2023; Qambar & Asad, 2021; Zaida et al., 2021). The scale passed through an accurate translation and back-translation process to ensure conceptual and cultural equivalence between English and Arabic versions.

The content validity of the scale first draft was verified by nine experts in psychology, psychometrics, and social sciences. After the scale application to a pilot sample of 80 students from the same study population, the scale's psychometric properties were examined, using item discriminant validity, item-total correlations, and Cronbach's alpha reliability. Based on both statistical and theoretical criteria, the initial 16 items were reduced to 10 self-report items (6 positive and 4 negative), ensuring that the retained items represented the substance components of herd behavior in students' major-choice decisions.

The items were rated on a Likert-type 5-point scale (1=Never, 2=Rarely, 3= Sometimes, 4=Very Often, 5=Always); the negative items (2, 4, 6, 8) were reversely-scored; the scale overall score ranged from 10 to 50, where the high score indicates a greater tendency to herd behavior in students' major-choice decisions. Since herd behavior is inherently conditional and context sensitive, higher scores indicate the potential for a student to have a greater influence on herd behavior when choosing which major to study, rather than a cumulative or uniform influence in all situations.

### Procedure

Data were collected through an online questionnaire consisted of three sections: informed consent (research purpose, voluntary participation agreement, privacy, confidentiality, and the participants' right to withdraw at any time); demographic information (gender and college); scale instructions; and the 10-item HBMC scale.

### Data Analysis

The scale's psychometric properties were evaluated using item-total score correlations (ITSC) and Cronbach's alpha to verify its internal consistency, for a scale to be considered valid and reliable, the ITSC values must be statistically significant, and the value of Cronbach's alpha must exceed the threshold of 0.70 (Hair et al., 2019). Item discrimination was examined by comparing high and low scoring groups using independent samples t-test. The underlying structure was explored through exploratory factor analysis (EFA) using Principal Axis Factoring with Promax rotation, followed by confirmatory factor analysis (CFA) on another sample of 534 students from the same study population to further verify construct validity.

## RESULTS

### Psychometric Properties of the HBMC Scale

The discriminant validity of HBMC scale items was assessed by comparing the highest 27% of respondents (whose scores were 38-50) with lowest 27% of respondents (whose scores were 10-20), a method that align with previous studies (e.g., Gencbas et al., 2025). Independent samples t-tests showed significant differences between the two groups for all items and the total scale score, which indicate that the items are effectively discriminating between the two groups, see Table 1.

Table 1. Results of discriminant validity

Item	lowest group (n=339)		highest group (n=339)		t-value
	M	SD	M	SD	
1	1.62	0.72	4.35	0.69	50.55**
2	1.60	0.72	4.06	0.76	43.58**
3	1.69	0.65	4.50	0.57	59.91**
4	1.81	0.74	4.37	0.70	46.26**
5	1.63	0.68	4.29	0.66	52.04**
6	1.60	0.74	4.53	0.64	55.18**
7	1.33	0.52	4.22	0.80	55.52**
8	1.22	0.45	4.44	0.70	71.67**
9	1.60	0.65	4.29	0.77	49.51**
10	1.29	0.53	4.36	0.69	65.10**
HBMC	15.39	2.65	43.43	3.37	120.43**

\*\* ( $p < 0.01$ )

Table 2 showed that the item means fall between (2.72-3.11), with standard deviations between (1.20-1.43), ITSC coefficients were high (0.805–0.876) and significant at ( $\alpha=0.01$ ). Cronbach's alpha was 0.953, indicating a strong internal consistency and high reliability (Nunnally, 1978). The suitability of the data for factor analysis and the sampling adequacy was confirmed by the high KMO value (0.947), also Bartlett's Test of Sphericity was significant (*Approximately*=10,996, *df*= 45,  $p < 0.05$ ), which indicates that the observed correlation matrix differs from the identity matrix (Hair et al., 2019; Kaiser,1970).

Table 2. Descriptive statistics, ITSC, and FL of the HBMC items

Item	M	SD	ITSC	FL
when choosing a major I trust friends' and family's advice more than my own.	3.05	1.35	0.820**	0.795
I chose my university major even if none of my friends chose it.	2.82	1.20	0.805**	0.781
I believe that others make better major choices than I do.	3.11	1.36	0.834**	0.814
My major choice decision is more credible than other students' decisions.	3.07	1.25	0.846**	0.831
If a major becomes more popular, I would choose it.	2.96	1.26	0.872**	0.864
I choose my major without considering others' recommendations.	3.04	1.36	0.854**	0.839
I quickly respond to changes in others' major choices.	2.72	1.38	0.814**	0.786
I rely on myself when choosing my university major.	2.76	1.43	0.876**	0.861
Other students' major choices influence my decision.	3.03	1.38	0.825**	0.798
I usually follow others' decisions when new majors appear.	2.77	1.42	0.854**	0.836

\*\* ( $p < 0.01$ )

EFA using Principal Axis Factoring with Promax oblique rotation presented that the first factor explained 67.38% of the variance with an eigenvalue of 6.74, while the second factor

explained only 5.99%. Since the first component explains more than 20% of the variance, then the HBMC scale is unidimensional (Reckase, 1979). Also, all items loaded strongly on the first factor, with factor loadings (FL) in the range of (0.781-0.864), which exceed Hair et al. (2019) recommended criterion of 0.5 (Table 2). The results of (CFA) indicated an acceptable model fit ( $\chi^2/df = 2.72$ ,  $CFI = 0.91$ ,  $SRMR = 0.05$ ,  $RMSEA = 0.06$ ) which confirms the unidimensional structure of the HBMC scale.

### Level of Herd Behavior Influence on Academic Major Selection

Since the scale score range (10-50), HBMC scores were categorized into low (10-23.33), moderate (23.34-36.66), and high levels (36.67-50). The mean of the total score (29.33), indicates a moderate level of herd behavior effect among participants.

### Differences in HBMC Scores by Gender, College Type, and Their Interaction

Measurement invariance testing using multi-group confirmatory factor analysis supported the equivalence of the measurement model across groups ( $\Delta CFI \leq 0.01$ ). Also, Kolmogorov-Smirnov normality test value wasn't significant ( $p > 0.05$ ), which verify the approximately normal distribution of the total score. Two-way ANOVA results showed a statistically significant gender difference in HBMC scores ( $F = 5.281$ ,  $df = 1$ ,  $p < 0.01$ ), in favor of males (Table. 3) but the effect size ( $partial \eta^2 = 0.004$ ) was very small and can be neglected (Cohen, 1988). No significant differences according to college were found ( $F = 1.994$ ,  $df = 1$ ,  $p = 0.158$ ). Also, the interaction between gender and college wasn't significant ( $F = 0.383$ ,  $df = 1$ ,  $p = 0.536$ ).

Table 3. Descriptive statistics for HBMC according to gender and college

Gender	n	M	SD
Male	656	29.99	11.335
Female	598	28.61	11.109

## DISCUSSION

The present study contributes to literature by providing empirical support for the HBMC scale as a psychometrically sound measure of social influence in academic decision-making. The refinement of the instrument from 16 to 10 items and the convergence of exploratory and confirmatory factor analytic evidence indicate that herd behavior can be conceptualized as a coherent, unidimensional construct within this context. This finding strengthens the argument that social influence on major selection may operate as a unified psychological tendency rather than a collection of unrelated pressures, offering a clearer conceptual basis for future research and intervention development.

The observed moderate level of herd behavior influence suggests that social dynamics constitute a meaningful, though not dominant, factor in students' major choice. This finding aligns with prior research emphasizing the role of family expectations, peer influence, and cultural norms in shaping educational decisions (Al-Qudah et al., 2019; Carnasciali et al., 2013; Ibrahim et al., 2017; Khoo et al., 2015; Milsom & Coughlin, 2015; Mustafa et al., 2018; Ouano et al., 2019). At the same time, the moderate magnitude indicates that students' decision-making processes are likely multifactorial, integrating both socially driven considerations and individual determinants such as interests, academic performance, and anticipated career outcomes. This interpretation may help reconcile inconsistencies in the literature, where some studies emphasize structural or economic factors (Brahmeh & Sawalmeh, 2023; Khader et al., 2008) while others highlight interpersonal influences. Rather than representing competing explanations, these factors may operate simultaneously within a broader decision ecology.

The presence of small but statistically significant gender differences, with higher HBMC scores among males, consistent with previous findings (Carnasciali et al., 2013), warrants careful interpretation. While the effect size suggests limited practical magnitude, the direction of the finding may reflect gendered sociocultural expectations within the Jordanian context, where men are often positioned as primary financial providers. Under such conditions, male students may experience stronger normative pressure to select majors perceived as economically secure or socially valued, thereby increasing susceptibility to external influence. However, caution is needed in interpreting these differences, as unmeasured contextual variables, such as socioeconomic background or family educational expectations, may also contribute to the observed pattern.

### **Implications**

The findings highlight that herd behavior constitutes a meaningful social influence on students' university major selection, underscoring the need to position career decision-making within a broader socio-cultural context. Rather than treating major choice solely as an individual cognitive process, the results suggest that decision-making is shaped by relational dynamics, social expectations, and collective norms. From a practical perspective, psychological and vocational counseling at the secondary-school level should move beyond interest- and ability-matching models to incorporate strategies that help students critically evaluate external influences and develop autonomous decision-making capacity. Such an approach may reduce the risk of mismatched major choices, which have been associated with lower motivation, poorer academic performance, reduced well-being, and less satisfying career trajectories (Dababneh et al., 2021). Overall, these findings support the development of culturally responsive guidance programs that acknowledge both individual agency and the social environments in which educational decisions are made.

### **Limitations and Future Directions**

Several limitations should be acknowledged. First, the HBMC scale was developed and validated within the Jordanian context, which may limit the generalizability of the findings to other cultural or educational settings. Second, the study relied on self-reported data and expert judgment, which may introduce response and evaluation biases. In addition, the influence of Jordanian socio-cultural norms, which may encourage social involvement in major life decisions, should be considered when interpreting the results.

Future research should examine the applicability and measurement invariance of the HBMC scale across diverse cultural contexts to strengthen cross-cultural validity. Further studies are also needed to investigate how herd behavior varies across socioeconomic and family-related factors, such as parental education and household income. Longitudinal and experimental designs would be particularly valuable for testing causal relationships and evaluating the effectiveness of counseling interventions aimed at supporting autonomous decision-making. Finally, extending research beyond educational choices to other life domains, such as career and family-related decisions, may provide a broader understanding of herd behavior under conditions of uncertainty.

### **CONCLUSION**

The HBMC represents a psychometrically sound, unidimensional ten-item scale for assessing the influence of herd behavior on university major selection among Jordanian students. Its demonstrated validity and reliability support its use in culturally grounded research and practice within the Jordanian context. Beyond measurement, the findings underscore the importance of vocational guidance and counseling oriented in self-actualization approaches that help students balance social influences with personal abilities, interests, and long-term career

goals. Future research may further examine how herd behavior interacts with individual and contextual factors to shape educational decision-making across different cultural settings.

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## AUTHOR CONTRIBUTION STATEMENT

FM implemented this research from the beginning to the end and was accountable for the manuscript preparation, conducting the literature review, collecting data and analyzing it using the proper statistical programs, and approving the published version of the manuscript.

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