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Reimagining knowledge hiding measure: From the affectees' perspectives

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Abstract
This study aims to develop and validate the Knowledge Hiding Affectees' Scale, a Likert-type instrument designed to measure knowledge hiding behaviors from the perspective of those affected. A new dimension, transactional hiding, was introduced alongside existing dimensions of evasive hiding, playing dumb, rationalized hiding, and bullying hiding. Data were collected from 270 university teachers in public sector universities in Punjab, Pakistan. Exploratory Factor Analysis revealed a five-factor structure encompassing evasive hiding (five items), playing dumb (four items), rationalized hiding (four items), bullying hiding (four items), and transactional hiding (five items). The overall Cronbach's Alpha for the scale was 0.89, with individual factor reliability ranging from 0.82 to 0.93. The scale demonstrated strong composite reliability as well as content, convergent, and discriminant validity. The Knowledge Hiding Affectees' Scale offers a robust tool for assessing knowledge hiding behaviors in academic settings and provides new insights by incorporating the transactional dimension into the knowledge hiding literature. The developed scale enriches the measurement of knowledge hiding by incorporating the new dimension of transactional hiding and offers a reliable tool for future academic research.

Keywords: *knowledge hiding, transactional hiding, scale development, affectees, validation of scale.*

Introduction

Knowledge hiding is a vital problem in academia that affects workplace performance (Garg et al., 2021). KH could negatively affect the higher education institutions' knowledge management. Researchers gave more emphasis on knowledge sharing instead of knowledge hiding behavior (Karim, 2020; Abdillah et al., 2020; Fauzi, 2023). Connelly et al. (2012) described knowledge hiding as a deliberate effort to retain or obscure knowledge when requested by others. KH is often related to the act of deception due to its threatening nature for employees' moral norms, and it is considered unethical and antisocial phenomenon. Due to novelty of this concept, there is crucial need to study and understand the determinants contributing to KH (Arain et al., 2020, as cited in Fauzi, 2023).

Most of the research on KH found it counterproductive, unethical and destructive behavior that affects the innovation and employees' performance (Hernaus et al., 2019; Anand et al., 2022). Primary focus of Higher Education Institutions (HEIs) is considered as the creation, exploration, generation and dissemination of knowledge. The knowledge is generated, stored, and shared among personnel in HEI in a systematic way (Al-kurdi et al., 2018 as cited in Fauzi, 2023). The understanding of KH behavior within HEIs is crucial for the researchers and practitioners for successful KM implications. This might help them to foster critical thinking, creativity, and innovation among employees for solving the academic problems and enhance the quality of HEIs in knowledge provision.

The three-dimensional framework which includes evasive hiding, playing dumb, and rationalized hiding, was proposed by Connelly et al. (2012), Černe et al. (2014), and Connelly and Zweig (2015) continue to serve as the foundation for dimensional division in contemporary KH research. By examining bullying hiding behaviour in the context of knowledge power, especially in the setting of the knowledge economy, Yuan et al. (2021) added a new dimension to the idea of knowledge hiding (KH). By examining how knowledge qualities affect KH and

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highlighting moderating influence of team efficacy and mediating role of interpersonal distrust, this viewpoint adds to the body of current studies. Their research highlights the relationship between power, trust, and team success, offering a deeper view of KH dynamics.

A troubling trend in Pakistan's public sector is the transactional behaviour of public employees, when services are rendered in return for private gain. Systemic problems like socioeconomic difficulties, ineffective accountability systems, and bureaucratic inefficiencies are frequently the cause of this behaviour. Research indicated that public employees in poor nations, like Pakistan, commonly participate in informal transactions, such as anticipating financial or non-financial benefits in exchange for carrying out their assigned responsibilities (Nadeem et al., 2021). Such activities are encouraged by hierarchical power systems and resource shortages, which can be related to the larger cultural and structural context (Hofstede, 2011). Moreover, this problem is made worse by the widespread corruption and lax enforcement of moral principles, which foster a culture in which people feel obliged to give something in exchange for services that ought to be given without conditions (Karim et al., 2023). The values of equitable government and public service are compromised by this transactional worldview.

New dimensions of KH that capture context-specific behaviors must be explored in light of the changing dynamics of knowledge management at universities, especially in developing nations like Pakistan. Existing KH characteristics like evasive hiding, playing dumb, and rationalized hiding offer insightful information, but they frequently fall short of capturing the transactional hiding that are common in Pakistani higher education. A significant gap in the literature that is quite pertinent in this context is represented by transactional hiding, which is the practice of people purposefully withholding knowledge in the hope of gaining something in return. This behaviour is encouraged in Pakistan by structural problems such resource scarcity, hierarchical power structures, and a reciprocal culture in professional interactions, especially in academic environments where collaboration and knowledge sharing are crucial.

To comprehend harmful consequences of Knowledge Hiding (KH) behaviors on organizational learning and knowledge sharing, it is crucial to establish a KH measure from viewpoint of the knowledge seekers. Withholding information or resources, in the opinion of knowledge seekers, not only compromises their access to vital information but also impedes their ability to advance both personally and professionally. Organizations might not be able to determine the magnitude of this obstacle to efficiency and innovation in the absence of a specific KH scale. A measure that accurately represents their experiences and perspectives would better capture the difficulties that knowledge seekers frequently encounter, such as interpersonal mistrust or a lack of transparency in knowledge exchanges. This scale is named as Knowledge Hiding Affectees' Scale. Through this scale, university teachers' perceptions on knowledge hiding were assessed. This study aimed to design a valid and reliable knowledge hiding scale that captures the experiences of knowledge seekers who face knowledge hiding behavior in universities.

Literature Review

Over the past decade, knowledge hiding as critical counterproductive behavior attracted scholars' substantial attention Connelly et al. (2012). The pioneered empirical investigation of Connelly et al. (2012) conceptualized it as an intentional attempt to withhold or conceal the requested knowledge by others, and developed a multidimensional scale which comprised evasive hiding, playing dumb, and rationalized hiding. This scale provided a structured approach in advancing the field to assess knowledge hiding behavior from the perspective of knowledge hiders. Subsequent studies have expanded this work, such as Zhao et al. (2016) who introduced knowledge manipulation to capture strategic elements of knowledge withholding.

Other researchers have identified additional forms of knowledge hiding based on these developments, such as Yuan et al. (2021) explored authority-driven withholding and bullying as mechanisms of knowledge hiding behavior. The influence by organizational culture, interpersonal dynamics, and individual motivations demonstrated it as a nuanced phenomenon

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and helped the extension of its framework. The existing scales on KH primarily focused on capturing knowledge hiding from the perspective of knowledge hiders, often neglecting how these behaviors are perceived and experienced by those seeking knowledge 'affectees'.

Present study, addressing this critical gap, introduces a new knowledge hiding scale specifically developed to capture the perspective of knowledge seekers. While aligning conceptually with the dimensions proposed by Connelly et al. (2012)—evasive hiding, playing dumb, and rationalized hiding, and Yuan et al. (2021) proposed dimension—bullying hiding. This scale also incorporated a novel dimension: transactional hiding. This dimension is informed by the findings of Zhu et al. (2019) and Zhao et al. (2016) respectively, recognizing the coercive and exchange-driven behaviors often experienced by knowledge seekers. The items of the newly developed scale were carefully matched with themes from existing scales as mentioned here, ensuring theoretical continuity while offering a fresh lens through which knowledge hiding behaviors can be investigated.

This affectee centered approach not only complements the original literature but also enriches the field of knowledge hiding by acknowledging the relational and interactive aspects of knowledge hiding. The proposed scale advanced a more holistic approach within organizational setting by synthesizing established theoretical constructs with empirical observations of hidden power dynamics and conditional knowledge sharing.

Conceptual Alignment of Scale Items with Existing KH Measures

A thorough comparison was carried out in order to better illustrate the conceptual alignment and thematic consistency between the existing measures and the current scale of knowledge hiding. Connelly et al. (2012), Serenko and Bontis (2016), Zhao et al. (2016), Peng et al. (2019), and Zhu et al. (2019) are just a few of the past knowledge hiding scales whose established items correlate to each item on the present Knowledge Hiding Affects' Scale, as shown in the table below. This mapping emphasizes the thoroughness of the recently suggested dimensions while guaranteeing theoretical rigor and practical usefulness.

Table 1

Comparison of KHAS Items and Existing Knowledge Hiding Scales

Present Scale Dimension	**Item No.**	**Theme of Present Scale Item**	**Scale Developed by / Item No.**	**Matching Type**
Evasive Hiding	1	Avoiding sharing	Connelly et al. (2012) / Item 1	Direct Match
Evasive Hiding	2	Busy Response	Connelly et al. (2012) / Item 3	Direct Match
Evasive Hiding	3	Dodging Questions	Connelly et al. (2012) / Item 4	Direct Match
Evasive Hiding	4	Providing misleading or incorrect information	Connelly et al. (2012) / Items 2, 4	Direct Match
Evasive Hiding	5	Non-Responsiveness	Peng et al. (2019) / Workplace KH / Avoiding Response	Conceptual Match
Playing Dumb	1	Pretending no knowledge	Connelly et al. (2012) / Item 10	Direct Match
Playing Dumb	2	Saying no clear idea although having knowledge	Connelly et al. (2012) / Item 11	Direct Match
Playing Dumb	3	Acting ignorant to avoid sharing	Connelly et al. (2012) / Item 12	Direct Match

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Present Scale Dimension	Item No.	Theme of Present Scale Item	Scale Developed by / Item No.	Matching Type
Playing Dumb	4	Downplaying understanding	Connelly et al. (2012) / Item 13	Direct Match
Rationalized Hiding	1	Justifying Knowledge Hiding	Connelly et al. (2012) / Items 14–17; Serenko & Bontis (2016)	Direct Match
Rationalized Hiding	2	Expertise too specific	Serenko & Bontis (2016) / Rationalization Specificity	Direct Match
Rationalized Hiding	3	Maintaining control by hiding	Zhu et al. (2019) / Knowledge Blocking	Conceptual Match
Rationalized Hiding	4	Hiding for efficiency	Serenko & Bontis (2016) / Rationalization Efficiency	Conceptual Match
Bullying Hiding	1	Discouraging Knowledge sharing requests	Zhu et al. (2019) / Knowledge Blocking	Conceptual Match
Bullying Hiding	2	Authority to control knowledge	Zhu et al. (2019) / Authority-based Blocking	Direct Match
Bullying Hiding	3	Aggressive behavior to prevent asking	Zhu et al. (2019) / Bullying Tactics	Direct Match
Bullying Hiding	4	Bullying tactics to hide information	Zhu et al. (2019) / Bullying Tactics	Direct Match
Transactional Hiding	1	Sharing only when needing something	Zhao et al. (2016) / Knowledge Manipulation Exchange	Direct Match
Transactional Hiding	2	Expecting compensation for sharing	Zhao et al. (2016) / Knowledge Manipulation Exchange	Direct Match
Transactional Hiding	3	Asking compensation for sharing	Zhao et al. (2016) / Knowledge Manipulation Exchange	Direct Match
Transactional Hiding	4	Frequency of transactional behavior	Zhao et al. (2016) / Knowledge Manipulation Exchange	Direct Match
Transactional Hiding	5	Culture of organization for demanding compensation	Zhao et al. (2016) / Knowledge Manipulation Exchange	Direct Match

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Existing Scales on Knowledge Hiding

Several scales have been developed to measure knowledge hiding behavior, offering distinct perspectives and dimensions. Table 2 provides a summary of key knowledge hiding scales developed by Connelly et al. (2012), Serenko and Bontis (2016), Zhao et al. (2016), Černe et al. (2014), and Yuan et al. (2021). These scales differ in their dimensionality, sample populations, measurement scales, and validation techniques, reflecting the growing complexity and contextual variability of knowledge hiding phenomena.

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Table 2 Summary of Existing Scales on Knowledge Hiding

Developer / Year	**Scale Name**	**No. of Items**	**Dimensions / Domains**	**Scale Level**	**Sample**	**Validity Measures**	**Reliability Measures**
Connelly et al. (2012)	Knowledge Hiding Scale	12	Evasive Hiding, Playing Dumb, Rationalized Hiding	5-point Likert (1 = Not at all, 5 = To a very great extent)	Employees from various organizations	CFA, Construct Validity	Cronbach's Alpha (> 0.80)
Serenko & Bontis (2016)	Knowledge Hiding in Academia Scale	10	Knowledge Hoarding, Knowledge Concealment	7-point Likert (1 = Strongly disagree, 7 = Strongly agree)	Faculty members and researchers in academia	EFA, Discriminant Validity	Cronbach's Alpha (> 0.85)
Zhao et al. (2016)	Knowledge Withholding Scale	15	Knowledge Evasion, Knowledge Hoarding	5-point Likert (1 = Never, 5 = Always)	Employees in Chinese organizations	CFA, Convergent Validity	Cronbach's Alpha (> 0.80), Composite Reliability
Černe et al. (2014)	Knowledge Hiding Scale	12	Evasive Hiding, Playing Dumb, Rationalized Hiding	7-point Likert (1 = Strongly disagree, 7 = Strongly agree)	R&D teams in Slovenia	CFA, Convergent and Discriminant Validity	Cronbach's Alpha (> 0.80)
Yuan et al. (2021)	Bullying Hiding Behavior Scale	10	Bullying Hiding Based on Knowledge Power	5-point Likert (1 = Strongly disagree, 5 = Strongly agree)	Employees in knowledge-intensive industries	EFA, CFA, Convergent Validity	Cronbach's Alpha (> 0.80), Composite Reliability

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Method

A pilot study including 270 teachers from public sector universities in the province of Punjab, Pakistan was conducted. The teachers were selected using stratified multistage sampling techniques. There were six categories of universities namely general, women, medical, engineering, agriculture, and veterinary. All the ethical considerations, including informed consent, confidentiality, anonymity, minimizing harm, beneficence, respect for autonomy, and integrity in data reporting, were carefully followed before collecting data (Hasan et al., 2021). According to DeVellis (2017), scale development involves eight steps: researcher defined the measures related to the scale, generated pool of items, determined the measurement format, review by 6 national level and 6 international level experts from the field of knowledge management, inclusion validated items, administered the items to the sample of public sector university teachers, evaluated the items through statistical analysis regarding reliability and validity and optimized scale length.

The scale comprised of 22 items Likert-type items and based on five factors: Evasive Hiding (EH), Playing Dumb (PD), Rationalized Hiding (RH), Bullying Hiding (BH), and Transactional Hiding (TH). Responses were measured using a five-point Likert scale, where 1 indicated Strongly Disagree and 5 indicated Strongly Agree.

First dimension “Evasive Hiding” represents the perspective of university teachers about the behavior they faced in responses as avoiding behavior, busy status, dodging questions, misleading information, and non-responsiveness. The second dimension “Playing Dumb” was measured against behavior faced by knowledge seekers related to lame excuses like pretending not knowing, unclear response, ignorance of information, and downplaying understanding of knowledge. The third dimension “Rationalized Hiding” was measured against faced behaviors related to justifying not sharing, specificity of knowledge, maintaining control over knowledge, and for the sake of competitiveness. Fourth dimension “Bullying Hiding” was measured from perspectives of knowledge seekers for the behavior they faced as discouraging, authority to control, aggressive behavior, and other bullying tactics. The fifth dimension “Transactional Hiding” was measured focusing knowledge hiders’ behavior about seeking gains for knowledge sharing through items related to opportunistic behavior, expecting compensation, asking for compensation, frequency of this behavior, and culture of department regarding transactional behavior. 22 items were finalized, and scale was administered to the university teachers for data collection. Six experts from knowledge management domain at national level and six at international level validated the scale for face and content. Exploratory factor structure was examined using principal component analysis (PCA) as the extraction method with Varimax rotation to recognize the fundamental dimensions from a set of data; the extracted components are referred to as factors in this article. A confirmatory measurement model (Figure 3) was also specified on the same sample of 270 teachers. This technique is valuable because it can determine the latent variables that group the items of the scale, ensuring the items represent the desired constructs accurately (Reise et al., 2000). Kaiser Meyer Olkin (KMO), and Bartlette’s test of sphericity were applied to measure the adequacy of sampling to analyze the factors and to tests the significant differences for correlation matrix that ensures construct validity (Kyriazos & Stalikas, 2018). Since it reduces dimensionality and ensures that the extracted factors are distinct and interpretable, Principal Component Analysis (PCA) with Varimax rotation was used to simplify data complexity and facilitate identification of significant patterns and relationships (Field, 2013; Costello & Osborne, 2005; Tabachnick et al., 2019). As an indicator of the scale's internal consistency, Cronbach Alpha and composite reliability (CR) coefficients were computed for the scale and its subscales. Convergent and discriminant validity were also assessed for knowledge hiding affectees’ scale. As advised by Campbell and Fiske (1959) and Fornell and Larcker (1981), the researcher used convergent and discriminant validity to make sure the scale appropriately measures the intended construct while differentiating it from other

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constructs. These types of validity were employed to verify the scale's clarity and resilience in assessing distinct aspects of underlying construct (Hair et al., 2012). Furthermore, the data was examined to assess the average mean of scale items. Bartlett's Test of Sphericity must produce a significant result ($p < 0.05$) for the analysis to be valid, and the KMO value, which ranges from 0 to 1, should be more than 0.5 to indicate that factor analysis is appropriate (Tavakol & Dennick, 2011; Costello & Osborne, 2019). The KHAS's KMO value was 0.896, and the 22 items' Bartlett's Test of Sphericity revealed significance at $p < 0.05$, indicating that the data was sufficient for factor analysis (Ahmad et al., 2020)

Findings and Discussion

Cumulative Percentage of the Variance

Kaiser's eigenvalue larger than 1 rule and the cumulative percentage of variance are crucial criteria in factor analysis that aid in deciding how many components to keep (Hill, 2011). The explained variation should be between 50 and 60 percent in the social sciences (Field, 2013). The study showed five components with eigenvalues greater than 1, indicating the sufficiency of the factor structure, and the cumulative percentage of variance for the KHAS was 70.646% (Ahmad et al., 2020).

Table 3 Total Variance Explained for Knowledge Hiding Affectees' Scale

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	7.563	34.375	34.375	7.563	34.375	34.375	3.456	15.708	15.708
2	2.853	12.969	47.344	2.853	12.969	47.344	3.317	15.078	30.786
3	2.051	9.321	56.665	2.051	9.321	56.665	3.216	14.619	45.405
4	1.819	8.269	64.934	1.819	8.269	64.934	2.821	12.824	58.229
5	1.256	5.711	70.646	1.256	5.711	70.646	2.732	12.416	70.646

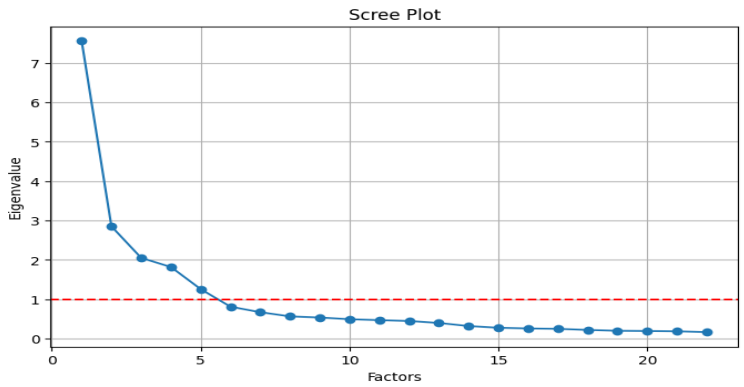


Figure 1: Scree Plot

Construct Validity: Exploratory Factor Analysis (EFA)

Factor loadings from exploratory factor analysis (EFA) used to evaluate construct validity of KHAS for 22 items are shown in Table 4. Factor loadings are classified as minimal (±.30), important (±.40), and practically significant (±.50) based on guidelines given by Hair et al. (2012). Factor analysis might not be the best statistical approach if no loadings are greater than.30 (Field, 2013). Every factor loading in the present study was above .40 (See Table 4), suggesting that they were practically significant.

Heat Map of Varimax Rotated Factor Loading

KHS1	.139	.155	.740	.119	-.035
KHS2	.089	.045	.783	.176	-.064

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KHS3	.126	.180	.787	.075	-.012
KHS4	.185	.104	.721	.061	-.042
KHS5	.173	.127	.735	.076	-.044
KHS6	-.009	-.041	-.003	-.009	.812
KHS7	-.008	-.009	-.078	-.020	.806
KHS8	.177	-.015	-.082	.021	.784
KHS9	-.037	-.074	-.007	-.031	.872
KHS10	.807	.182	.182	.259	.009
KHS11	.818	.281	.146	.186	.089
KHS12	.806	.269	.166	.175	.029
KHS13	.822	.218	.214	.266	.074
KHS14	.228	.818	.182	.141	-.075
KHS15	.202	.849	.179	.186	.035
KHS16	.248	.837	.106	.148	-.073
KHS17	.202	.866	.189	.067	-.069
KHS18	.172	.194	.134	.861	-.016
KHS19	.266	.283	.035	.809	.002
KHS20	.222	.132	.175	.851	-.066
KHS21	.266	-.036	.149	.530	.026
KHS22	.505	.128	.227	.274	-.032

Figure 2: Factor Loading Heatmap

Table 4 Factor Loading of Knowledge Hiding Affectees' Scale

Evasive Hiding	
I encounter some colleagues who avoid sharing their knowledge	.740
Some of my colleagues respond that they are busy when requested to share their knowledge	.783
I noticed that occasionally my colleagues dodge questions about their expertise	.787
Occasionally some colleagues provide misleading or incorrect information in response to request by others	.721
Some of my colleagues give no response when they are requested to share their knowledge	.735
Playing Dumb	
Some of my colleagues pretend not to know certain information even though they have knowledge	.812
Some of my colleagues respond that they have no clear idea about the topic even though they have knowledge	.806
Occasionally, some colleagues act ignorance to avoid sharing their knowledge	.784
I encounter some colleagues who downplay their understanding of subject	.872
Rationalized Hiding	

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Occasionally, my colleagues hide their knowledge giving justification for not sharing the specific information	.807
Teachers in my department hide knowledge by rationalizing that their expertise is too specific	.818
I encounter some colleagues rationalizing hide knowledge to maintain their control	.806
I feel that university teachers do not share knowledge for the sake of their efficiency among other teachers	.822
Bullying Hiding	
Occasionally, my colleagues discourage me from seeking information.	.818
I noticed that a few university teachers use their authority to control access to valuable knowledge	.849
I noticed that a few university teachers show aggressive behavior to prevent others from asking about their expertise	.837
Occasionally some university teachers use bullying tactics to hide certain information	.866
Transactional Hiding	
Some of my colleagues share their knowledge with me until they need something from me	.861
I observed some colleagues expecting compensation for sharing their knowledge	.809
I have experienced university teachers asking for compensation for sharing their knowledge	.851
I observed that teachers in my department frequently engaged in transactional behavior	.530
The culture in my department often involves demanding compensation for sharing knowledge	.505

Item Total Correlation

Pearson's correlation between each individual item and the whole scale was used to evaluate item-total correlations (Field, 2013). Items 1–5 and 10–22 showed acceptable item-total correlations ranging from .383 to .745 (Table 5), which imply that these items are consistently in line with the overall scale (Hair et al., 2012). In contrast, items 6–9 (Playing Dumb) showed very low item-total correlations (.028 to .141), below the commonly used .30 criterion, although they loaded strongly on their own factor (.784 to .872; Table 4). This suggests that Playing Dumb behaves as a relatively distinct dimension, so subscale scores are a more appropriate level of interpretation than a single total score. Furthermore, the means and standard deviations (SD) were computed. Since they may lower the overall correlation among the remaining items, items with means near 1 or 5 are deemed problematic and ought to be removed (Field, 2013). The means of items 1–5 (Evasive Hiding) were high (4.42 to 4.49), indicating a ceiling tendency; these items were retained because their item-total correlations (.463 to .514) and factor loadings (.721 to .787) were acceptable, and this is noted as a limitation of the study.

Table 5 Item-Total Correlation of Knowledge Hiding Affectees' Scale

	M	SD	Item-Total Correlation	α if Item Deleted
KHAS1	4.47	0.76	.497	.883
KHAS2	4.42	0.77	.463	.884

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	M	SD	Item-Total Correlation	α if Item Deleted
KHAS3	4.49	0.77	.514	.882
KHAS4	4.47	0.74	.463	.884
KHAS5	4.49	0.71	.486	.883
KHAS6	3.88	0.53	.065	.892
KHAS7	3.81	0.51	.039	.892
KHAS8	3.89	0.58	.141	.891
KHAS9	3.88	0.59	.028	.894
KHAS10	3.89	0.65	.684	.878
KHAS11	3.86	0.66	.698	.877
KHAS12	3.88	0.66	.680	.878
KHAS13	3.87	0.67	.745	.876
KHAS14	3.87	0.67	.594	.880
KHAS15	3.89	0.70	.633	.879
KHAS16	3.88	0.70	.576	.880
KHAS17	3.87	0.72	.569	.881
KHAS18	3.80	0.67	.568	.881
KHAS19	3.80	0.67	.593	.880
KHAS20	3.82	0.65	.578	.881
KHAS21	3.88	0.82	.383	.887
KHAS22	3.83	0.79	.509	.882

Descriptive Statistics, Cronbach Alpha and Composite Reliability (CR)

High reliability for the entire scale was indicated by the KHAS's Cronbach's Alpha reliability coefficient of α = 0.89 (Nunnally & Bernstein, 1994; Tavakol & Dennick, 2011). Because items 6–9 (Playing Dumb) correlated weakly with the total scale (Table 5), the overall coefficient should be interpreted with caution, and the subscale coefficients are the more informative indicators of reliability. Tables 5 and 6 displayed descriptive statistics, such as the mean and SD for every item and subscale, along with reliability factors like Composite Reliability (CR) and Cronbach's Alpha. Evasive hiding subscale's alpha value was 0.84, for the playing dumb .84, for the rationalized hiding .93, for bullying hiding .92 and for transactional hiding 0.82. The reliability of the KHAS was confirmed by the Cronbach's Alpha values across subscales, with value ranging from 0.82 to 0.93, and the CR coefficients, with value ranging from 0.84 to 0.93, both were above the suggested threshold of 0.70 (Hair et al., 2012).

Table 6 Descriptive Statistics of Items and Reliability Coefficients of Dimensions of Knowledge Hiding Affectees' Scale

Scale and Subscale of KHAS	Number of Items	Serial Number in Scale	M	SD	CR	α
Evasive Hiding (EH)	5	1-5	4.47	.59	.845	.84
Playing Dumb (PD)	4	6-9	3.86	.45	.841	.84
Rationalized Hiding (RH)	4	10-13	3.87	.60	.925	.93

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Scale and Subscale of KHAS	Number of Items	Serial Number in Scale	M	SD	CR	α
Bullying Hiding (BH)	4	14-17	3.88	.62	.922	.92
Transactional Hiding (TH)	5	18-22	3.83	.54	.840	.82
KHAS	22		3.98			.89

Convergent and Discriminative Validities

As stated by Cheung (2024) and other experts in the field, the recommended threshold for Average Variance Extracted (AVE) values is above 0.50 in order to evaluate convergent validity. A substantial portion of the variation in the indicators can be attributed to the construct if the AVE values are higher than this cutoff (Fornell & Larcker, 1981). Mean correlations are frequently employed in discriminant validity measurements to assess how different a construct is from others. KHAS's convergent validity (as determined by AVE) and discriminant validity (as determined by mean correlations) are shown in Table 7, which indicate that the scale separates constructs while preserving high internal consistency.

Table 7 Convergent Validity and Discriminant Validity (in terms of Mean Correlation with Scale) for Knowledge Hiding Affectees' Scale

Subscales	AVE	CR	Mean Correlation
Evasive Hiding (EH)	0.522	.845	.520
Playing Dumb (PD)	0.571	.841	.567
Rationalized Hiding (RH)	0.661	.925	.636
Bullying Hiding (BH)	0.747	.922	.747
Transactional Hiding (TH)	0.619	.840	.572

The values of Average Variance Extracted (AVE) vary from 0.522 to 0.747, as indicated in Table 7. The study's findings demonstrated that the items in each subscale of Knowledge Hiding Affectees' Scale (KHAS) demonstrated a suitable correlation between one another and validated the measures' convergent validity. Furthermore, the average correlations, which varied between 0.520 and 0.747, suggested that each subscale was reasonably distinct from the others. Discriminant validity was assessed here using mean correlations; stricter criteria such as the heterotrait–monotrait ratio (HTMT; Henseler et al., 2015) are recommended in future validation studies.

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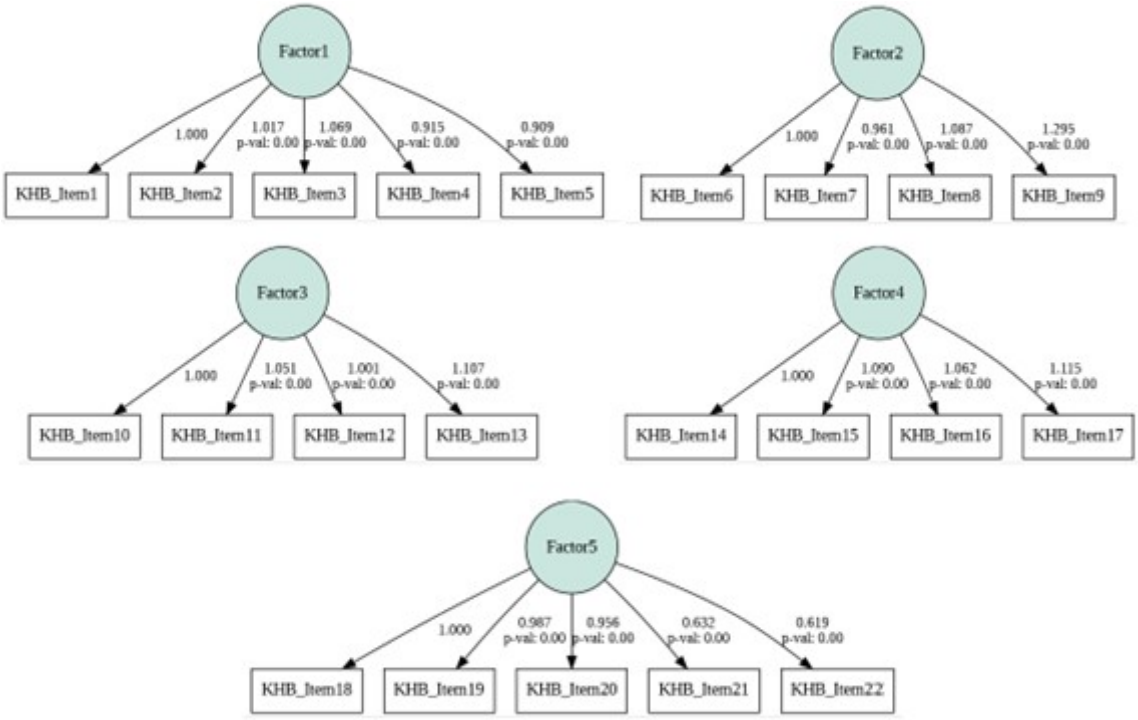


Figure 3: Factor Loadings and Relationships in Latent Factor Analysis (Unstandardized Estimates)

Figure 3 demonstrates the measurement model, where items are grouped under five latent factors: Factor 1 to Factor 5. The first item of each factor was fixed at 1.000 as the reference indicator, and the remaining loadings shown in the figure are unstandardized estimates ranging from 0.619 to 1.295, all significant at $p < .001$. For instance, items 1-5 are associated with Factor 1 (Evasive Hiding), items 6-9 with Factor 2 (Playing Dumb), items 10-13 with Factor 3 (Rationalized Hiding), items 14-17 with Factor 4 (Bullying Hiding), and items 18-22 with Factor 5 (Transactional Hiding). This structure demonstrates how the observed variables contribute to the underlying latent constructs, providing insight into the dimensional structure of the data. The model was estimated on the same sample of 270 teachers used for the exploratory analysis, and model-fit indices are not reported in this article; it should therefore be treated as a preliminary check of the structure, and cross-validation on an independent sample is recommended.

Conclusion

Knowledge Hiding Affectees' Scale (KHAS) was developed based on existing literature on knowledge hiding and assessed five distinct dimensions through exploratory factor analysis. Present scale consists of 22 items, and its overall reliability, as measured by a Cronbach's alpha of 0.89, was deemed high, with subscale alpha values ranging from 0.82 to 0.93. The assessment of convergent validity was conducted using the Average Variance Extracted (AVE), with a range value from 0.522 to 0.747, while discriminant validity was supported through mean correlations between items, which ranged from 0.520 to 0.747. Results supported both the high validity and reliability of the scale. Moreover, the items in KHAS were categorized into higher and lower-level knowledge hiding behavior, revealing that knowledge hiding exists in university in Punjab, Pakistan, and lower knowledge hiding is liked to better knowledge management. The KHAS is a valuable tool for researchers and educators to assess knowledge hiding in academia. This study contributes to the literature on knowledge hiding and provides insights for knowledge managers, university administrators, and policymakers focusing on the effects of knowledge hiding. Additionally, the KHAS could be adapted for use at the university level.

Implications for practice

The present study offers valuable insights into the area of knowledge hiding within academic settings. While KH is often viewed negatively, it is essential to recognize other similar behaviors, as it can have positive, or negative consequences depending on the intent of the involved individuals. People may hide knowledge due to certain reasons, such as personal protection or organizational interests, or in response to interpersonal conflicts. Therefore, it is important for organizations to understand that knowledge hiding is detrimental for not only workplace environment but also for organizational performance.

Universities can use the Knowledge Hiding Affectees' Scale to assess knowledge hiding behavior among faculty to identify potential barriers to effective knowledge sharing. Addressing the influence of transactional incentives and ensuring that reward systems align with a culture of trust and cooperation could help to mitigate knowledge hiding.

For future research, this study provides a foundation for exploring knowledge hiding in different academic contexts and cultures. The Knowledge Hiding Affectees' Scale can be tested across various university types, disciplines, and geographical regions to assess its applicability and reliability. Furthermore, investigating the underlying psychological and organizational factors that contribute to knowledge hiding will provide deeper insights into how this behavior can be managed and mitigated in academic and professional settings. Future studies should also confirm the factor structure through confirmatory factor analysis on an independent sample.

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