

# Top-down knowledge hiding and innovative work behavior (IWB): a three-way moderated-mediation analysis of self-efficacy and local/foreign status

Ghulam Ali Arain, Zeeshan Ahmed Bhatti, Imran Hameed and Yu-Hui Fang

## Abstract

**Purpose** – This paper aims to examine the consequences for innovative work behavior (IWB) of top-down knowledge hiding – that is, supervisors' knowledge hiding from supervisees (SKHS). Drawing on social learning theory, the authors test the three-way moderated-mediation model in which the direct effect of SKHS on IWB is first mediated by self-efficacy and then further moderated by supervisor and supervisee nationality (locals versus foreigners).

**Design/methodology/approach** – The authors collected multi-sourced data from 446 matched supervisor-supervisee pairs working in a diverse range of organizations operating in the Kingdom of Saudi Arabia. After initial data screening, confirmatory factor analysis was conducted to test for the factorial validity of the used measures with AMOS. The hypothesized relationships were tested in regression analysis with SPSS.

**Findings** – Results showed that SKHS had both direct and mediation effects, via the self-efficacy mediator, on supervisee IWB. The mediation effect was further moderated by supervisor and supervisee nationality (local versus foreigners), which highlighted that the effect was stronger for supervisor-supervisee pairs that were local-local or foreigner-foreigner than for pairs that were local-foreigner or foreigner-local.

**Originality/value** – This study contributes to both knowledge hiding and IWB literature and discusses the useful theoretical and practical implications of the findings.

**Keywords** Innovative work behavior, Moderated mediation, Knowledge hiding, Self efficacy, Local and foreign workers, The Kingdom of Saudi Arabia

**Paper type** Research paper

## Introduction

Over the past two decades, research in the field of knowledge management has gained considerable attention due to the unique role of employee knowledge-sharing behavior in helping organizations to sustain their competitive advantage (Holdt and Pedersen, 2018; Idrees *et al.*, 2018; Jamshed and Majeed, 2019; Manfredi *et al.*, 2018; Mesmer-Magnus and DeChurch, 2009; Radaelli *et al.*, 2011; Wang *et al.*, 2016). However, researchers have recently begun exploring the dysfunctional aspect of knowledge management in which workers tend to engage in knowledge hiding from co-workers rather than knowledge sharing (Arain *et al.*, 2018; Černe *et al.*, 2014; Connelly *et al.*, 2012; Hernaus *et al.*, 2019; Singh, 2019; Škerlavaj *et al.*, 2018). Knowledge hiding, which is defined as “an intentional attempt by an individual to withhold or conceal knowledge that has been requested by another person” (Connelly *et al.*, 2012, p. 65), has been reported not only in firms in the world's leading economies (76 per cent of US and 46 per cent of Chinese workers reported

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knowledge hiding in the workplace) (Pan *et al.*, 2018), but also of emerging economies (a 2.9 mean score out of 5 on knowledge hiding was reported by Pakistani workers) (Khalid *et al.*, 2018).

Although it has been reported that employees' knowledge-hiding behavior has caused \$31.5 billion in losses in Fortune 500 companies (Babcock, 2004), far less is known about how knowledge hiding affects employee creativity and innovative work behavior (IWB), which help organizations not only to avoid financial losses but also to gain competitive advantage (Bos-Nehles *et al.*, 2017; Tsai, 2018). The knowledge-hiding literature is in its infancy; however, only two empirical studies, to the best of our knowledge, have investigated the relationship between knowledge hiding and creativity (Černe *et al.*, 2014) or knowledge hiding and IWB (Černe *et al.*, 2017). The findings of these studies suggest that knowledge hiding negatively affects the hider's own creativity and IWB by creating a reciprocal distrust loop. In aiming to expand this line of inquiry further, this study contributes to the knowledge hiding and IWB literature in a number of ways.

First, only a handful of empirical studies have investigated the consequences of knowledge hiding for work attitudes and behaviors, including IWB (Černe *et al.*, 2014, 2017; Connelly and Zweig, 2015; Peng *et al.*, 2018; Serenko and Bontis, 2016; Škerlavaj *et al.*, 2018). These studies focused mostly on the knowledge hiding that occurred between two co-workers of the same hierarchical status. The consequences of knowledge hiding that occurs between a supervisor and supervisee (i.e. top-down knowledge hiding) are largely unexplored. To the best of our knowledge, only one empirical study, by Arain *et al.* (2018), has sought to examine the consequences of such top-down knowledge hiding for supervisees' supervisor-directed distrust and organizational citizenship behavior (OCB). This research gap is worth addressing, as the qualitative findings of Yeo and Marquardt (2015) have suggested that supervisors' knowledge hiding from supervisees (SKHS) is a serious threat to supervisees' psychological, attitudinal and behavioral outcomes. Connelly and Zweig (2015) also suggest that, like knowledge hiding between two co-workers, knowledge hiding between a supervisor and a supervisee may also take place, and result in more severe negative consequences than knowledge hiding between two co-workers (Arain *et al.*, 2018). Thus, by investigating the consequences of SKHS, this study broadens the horizon of knowledge-hiding research.

Second, this study contributes to the scarce literature on the knowledge hiding and creativity–IWB relationship (Černe *et al.*, 2014, 2017) by investigating the relationship between SKHS and supervisee IWB, defined as employees' initiatives to develop, adopt and implement new ideas for products, technologies and work processes (Yuan and Woodman, 2010). Given that extant research has established the unique effect of supervisory/leadership behaviors on supervisee/follower IWB (Javed *et al.*, 2017; Pieterse *et al.*, 2010; Yidong and Xinxin, 2013), the effect of SKHS on supervisee IWB is likely to be more salient than that of co-worker knowledge hiding because of the supervisor's role modeling and reward/punishment powers. Thus, the findings of this study may offer useful theoretical and managerial implications for supervisee IWB in the workplace.

Third, to explain how SKHS may affect supervisee IWB, this study invokes social learning theory (Bandura, 1986) to investigate self-efficacy, defined as "people's beliefs of their capabilities to organize and execute the courses of action required to manage prospective situations" (Bandura, 1995, p. 2), as the mediating mechanism through which SKHS affects IWB. We suggest that supervisees' perception of SKHS weakens their self-efficacy, which in turn results in their reduced IWB. In doing so, this study extends the scarce literature on the mediator(s) of the knowledge hiding and IWB relationship, which has been explained in the past by incorporating social exchange theory to suggest trust/distrust as the mediator between knowledge hiding and creativity (Černe *et al.*, 2014).

Finally, we conducted this research in a relatively unexplored work setting, namely, the Kingdom of Saudi Arabia (KSA), which constitutes a complex work context due to its complicated work policies and practices which are somewhat more favorable for local workers than for the foreign workers who make up approximately one-third of its total workforce. Thus, we explore supervisor-supervisee nationality (local versus foreign) as a contextual boundary condition to explain circumstances where the mediation effect of self-efficacy between SKHS and IWB would be stronger and where it would be weaker. In doing so, this study contributes to both the knowledge hiding and IWB literatures.

In summary, this study answers three research questions:

- RQ1. What is the relationship between supervisees' perception of SKHS and their IWB?
- RQ2. How does this relationship work?
- RQ3. When does this relationship become stronger/weaker?

## Theory and hypotheses

### *Innovative work behavior*

In the dynamic and increasingly competitive business environment, persistent pursuit of innovation, which includes generation, dissemination and implementation of a new idea (Liao and Chun, 2016), has become crucial for organizations to sustain their competitive advantage (Tsai, 2018). Employees' IWB and creativity have been used interchangeably in the literature (Hirst *et al.*, 2009; Unsworth and Clegg, 2010), but IWB is a broader concept because it encompasses more than idea generation, which mainly involves creativity; it is a combination of idea generation, dissemination and implementation (Yidong and Xinxin, 2013). IWB has been defined in a variety of ways by several authors in the literature. However, these definitions contain similar themes and descriptions regarding the same process. Janssen (2004) defined IWB as "the intentional creation, introduction, and application of new ideas within a work, role, group or organization, to benefit role performance, the group, or the organization" (p. 202), whereas, in the context of knowledge management, Bos-Nehles *et al.* (2017) defined IWB as "all individual actions directed at the generation, processing and application/implementation of new ideas regarding ways of doing things, including new product ideas, technologies, procedures or work processes with the goal of increasing the organizational effectiveness and success" (p. 382).

These definitions suggest that IWB is a complex work behavior consisting of three behavioral phases: idea generation, promotion and application (Janssen, 2005; Young, 2012). When an employee engages in IWB, these three phases can occur sequentially in a complete process, and the employee can engage in any combination of these activities at any given point in time. When an employee comes up with an innovative work-related idea, in the next phase, they need to sell that idea to relevant others to gain support for the implementation phase. Finally, the employee engages in realizing/applying that idea in an actual work role, group or organization to solve problems and complete the innovation process (Yidong and Xinxin, 2013).

Employees' IWB is of prime importance to organizational survival and effectiveness in today's rapidly changing business environment (Luksyte *et al.*, 2018; Pieterse *et al.*, 2010). Accordingly, a range of individual, organizational and contextual factors have been suggested as predictors of employee IWB (Černe *et al.*, 2017). Of these predictors, leadership/supervisory behavior has been the most acknowledged predictor of IWB, due to leaders'/supervisors' role modeling and reward-punishment capacity (Bos-Nehles *et al.*, 2017; Javed *et al.*, 2018; Tu *et al.*, 2018). While extant research has identified positive leadership/supervisory behaviors (i.e. ethical, servant and inclusive leadership behaviors) (Javed *et al.*, 2018; Yang *et al.*, 2017; Yidong and Xinxin, 2013) as positive predictors of IWB, relatively little is known about the impact of negative leadership/supervisory behaviors

as negative predictors of IWB, with the exception of abusive supervision (Dong *et al.*, 2012; Lee *et al.*, 2018; Rousseau and Aubé, 2018). Thus, to extend the literature on the relationship between negative supervisory behavior and IWB, we investigate the effect of SKHS on supervisee IWB.

### *Supervisor knowledge hiding from supervisee*

Knowledge sharing is one of the major goals of the organizational knowledge management system through which an organization facilitates the transfer of knowledge among its members (Youssef *et al.*, 2017). Over the past two decades, ample research has identified the positive impact of knowledge sharing on individual, team, and organizational productivity and performance (Dong *et al.*, 2017; Quigley *et al.*, 2007), team creativity and innovation (Cheung *et al.*, 2016; Men *et al.*, 2017), and firm innovation capability (Podrug *et al.*, 2017). However, despite these benefits, organizational efforts to promote knowledge sharing are stalled because of employees' adoption of certain knowledge-hiding behaviors (Černe *et al.*, 2014; Connelly *et al.*, 2012; Lanke, 2018; Škerlavaj *et al.*, 2018; Wang *et al.*, 2018).

Knowledge sharing and knowledge hiding seem like two sides of the same coin; however, they are distinct, and consequently, knowledge-sharing practices may not reduce knowledge hiding (Connelly *et al.*, 2012; Connelly and Zweig, 2015). Specifically, the factors motivating both behaviors are distinct: knowledge sharing is primarily an outcome of prosocial intentions, while knowledge hiding is mostly motivated by self-focused intentions (Connelly *et al.*, 2012; Pan *et al.*, 2018). Furthermore, Connelly *et al.* (2012) suggest that knowledge hiding is distinct from other overlapping constructs, such as knowledge hoarding, which includes withholding knowledge that has not necessarily been requested by a specific individual (Webster *et al.*, 2008), in two respects.

First, knowledge hiding occurs when the hider hides information or knowledge that has been requested by another member(s) of the organization, which is not the necessary condition for knowledge hoarding. Second, unlike knowledge hoarding, which is a unidimensional concept, knowledge hiding is a multi-dimensional concept that can involve:

- evasive hiding, in which the knowledge hider either provides false information or pretends that they will disclose information in future even though they intend not to;
- playing dumb, which occurs when the knowledge hider pretends that they are unaware of the requested information; and/or
- rationalized hiding, which takes place when the knowledge hider provides an accurate explanation of why they are hiding specific information (Connelly *et al.*, 2012).

The knowledge-hiding literature is still in its infancy and only a handful of empirical studies have explored its detrimental consequences for the workplace, which include reduced psychological safety, reduced creativity and IWB, increased voluntary turnover intentions, damaged relationships and indulgence in reciprocal knowledge-hiding behaviors (Bogilović *et al.*, 2017; Černe *et al.*, 2017, 2014; Connelly *et al.*, 2012; Connelly and Zweig, 2015; Fong *et al.*, 2018; Jiang *et al.*, 2018). However, these studies focused mostly on the knowledge hiding that occurred on a horizontal level – that is, between two co-workers – while the consequences of knowledge hiding occurring on a vertical level – that is, SKHS – are yet to be explored.

Thus, more research on the existence and consequences of SKHS is warranted for at least three theoretical and practical reasons. First, Connelly and Zweig (2015) acknowledge that “although our research was conducted specifically to examine knowledge hiding among co-workers, this is not to imply that supervisors never hide knowledge” (p. 488). Indeed,

supervisors have their positions as a result of their specific work-related knowledge, and thus they are likely to use SKHS as a strategy to:

- maintain strong social dominance over their supervisees;
- harbor psychological ownership and territoriality of the knowledge; and
- avoid fears of losing power and being exploited by their supervisees.

Second, some initial evidence provides clues to the existence of SKHS in the workplace. For example, [Arain et al. \(2018\)](#) recently found empirical evidence for the existence of supervisor knowledge hiding, particularly in the Saudi work context, and highlighted its negative consequences for supervisor-directed trust and OCB. Similarly, a qualitative study by [Yeo and Marquardt \(2015\)](#), which was based on 56 semi-structured interviews on the barriers to knowledge sharing in two large Saudi-based multinational organizations, suggested that most participants in the study perceived SKHS even in organizations that had implemented knowledge-sharing programs.

Third, using social learning theory ([Bandura, 1986](#)), prior research on the consequences of positive/negative supervisory behaviors for supervisees' work behaviors suggests that supervisors are potential role models for their supervisees to provide them with a practical demonstration of desired work behaviors ([Bandura, 1977, 1986](#); [Mawritz et al., 2012](#); [Mayer et al., 2009](#); [Taylor et al., 2019](#)). According to these studies, supervisors' control over reward- and punishment-related outcomes for their supervisees motivate the supervisees to imitate their supervisors' behaviors, including a negative supervisory behavior like abusive supervision ([Mawritz et al., 2012](#)). Thus, the consequences of SKHS are likely to have implications for the workplace that are more severe than those of co-worker knowledge hiding.

Following these theoretical and practical reasons, this study intends to probe further into the potential consequences of SKHS for supervisee IWB by using social learning theory ([Bandura, 1986](#)) as an overarching theoretical framework of the study.

### *Supervisors' knowledge hiding from supervisees and supervisee innovative work behavior*

The prior literature on leadership/supervisor behaviors and employee IWB suggests that positive leadership/supervisory behaviors – namely, ethical leadership ([Yidong and Xinxin, 2013](#)), inclusive leadership ([Javed et al., 2018](#)) and servant leadership ([Yang et al., 2017](#)) – foster employee creativity and IWB by motivating employees through role model guidance, social support, requested resources and job autonomy. On the other hand, negative leadership/supervisory behaviors, such as abusive supervision ([Dong et al., 2012](#); [Rousseau and Aubé, 2018](#)), diminish employee creativity and IWB by demotivating them through the absence of these valued resources. More recently, empirical findings by [Khalid et al. \(2018\)](#) have suggested that abusive supervision encourages supervisees' knowledge hiding, which has been reported to affect the hider's creativity and IWB negatively by creating a distrust loop ([Černe et al., 2014, 2017](#)).

Extending this line of inquiry further, we build on Bandura's social learning theory and argue that SKHS positions supervisor as a negative role model for supervisees, which motivates supervisees to imitate the same negative supervisory behavior by reducing their IWB ([Bandura, 1986](#); [Mawritz et al., 2012](#)). In other words, SKHS positions supervisor as a selfish and dishonest person who will not acknowledge supervisees' IWB ([Yuan and Woodman, 2010](#)). Consequently, supervisees imitate the same negative behavior in the form of their diminished IWB, such as failing to offer suggestions regarding work innovations, new ways of doing things or the creation of better processes and routines ([Walumbwa and Hartnell, 2011](#)).

This line of reasoning is consistent with the knowledge management literature (Anand and Dalmasso, 2019; Bos-Nehles *et al.*, 2017; Lee *et al.*, 2018; Mary MacNeil, 2004) that identifies supervisors' role as facilitators of knowledge sharing in their organizations. According to the literature, supervisors' routine tasks (e.g. work supervision, communication and sharing of important information, mentoring and helping supervisees) make them a legitimate source of knowledge for supervisees. Thus, supervisees expect their supervisors to respond positively to a request for any specific knowledge that they believe their supervisors have (Arain *et al.*, 2018). However, by deceiving and deliberately not providing the supervisees with the requested knowledge, supervisors engender perceptions of SKHS, which can result in supervisees' negative work attitudes and behaviors, such as distrust in the supervisor and diminished supervisor-directed OCB (Arain *et al.*, 2018).

Thus, following the arguments presented above and the cited empirical findings, we hypothesize the following relationship.

*H1.* SKHS is negatively related to IWB.

Investigation of *H1* would not be complete without exploring the potential mechanism through which SKHS may negatively affect supervisee IWB. For this purpose, we examine Bandura's social learning theory-based construct – that is self-efficacy – as the mediator through which SKHS affects supervisee IWB, which we discuss in the next section.

### *Mediation of self-efficacy between supervisors' knowledge hiding from supervisees and supervisee innovative work behavior*

Self-efficacy refers to “people's beliefs of their capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1995, p. 2). Bandura (1977, 1986) has suggested that an individual's self-efficacy can be enhanced through four techniques: affective arousal, verbal persuasion, role modeling and enacting mastery. Accordingly, social learning theory (Bandura, 1986) asserts that individuals learn by “paying attention to and emulating the attitudes, values, and behaviors of attractive and credible models” (Brown and Treviño, 2006, p. 597). This suggests that individuals' observation of role models' behaviors and their consequences helps them to learn about the various desirable and undesirable behaviors, which directs their emulation of such behaviors, particularly when role models have a “prestige hierarchy”, such as in the case of supervisors (Bandura, 1986, p. 207), and the ability to control rewards (Bai *et al.*, 2017; Brown *et al.*, 2005).

Given that supervisors have a “prestige hierarchy” and control over pay and perks for supervisees, supervisees' perceptions of their own value and ability – that is, their self-efficacy – are likely to be influenced by their supervisors' behaviors toward them. Positive supervisory behaviors – that is, servant leadership and ethical leadership – positively affect supervisees' self-efficacy by providing them with the required resources, support, psychological safety and job autonomy (Walumbwa *et al.*, 2011; Yang *et al.*, 2017). In contrast, negative supervisory behaviors – that is, abusive supervision – negatively affect supervisees' self-efficacy by depleting these resources (Duffy *et al.*, 2002). The enhanced/diminished self-efficacy then motivates/demotivates supervisees to increase/decrease their IWB, respectively (Haase *et al.*, 2018). Using multi-level data from 83 team leaders and 466 team members in the banking sector in China, Yang *et al.* (2017) suggested that self-efficacy mediated the positive relationship between servant leadership and creativity. On the other hand, using data from a sample of 325 employees from 17 companies in Nepal, Rauniyar *et al.* (2017) suggested that creative self-efficacy mediated the negative relationship between abusive supervision and employee creativity. In other words, self-efficacy acts as the underlying mechanism through which positive/negative supervisory behaviors translate into enhanced/diminished IWB.

Following the premise of social learning theory (Bandura, 1986) and prior empirical findings, we therefore suggest that SKHS – that is, deceiving and deliberately failing to provide requested knowledge – gives supervisees a signal that their supervisor neither trusts them

nor provides them with the required resources. This, in turn, shatters their self-efficacy and their subsequent motivation for IWB. Thus, we hypothesize the following relationship:

*H2.* Self-efficacy mediates the negative relationship between SKHS and IWB.

We conducted this research in a relatively unexplored research context – the KSA – which provides a complex work context due to its complicated and mixed workforce, which consists of both local Saudi and foreign workers. We therefore explore supervisor–supervisee nationality (local versus foreign) as a boundary condition to the mediation relationship hypothesized in *H2*.

### *Moderating effects of supervisor and supervisee nationality (local versus foreign)*

In an empirical study on the contextual inhibitors of employee creativity in organizations, [Choi et al. \(2009\)](#) identify an unsupportive climate and assertive leadership as potential contextual inhibitors of employee creativity and IWB. We argue that these two contextual inhibitors are pertinent to supervisee IWB, particularly in Saudi organizations. For example, the KSA does not permit foreign workers to:

- acquire Saudi nationality;
- have their own businesses; or
- switch jobs without the consent of their Saudi sponsor ([Longva, 1999](#)).

Foreign workers are therefore likely to feel powerless in the case of abuse by their supervisors and employers (i.e. assertive leadership), which is frequently reported and for which limited or no protection is provided in the KSA's legal system ([Mellahi, 2007](#)). Consequently, foreign workers are very likely to perceive SKHS and subsequently to feel less self-efficacy.

However, foreign workers with low self-efficacy may still not be motivated to reduce their IWB to the extent that it comes to the notice of their supervisor or employer and results in the loss of their job, with no alternative job opportunity available. Indeed, prior empirical studies comparing local and foreign workers' proactive voice for innovative ideas and suggestions (i.e. IWB) suggest that foreign workers are more risk averse than local workers ([Chen et al., 2011](#); [Loi et al., 2014](#)). Thus, due to lower job security, benefits and alternative job opportunities than local Saudis, it is likely that the mediation effect of self-efficacy in the relationship between SKHS and IWB will be stronger for local Saudis than for foreign workers. We, therefore, hypothesize the following relationship:

*H3a.* Supervisee nationality (local versus foreign) moderates the mediation effect of self-efficacy between SKHS and supervisee IWB, such that the mediation effect will be stronger when the supervisee is Saudi than when the supervisee is foreign.

According to [Nurunnabi \(2017\)](#), of the 3.14 per cent unemployed Saudi males in 2014, the percentage of unemployed Saudi males with a university degree increased from 6.9 per cent (1999) to 14.8 per cent (2012). Similarly, of the 20.2 per cent of Saudi females who were unemployed, the percentage of unemployed Saudi females with a university degree increased from 39.1 per cent (1999) to 73.9 per cent (2012). Saudization and other national-level programs to create job opportunities for the increasing numbers of young and educated but unemployed Saudi men and women have created job uncertainty not only for foreigners but also for older local Saudis, particularly those who are holding managerial positions and are afraid of being replaced by the local younger workforce. Consequently, the relationship between supervisors and supervisees, particularly when they have the same nationality (Saudi-Saudi or foreigner-foreigner), has come to be characterized by a lack of trust, each seeing the other as a threat to their job security and career progression ([Al-Asfour and Khan, 2014](#); [Ali et al., 2019](#); [Yeo and Marquardt, 2015](#)).

For example, Saudi supervisors tend to exhibit SKHS more strongly in relation to Saudi supervisees than foreign supervisees due to the fear that the former supervisees have a greater chance of replacing them than the latter. Consequently, Saudi supervisees reduce their IWB more strongly than do foreign supervisees. We, therefore, suggest that the supervisee and supervisor nationality (local or foreign) serve as boundary conditions for the mediation effect of self-efficacy in the relationship between SKHS and IWB (Figure 1). Accordingly, we hypothesize the following relationship:

*H3b.* The nationalities of supervisees and supervisors moderate the mediation effect of self-efficacy in the relationship between SKHS and IWB, such that the mediation effect will be stronger when the supervisee and the supervisor have the same nationality (Saudi-Saudi) than when they have different nationalities (Saudi-foreigner or vice versa).

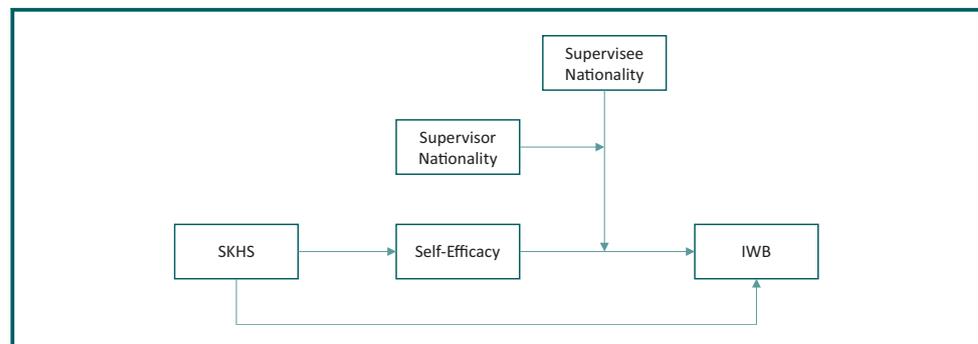
## Method

### Sample and procedure

Using convenience sampling and a supervisor–supervisee dyadic design, data were collected by distributing hard copies of two different types of research questionnaire, one for supervisors and one for their supervisees, at several domestic and multinational organizations in Saudi Arabia. As this study aimed at collecting individual-level data from both local Saudi and foreign workers, questionnaires were written in both English and Arabic, for better understanding. The Arabic translation of the employed measures from the original language (English) was made using both forward (from English into Arabic) and backward (from Arabic into English) translation methods. The questionnaire for supervisors consisted of questions related to their supervisees' IWB and the individual supervisor's demographic information. The questionnaire for supervisees consisted of questions related to their perceptions of SKHS, self-efficacy and demographic information. The two questionnaires were assigned similar codes so that they could be later matched because this provided the best assessment of each variable.

A total of 860 supervisor–supervisee questionnaires were personally distributed by the lead author and his two research assistants to several public and private organizations operating in manufacturing, oil and gas, service, telecommunication, tourism and hospitality sectors in the KSA. The research team used their professional contacts and first contacted supervisees, who filled out the supervisee-related questionnaire and identified their respective supervisors. Later, the research team approached the named supervisors and asked them to complete a survey related to the IWB of their supervisee(s). Once both questionnaires were completed, we used the similarity codes to pair them. Of the 860 matching dyads distributed, 490 dyads were collected, a 57 per cent response rate. After

**Figure 1** Hypothesized model



discarding the 44 responses with incomplete information and mismatched dyads, the remaining 446 complete dyads were retained to test the proposed model.

It is worth mentioning that of the 446 complete dyads, 360 supervisors reported on the corresponding 446 supervisees' IWB, indicating that most supervisors reported on only one supervisee's IWB. We used this strategy:

- to rule out the possibility of within-group difference in IWB scores that might have resulted if multiple supervisees (i.e. three or more) had been rated by a single supervisor; and
- to avoid putting the burden on one supervisor of rating several supervisees, which might have affected the quality of the supervisor's responses.

Furthermore, all the participants voluntarily provided the requested data, and the research team assured them of the confidentiality of their responses. The data collection stage was completed in a period of two and a half months (15 February to 30 April 2017).

Among the participating supervisees, 45 per cent were foreigners and 55 per cent were locals (Saudis). Among foreign supervisees, most participants were from Yemen (23 per cent), Egypt (21 per cent), Pakistan (14 per cent), India (13 per cent) and the Philippines (13 per cent). Of these respondents, 81 per cent were males and 19 per cent were females, the average age was 33 years, and the average working experience was 5.5 years. Among local supervisees, 61 per cent were males and 39 per cent were females, the average age was 30 years, and the average working experience was 4.3 years.

Among the participating supervisors, 43 per cent were foreign and 57 per cent were locals (Saudis). Among foreign supervisors, most participants were from Egypt (29 per cent), the Philippines (16 per cent), India (15 per cent), Lebanon (9 per cent) and Pakistan (8 per cent). Of these respondents, 84 per cent were males and 16 per cent were females, the average age was 38 years, and the average supervisor–supervisee relationship tenure was 2.6 years. Among Saudi supervisors, 80 per cent were males and 20 per cent were females, the average age was 37 years, and the average supervisor–supervisee relationship tenure was 3.3 years.

The sample as a whole reflects the workforce diversity in Saudi organizations, which have a large number of foreign workers at both the supervisor and supervisee levels, and mostly from the Middle-East and Asian countries. The smaller number of females in both local and foreign worker samples is a representation of the dominant male workforce of the KSA, which is also reflected in the composition of Saudi research samples used in recently published studies such as those by [Ali et al. \(2019\)](#) and [Nurunnabi \(2017\)](#).

## Measures

From the review of the literature, the existing measures for the three main variables of the study, SKHS, self-efficacy and IWB, were identified; they were measured on a Likert scale ranging from 1 (not at all) to 7 (to a great extent). Following are the details and sample items of the measures used.

SKHS was measured using the 12-item scale developed by [Connelly et al. \(2012\)](#). This scale measures supervisees' subjective judgment of their supervisors' hiding knowledge from them (i.e. SKHS), consisting of four items each for evasive hiding, playing dumb and rationalized hiding. The scale opened with the following statement: "For a moment, visualize in your mind your supervisor/line manager; how does he/she behave upon receiving a request from you for any specific knowledge?" A sample item of evasive hiding is: "He/she offers me some other information instead of what I really want." A sample item of playing dumb is: "He/she pretends that he/she did not understand my request." A sample item of rationalized hiding is: "He/she tells me that the top management would not let anyone

access that information." The alpha reliability value for the second-order confirmatory factor analysis of SKHS reported for this scale in this study is 0.77.

*Self-efficacy* was measured using the three-item scale developed by Spreitzer (1995). A sample item is: "I am confident about my ability to do my job." The alpha reliability value reported for this scale in this study is 0.88.

*IWB* was measured using the innovation-related four-item role-based performance scale developed by Welbourne *et al.* (1998). A sample item is "He/she works to implement new ideas." The alpha reliability value reported for this scale in this study is 0.87.

Supervisee age, gender, experience and nationality (local or foreign) were used as control variables. Similarly, supervisor age, sex, relationship tenure with the reported supervisee (i.e. length of time supervising the supervisee) and nationality (local or foreign) were also controlled due to their likely effect on the dependent variables of this study (Luksyte *et al.*, 2018; Walumbwa *et al.*, 2011; Walumbwa and Hartnell, 2011).

### *Common method variance*

Although the use of two sourced data for independent and dependent variables reduced the threat of self-report biases and common method variance (CMV), the cross-sectional nature of the collected data still raises concerns of CMV (Podsakoff *et al.*, 2012). Given that the presence of CMV may inflate the strength of the examined structural relationships among the variables studied in the model, two statistical tests, Harman's single factor test and a common latent factor (CLF) test (Podsakoff *et al.*, 2003, 2012), were conducted to assess the threat of CMV in the current study's data set. For Harman's single-factor test, we conducted exploratory factor analysis (EFA) in SPSS version 25 (IBM Corp, 2017) and examined the amount of variance explained by the main factors of the study, comparing it with the amount of variance explained by a single factor. The EFA results highlighted that the main factors of the study explained 83.39 per cent of the cumulative variance, while the single factor explained only 32 per cent of the cumulative variance, which is less than the maximum threshold value of 50 per cent (see Appendix for the loadings of the main factors).

Thus, no evidence of CMV was traced in Harman's single factor test. Next, we conducted a CLF test through confirmatory factor analysis (CFA) in AMOS version 23 (Arbuckle, 2014). Specifically, a CLF was connected to indicators of all the latent factors. The comparison of standardized regression estimates of CFA with and without a CLF highlighted that the difference was below the maximum threshold value of 0.20. Thus, no evidence of CMV was detected in a CLF test.

## **Data analysis strategy and results**

### *Data analysis strategy*

The current study hypothesized the three-way moderated mediation model in which the mediation effect of self-efficacy between the SKHS and IWB relationship was further moderated by the three-way interaction of self-efficacy, supervisee nationality (local versus foreigners), and supervisor nationality (local versus foreign), as shown in Figure 1. In the first step, AMOS version 23 (Arbuckle, 2014) was used to assess the fitness of the hypothesized measurement model and the alternative measurement models, and the convergent and discriminant validity of the retained measurement model. In the second step, PROCESS macro (Hayes, 2013), with 5,000 bootstrap samples to test for statistical significance, was used in SPSS version 25 (IBM Corp, 2017) to assess the proposed three-way moderated mediation model. PROCESS macro (Hayes, 2013) has increasingly been used to test the moderated mediational models examined in many recently published studies, such as those by Byun *et al.* (2018) and Han *et al.* (2019).

### Measurement model assessment

Before progressing to test our hypothesized model, we confirmed the independence of the main model variables through CFA using structural equation modeling software AMOS version 23. In line with convention, we used a combination of fit indices – standardized root mean square residual (SRMR), comparative fit index (CFI), Tucker–Lewis index (TLI) and root mean square error of approximation (RMSEA) – to assess the adequacy of our hypothesized model by comparing it with a number of reasonable alternative measurement models (Bentler and Bonett, 1980). SRMR and RMSEA scores below 0.07 and CFI and TLI scores above 0.90 are judged to confirm a good model fit (Hair *et al.*, 2010).

The model first tested, Model 1 (Table I), is our hypothesized three-factor model comprising the second-order latent factor of SKHS and first-order latent factors of self-efficacy and IWB. We also tested three alternative models and compared their fit indices with Model 1. Specifically, Model 2 was a three-factor model in which all items of the three dimensions of SKHS were loaded onto a single latent factor. Model 3 was a five-factor model in which all three dimensions of the SKHS scale (evasive hiding, playing dumb and rationalized hiding) were tested independently, along with self-efficacy and IWB factors. Model 4 was a one-factor model in which all items for all scales were loaded onto a single factor. Table I confirms that Model 1 has an excellent fit for the data (SRMR = 0.04, CFI = 0.97, TLI = 0.97 and RMSEA = 0.06), while all other models provide a poor fit.

### Convergent and discriminant validity

Following the CFA results, we retained Model 1 and tested its convergent and discriminant validity using the Master Validity Tool AMOS plugin developed by Gaskin and Lim (2016). According to Hair *et al.* (2010), convergent validity is established when composite reliability (CR) and average variance extracted (AVE) are greater than 0.70 and 0.50, respectively. Discriminant validity is established when the square root of AVE is greater than the correlation. The results presented in Table II show that the CR and AVE values of the main variables of the study – that is, SKHS, self-efficacy and IWB – are well above their respective minimum threshold values. Thus, the convergent validity of the main variables was established. Furthermore, Table II shows that the square root of the AVE of the main variables of the study is greater than their respective correlation values. Thus, the discriminant validity of the main variables was also established.

**Table I** CFA model fit indices

| Measurement model comparison  | SRMR | CFI  | TLI  | RMSEA |
|---|------|------|------|-------|
| Model 1<br>3-factor model: second-order latent factor of SKHS, first-order latent factors of self-efficacy and IWB  | 0.04 | 0.97 | 0.97 | 0.06  |
| Model 2<br>3-factor model: the three dimensions of SKHS were merged and loaded on to first-order latent factor of SKHS, first-order latent factors of self-efficacy and IWB | 0.12 | 0.73 | 0.69 | 0.18  |
| Model 3<br>5-factor model: all first-order latent factors of evasive hiding, playing dumb, rationalized hiding, self-efficacy and IWB                                       | 0.05 | 0.95 | 0.94 | 0.08  |
| Model 4<br>1-factor model: all measures were loaded on a single latent factor   | 0.20 | 0.41 | 0.34 | 0.26  |

**Notes:** N = 446; SRMR = Standardized Root Mean Square Residual; CFI = Comparative Fit Index; TLI = Tucker–Lewis Index; RMSEA = Root-Mean Square Error Approximation; SKHS = Supervisor Knowledge Hiding from Supervisee; IWB = Innovative Work Behavior

| Latent factor | CR   | AVE  | MSV  | MaxR(H) | IWB     | Self-efficacy | SKHS |
|---------------|------|------|------|---------|---------|---------------|------|
| IWB           | 0.93 | 0.76 | 0.04 | 0.94    | 0.87    |               |      |
| Self-efficacy | 0.92 | 0.78 | 0.09 | 0.92    | 0.20*** | 0.88          |      |
| SKHS          | 0.80 | 0.59 | 0.09 | 0.94    | -0.17** | -0.30***      | 0.77 |

Notes: N = 446; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; CR = Composite Reliability; AVE = Average Variance Extracted; MSV = Maximum Share Variance; SKHS = Supervisor Knowledge Hiding from Supervisee; IWB = Innovative Work Behavior

### Descriptive statistics

The hypothesized model was tested using SPSS version 25 and PROCESS macro for SPSS (Hayes, 2013). Table III presents the means, standard deviations, and inter-correlations of our hypothesized model variables. As expected, our key independent and dependent variables correlate in the proposed directions. For example, SKHS is negatively correlated with supervisee self-efficacy ( $r^2 = -0.33$ ,  $p < 0.01$ ) and IWB ( $r^2 = -0.19$ ,  $p < 0.01$ ). Moreover, self-efficacy is positively correlated with IWB ( $r^2 = 0.22$ ,  $p < 0.01$ ). As a result, we continued with our hypothesized model testing.

Table III also provides a summary of our potential control variables and their correlations with our main dependent variables, self-efficacy and IWB. It appears, in our sample at least, that only supervisee nationality (1 = local and 2 = foreign) has significant correlation with self-efficacy. As anticipated, supervisee nationality is significantly and negatively correlated with self-efficacy ( $r = -0.12$ ,  $p < 0.01$ ), which indicates that a local supervisee has higher self-efficacy than a foreign supervisee. To test the most parsimonious model (Berneth and Aguinis, 2016; Becker et al., 2016), we only controlled for the potential effect of the supervisee and supervisory nationality, which are our moderating variables, in the remainder of our analysis.

### Model testing: mediation model (H1 and H2)

To test H1 and H2, we ran PROCESS Model 4 (Hayes, 2013) with 5,000 bootstrap samples. Table IV provides a summary of the findings. As predicted, after controlling for the effects of supervisee and supervisor nationalities and self-efficacy, supervisees' perception of SKHS still shows a direct and significant negative association with their IWB ( $B = -0.19$ ,  $t = -3.05$ ,  $p < 0.01$ ). It appears that the more supervisees perceive SKHS, the less IWB they exhibit. H1 is therefore supported. The results also indicate that supervisees' perception of SKHS has a significant negative association with their self-efficacy ( $B = -0.32$ ,  $t = -7.09$ ,  $p < 0.001$ ), which then has a significant positive association their IWB ( $B = 0.23$ ,  $t = 3.64$ ,

**Table III** Means, standard deviations and inter-correlations

| Variables                 | Mean  | SD   | 1       | 2       | 3       | 4       | 5      | 6      | 7       | 8     | 9       | 10     | 11   |
|---------------------------|-------|------|---------|---------|---------|---------|--------|--------|---------|-------|---------|--------|------|
| 1. Supervisee sex         | 1.30  | 0.46 |         |         |         |         |        |        |         |       |         |        |      |
| 2. Supervisee age         | 31.36 | 7.87 | -0.15** |         |         |         |        |        |         |       |         |        |      |
| 3. Supervisee experience  | 4.85  | 5.00 | -0.22** | 0.73**  |         |         |        |        |         |       |         |        |      |
| 4. Supervisee nationality | 0.44  | 0.50 | -0.21** | 0.20**  | 0.11*   |         |        |        |         |       |         |        |      |
| 5. Supervisor sex         | 1.19  | 0.39 | 0.54**  | -0.06   | -0.10*  | -0.06   |        |        |         |       |         |        |      |
| 6. Supervisor age         | 37.42 | 9.25 | -0.09   | 0.36**  | 0.29**  | 0.04    | -0.12* |        |         |       |         |        |      |
| 7. Supervisor nationality | 0.42  | 0.49 | -0.03   | -0.14** | -0.13** | 0.16**  | -0.05  | 0.02   |         |       |         |        |      |
| 8. Relationship tenure    | 3.04  | 2.53 | -0.18** | -0.51** | 0.59**  | 0.14**  | -0.08  | 0.46** | -0.14** |       |         |        |      |
| 9. SKHS                   | 1.70  | 1.00 | -0.09   | -0.09   | -0.06   | 0.13**  | -0.11* | -0.04  | 0.16**  | -0.02 | 0.87    |        |      |
| 10. Self-efficacy         | 5.39  | 1.00 | -0.04   | 0.10    | 0.09    | -0.12** | 0.04   | 0.06   | -0.03   | 0.09  | -0.33** | 0.88   |      |
| 11. IWB                   | 4.79  | 1.28 | 0.02    | 0.09    | 0.07    | 0.08    | 0.03   | 0.03   | 0.03    | 0.06  | -0.19** | 0.22** | 0.77 |

Notes: N = 446; \* $p < 0.05$ ; \*\* $p < 0.01$ ; SKHS = Supervisor Knowledge Hiding from Supervisee; IWB = Innovative Work Behavior

**Table IV** Summary regression table of mediation model

| <i>Model 1</i>          |                     | <i>Self-efficacy (M)</i> |                |
|-------------------------|---------------------|--------------------------|----------------|
| IVs                     | B                   | SE                       | t              |
| Supervisee nationality  | -0.18               | 0.09                     | 1.92           |
| Supervisor nationality  | 0.07                | 0.09                     | 0.73           |
| SKHS                    | -0.32               | 0.05                     | -7.09***       |
| <i>Model 2</i>          |                     | <i>IWB</i>               |                |
| IVs                     | B                   | SE                       | t              |
| Supervisee nationality  | 0.30                | 0.12                     | 2.50*          |
| Supervisor nationality  | 0.09                | 0.12                     | 0.77           |
| SKHS                    | -0.19               | 0.06                     | -3.05**        |
| Self-efficacy           | 0.23                | 0.06                     | 3.64***        |
| <i>Indirect effects</i> | Effect ( $\gamma$ ) | BootSE                   | [LLCI, ULCI]   |
| Self-efficacy           | -0.07               | 0.02                     | [-0.12, -0.03] |

**Notes:** N = 446; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; PROCESS Model 4; B = Unstandardized Coefficients; SKHS = Supervisor Knowledge Hiding from Supervisee; IWB = Innovative work behavior

$p < 0.001$ ). The significant indirect effect ( $\gamma = -0.07$ , [-0.12, -0.03]) indicates that self-efficacy is a significant mediator in the relationship between supervisees' perception of SKHS and their IWB.  $H2$  is therefore supported by the data.

### Model testing: moderated-mediation model ( $H3a$ and $H3b$ )

To test  $H3a$  and  $H3b$ , we ran PROCESS Model 18 (Hayes, 2013), in which two moderators (W and Z) moderate the relationship between the mediator (Mi) and the dependent variable (Y), with 5,000 bootstrap samples. First, the results of  $H3a$ , regarding the moderation effect of the two-way interaction of self-efficacy and supervisee nationality (Mod1) on the mediation relationship proposed in  $H2$ , were taken into consideration. Table V shows that the two-way interaction (self-efficacy\*Mod1) has a non-significant ( $B = 0.03$ ,  $t = 0.27$ ,  $p > 0.05$ ) moderating effect on the mediation effect of self-efficacy in the relationship between SKHS and IWB. Thus,  $H3a$  was not supported by the data. Second, the results of  $H3b$ ,

**Table V** Summary regression table moderated-mediation model

| <i>Model 1</i>  |                     | <i>Self-efficacy (M)</i> |                |
|---|---------------------|--------------------------|----------------|
| IVs   | B                   | SE                       | t              |
| SKHS  | -0.33               | 0.04                     | -7.34***       |
| <i>Model 2</i>  |                     | <i>IWB</i>               |                |
| IVs   | B                   | SE                       | t              |
| Supervisee nationality (Mod1)   | 0.31                | 0.12                     | 2.60**         |
| Supervisor nationality (Mod2)   | 0.11                | 0.12                     | 0.91           |
| SKHS  | -0.19               | 0.06                     | -2.96**        |
| Self-efficacy   | 0.24                | 0.06                     | 3.88***        |
| Mod1 $\times$ Mod2  | 0.12                | 0.24                     | 0.50           |
| Self-efficacy $\times$ Mod1   | 0.03                | 0.12                     | 0.27           |
| Self-efficacy $\times$ Mod2   | -0.15               | 0.12                     | -1.27          |
| Self-efficacy $\times$ Mod1 $\times$ Mod2   | 0.53                | 0.24                     | 2.21*          |
| <i>Conditional indirect effects of self-efficacy on at +1 SD and -1 SD of Mod1 and Mod2</i> | Effect ( $\gamma$ ) | BootSE                   | [LLCI, ULCI]   |
| Self-efficacy at -1 SD Mod1 and -1 SD Mod2  | -0.13               | 0.04                     | [-0.23, -0.07] |
| Self-efficacy at -1 SD Mod1 and +1 SD Mod2  | -0.00               | 0.05                     | [-0.11, 0.09]  |
| Self-efficacy at +1 SD Mod1 and -1 SD Mod2  | -0.07               | 0.04                     | [-0.14, 0.01]  |
| Self-efficacy at +1 SD Mod1 and +1 SD Mod2  | -0.11               | 0.04                     | [-0.21, -0.04] |

**Notes:** N = 446; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; PROCESS Model 18; B = Unstandardized Coefficients; SKHS = Supervisor Knowledge Hiding from Supervisee; IWB = Innovative Work Behavior

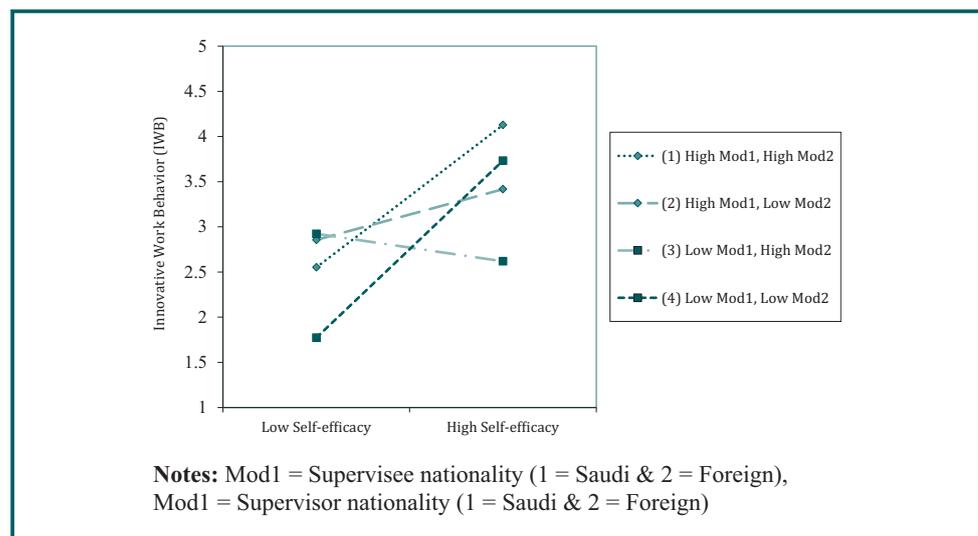
regarding the moderation effect of the three-way interaction of self-efficacy, supervisee nationality (Mod1) and supervisor nationality (Mod2) on the mediation relationship proposed in *H2*, were taken into consideration. Table V shows that the three-way interaction (self-efficacy\*Mod1\*Mod2) has a significant ( $B = 0.53$ ,  $t = 2.21$ ,  $p < 0.05$ ) moderating effect on the mediation effect of self-efficacy in the relationship between SKHS and IWB. *H3b* is therefore supported by the data.

To probe further into the supported *H3b*, we examined the conditional mediation effect of self-efficacy at one standard deviation above (+1 SD) and one standard deviation below (-1 SD) the mean scores of supervisee nationality (Mod1) and supervisor nationality (Mod 2). The last part of Table V shows that the conditional mediation effects of self-efficacy at the two levels, +1 SD and -1 SD, of Mod1 and Mod2 are significant only when both Mod1 and Mod2 are either at -1 SD ( $\gamma = -0.13$ ,  $[-0.23, -0.07]$ ) or at +1 SD ( $\gamma = -0.11$   $[-0.21, -0.04]$ ). Specifically, at +1 SD and -1 SD, neither lower-level nor upper-level confidence intervals contain zero, which indicates significant conditional mediation effects. In other words, Table V and Figure 2 show that the mediation effects of self-efficacy in the relationship between SKHS and IWB are only significant when supervisee and supervisor have a similar nationality (Saudi-Saudi or foreign-foreign) and are not significant when they have contrasting nationalities (Saudi-foreign or foreign-Saudi).

## Discussion

Drawing from social learning theory (Bandura, 1977, 1986), this study examined the three-way moderated mediational model in which the mediational effect of self-efficacy in the relationship between SKHS and IWB was suggested as conditional on supervisee and supervisor nationality. The results of the study are largely consistent with prior findings in the knowledge hiding and IWB literatures. Specifically, the supported direct and indirect negative effects, via self-efficacy, of SKHS on IWB are parallel to those in prior research in the knowledge hiding and IWB literatures. For example, our findings for the direct and mediation relationships are aligned with findings in an empirical study recently published by Arain *et al.* (2018), which highlights the direct and mediation effects, via distrust in supervisor, of supervisor knowledge hiding on supervisees' supervisor-directed OCB. Our results extend their findings by:

**Figure 2** Plot of three-way interaction effects (self-efficacy  $\times$  Mod1  $\times$  Mod2)



- suggesting diminished IWB – which is more critical to the success of organizations than supervisor-directed OCB – as another potential negative consequence of SKHS; and
- incorporating social learning theory and suggesting self-efficacy as the mediator that mediates the significant negative relationship between SKHS and IWB.

These findings are also comparable with results reported in other empirical studies, such as those by Černe *et al.* (2017), Rauniyar *et al.* (2017), and Rousseau and Aubé (2018). For instance, while focusing on co-worker knowledge hiding, Černe *et al.* (2017) highlighted that knowledge hiding negatively affected the hider's IWB. Using team level data, Rousseau and Aubé (2018) highlighted that team abusive supervision negatively affected team innovation. Similarly, the supported mediation of self-efficacy in the relationship between SKHS and IWB is consistent with the findings of Rauniyar *et al.* (2017), which suggested that creative self-efficacy mediated the negative relationship between abusive supervision and employee creativity.

The results also highlight the importance of assessing the combined moderation effects of supervisee and supervisor nationality, since the conditional mediation effect of self-efficacy between SKHS and IWB is more pronounced when supervisee and supervisor have the same nationality (local-local or foreigner-foreigner) than when they have different nationalities (local-foreigner or foreigner-local). These results are comparable with findings in previous studies published in the knowledge hiding and expatriate literatures. For instance, Arain *et al.* (2018) highlighted that the significant and positive relationship between supervisor knowledge hiding and distrust in the supervisor was more pronounced for foreign workers than for local workers. Loi *et al.* (2014) suggested that foreign workers were more risk averse than local workers and thus showed less reaction to unsupportive work conditions.

Furthermore, with regard to the complicated and less favorable working conditions for foreign workers than for local Saudi workers (Ali *et al.*, 2019; Mellahi, 2007; Yeo and Marquardt, 2015), our findings show that the indirect negative effect of SKHS, via self-efficacy, on IWB is stronger when the supervisor and supervisee are local Saudis than when they are not (i.e. Saudi supervisor and foreign supervisee or vice versa). Though not hypothesized, it was also noticed that the moderation effect of foreign supervisor and foreign supervisee was significant, but its effect size ( $\gamma = -0.11$ ) was less than the moderation effect ( $\gamma = -0.13$ ) of Saudi supervisor and Saudi supervisee.

This result endorses the qualitative findings of Yeo and Marquardt (2015), which suggest psychological safety and interpretations of the contextual conditions as important determinants of employees' knowledge sharing and knowledge hiding behaviors in Saudi organizations. For instance, it was evident in their study that knowledge hiding occurred more between employees of similar nationality – particularly between locals (Saudis) – than between employees of a contrasting nationality (local-expat). The result of the current study also explains that supervisee nationality alone (Saudi versus foreigner) may not significantly moderate the mediation effect; rather, it is the interaction between supervisor and supervisee nationality (Saudi-Saudi or foreigner-foreigner) that matters most. This study therefore extends the finding of Arain *et al.* (2018) regarding the significant group difference for the relationship between supervisor knowledge hiding and distrust in supervisor using supervisor nationality only.

### *Theoretical implications*

This study offers useful theoretical implications for both the knowledge hiding and the IWB literatures. First, to the best of our knowledge, this is the first empirical study that investigates the consequences of SKHS for supervisees' IWB. Prior knowledge management literature has focused mostly on knowledge sharing and less on knowledge hiding. Of those few empirical studies on knowledge hiding, only two noteworthy studies

(Černe *et al.*, 2014, 2017) examined the negative consequences of knowledge hiding for the hider's creativity and IWB. However, these studies focused only on knowledge hiding that occurred at the same hierarchical level (between two co-workers); with the exception of Arain *et al.* (2018), the consequences of top-down knowledge hiding had yet to be explored, a line of inquiry suggested by Arain *et al.* (2018) and Connelly and Zweig (2015) as a potential future research direction in the knowledge-hiding literature. Thus, by focusing on the consequences of SKHS, this study adds to the prior knowledge management literature, particularly that on knowledge hiding.

Second, this study contributes to literature on the leadership/supervisory behavior and IWB relationship, which has mostly examined IWB and positive supervisory/leadership behaviors (transformation, ethical, servant and inclusive leadership). Relatively few studies have investigated the relationship between negative leadership/supervisory behavior and IWB, suggesting that employees' perception of self-serving and unethical behavior (i.e. abusive supervision) by their leaders/supervisors negatively affects their IWB. We extend this line of inquiry by suggesting that SKHS is also a kind of unethical and self-serving supervisory behavior that may negatively affect supervisee IWB.

Third, prior knowledge-hiding literature has suggested a trust/distrust and prevention focus as the underlying mechanism through which employee knowledge hiding negatively affects their work behaviors. Notably, by incorporating social exchange theory, it is suggested that employees' knowledge hiding from co-workers creates a distrust loop, which then negatively influences their creativity and IWB (Černe *et al.*, 2014, 2017). We further extend this line of inquiry and incorporate social learning theory to suggest that SKHS first diminishes supervisees' self-efficacy, which then negatively affects supervisees' IWB. This study therefore highlights the usefulness of social learning theory in the knowledge-hiding literature and extends prior work on the potential mediators of the knowledge hiding and IWB relationship.

Fourth, by taking a research sample from a relatively unexplored field in the KSA, this study found support for the moderating effects of supervisor and supervisee nationality (local versus foreign) on the mediation effect of self-efficacy in the relationship between SKHS and IWB. Specifically, the findings suggest that the (negative) mediation effect is significant when supervisor and supervisee have a similar nationality (i.e. Saudi-Saudi or foreign-foreign), and is non-significant when supervisor and supervisee have a contrasting nationality (i.e. Saudi-foreign or foreign-Saudi). In so suggesting, this study not only extends prior literature on the moderators of the knowledge hiding and employee IWB relationship but also reinforces the value of demographic diversity in bringing innovation to organizations.

### *Practical implications*

In today's increasingly complex and dynamic work environment, IWB is indispensable for organizations. Our study highlights how SKHS can directly and indirectly (i.e. via diminished self-efficacy) negatively influence employee IWB. Consistent with prior literature on the leadership/supervisory behavior and IWB relationship, our findings suggest that supervisors influence their supervisees' behaviors through their role model capacity. Thus, a supervisee's perception of knowledge hiding by their supervisor creates a negative image of the supervisor (i.e. that the supervisor is a dishonest and selfish person who deliberately does not share the requested knowledge with the supervisee). Consequently, the lack of supervisory support diminishes the supervisee's self-efficacy, which subsequently diminishes the supervisee's motivation to exhibit IWB.

This is particularly true in the KSA, where nationalization programs (i.e. Saudization) create such a complicated and untrusting supervisor-supervisee relationship that each tends to undermine the other (Ali *et al.*, 2019). For example, supervisors negatively affect

supervisees' self-efficacy and IWB by hiding the requested knowledge from them, potentially resulting in loss of the supervisor's own IWB (Haase *et al.*, 2018), and loss of supervisors' and supervisees' jobs due to the poor work unit performance. Thus, we recommend that supervisors take the lead and present themselves as positive role models for their supervisees by sharing the requested knowledge with their supervisees to enhance their self-efficacy and subsequent IWB. This, in turn, may help the supervisors to enhance their own IWB, which may result in improved work unit performance and greater job security for both the supervisors and the supervisees. To achieve this, supervisors should engage in one-to-one communication with their supervisees to provide them with feedback and the required knowledge to help them improve their IWB.

Another important practical implication of our study is related to the significant moderation effects of similar supervisor-supervisee nationality (Saudi-Saudi or foreigner-foreigner), which is relevant not only to organizations in the Middle East but also to organizations in other regions that employ both local and foreign workers. Specifically, our findings suggest that the indirect negative effect of SKH on IWB, via self-efficacy, is stronger for the supervisor-supervisee dyad that is either local-local or foreigner-foreigner than for the supervisor-supervisee dyad that is either local-foreigner or foreigner-local. Accordingly, we suggest that human resources managers, particularly in multinational organizations, ensure that their work unit teams consist of supervisor-supervisee dyads from a diverse group of nationals. This would not only help the organization to reduce the negative indirect effect of SKHS on IWB but also ensure team diversity, which is an important determinant of IWB (Østergaard *et al.*, 2011).

Overall, our findings help organizations to understand the implications of knowledge-hiding behavior, especially by someone who is in a supervisory role, because eventually it is the organization that suffers. Despite the different knowledge management practices adopted by organizations to promote knowledge sharing, knowledge hiding is a concerning matter and requires attention because of its devastating consequences for supervisee, supervisor and organization.

### *Limitations and future research*

Although this study has several strengths, such as its use of two-source supervisor-supervisee dyadic data and its rigorous data analysis to establish discriminant and convergent validity before testing the hypothesized moderated-mediation model, it also has some limitations. First, while the directionality of relationships suggested in the hypothesized model is consistent with the previous literature on social learning theory, knowledge hiding and IWB, the use of cross-sectional data is not an ideal research design to establish the causal order among the suggested relationships. Thus, future research might wish to consider replicating our model using a three-wave research design by measuring SKHS and demographic information, including nationality, in time 1; supervisee self-efficacy in time 2; and IWB in time 3. This three-wave design may provide results regarding the causal order of the relationships that are more accurate than the inferences made in this study.

Second, using social learning theory, this study examined self-efficacy as a mediator between SKHS and IWB. Following the same theoretical framework, future research may consider examining moral disengagement as another potential mediator of the relationship. For example, it may be that employees' observation of unethical and self-serving knowledge-hiding behavior by their supervisors' results in their moral disengagement, which, in turn, motivates them to imitate such unethical supervisory behavior (Moore *et al.*, 2012). In addition, in light of Mawritz *et al.*'s (2012) finding of a "trickle-down" effect of abusive supervision from managers to supervisors, future research could test for the trickle-down effect of SKHS. For example, by collecting data on knowledge hiding occurring at both the vertical level (between supervisor and

supervisee) and the horizontal level (between co-workers) in organizations, future research could examine whether the effect of SKHS trickles down to supervisees' knowledge hiding from co-workers.

Third, given the suggestion by [Yeo and Marquardt \(2015\)](#) that psychological safety, availability of alternative job opportunities and a knowledge-sharing climate are critical contextual factors that determine employees' intentions to share or hide knowledge in Saudi organizations, future research could test these contextual factors as potential moderators of the mediation model tested in this study.

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## Appendix

**Table A1** EFA results

| <i>Description</i>   | <i>Factor loading</i> |
|--|-----------------------|
| Evasive Hiding 1. My supervisor agrees to me but never really intends to provide me the requested information              | 0.875                 |
| Evasive Hiding 2. My supervisor agrees to me but instead gives me information different from what I want                   | 0.884                 |
| Evasive Hiding 3. My supervisor tells me that he/she would help me out later, but he/she delays it as much as possible     | 0.819                 |
| Evasive Hiding 4. My supervisor offers me some other information instead of what I really want                             | 0.776                 |
| Playing Dumb 1. My supervisor pretends that he/she does not have the updated information                                   | 0.864                 |
| Playing Dumb 2. My supervisor says that he/she does not know, even though he/she does                                      | 0.927                 |
| Playing Dumb 3. My supervisor pretends that he/she did not understand my request   | 0.936                 |
| Playing Dumb 4. My supervisor says that he/she is not very knowledgeable about the requested information                   | 0.834                 |
| Rationalized Hiding 1. My supervisor explains that he/she likes to provide me the requested information, but he/she cannot | 0.694                 |
| Rationalized Hiding 2. My supervisor explains that the information is confidential   | 0.809                 |
| Rationalized Hiding 3. My supervisor tells me that the top management would not let anyone                                 | 0.798                 |
| Rationalized Hiding 4. My supervisor says that he/she would not answer my request  | 0.718                 |
| Self Efficacy 1. I am confident about my ability to do my job  | 0.897                 |
| Self Efficacy 2. I have mastered the skills necessary for my job   | 0.929                 |
| Self Efficacy 3. I am self-assured about my capabilities to perform my work activities                                     | 0.901                 |
| Innovative Work Behavior 1. He/she comes up with new ideas   | 0.884                 |
| Innovative Work Behavior 2. He/she works to implement new ideas  | 0.911                 |
| Innovative Work Behavior 3. He/she finds improved ways to do things  | 0.927                 |
| Innovative Work Behavior 4. He/she creates better processes and routines   | 0.905                 |

**Notes:** N = 446; Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization

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