Commitment HR system as a moderator between Knowledge Hiding and Individual Performance: a multi-level study

Master's Thesis Human Resource Studies

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Knowledge Hiding

Abstract

The effect of the transfer and creation of knowledge (knowledge sharing) has been a basis for a competitive advantage for organizations. On the contrary, knowledge hiding may hinder or be detrimental to organizations. Therefore, it is important to investigate knowledge hiding and what it means for employee performance. Additionally, organizational contexts are of importance when examining knowledge hiding as this defines the context in which the knowledge was decided to be hidden to the knowledge requestor. While the effects of knowledge hiding have been linked to individual performance and performance climates, little is known about organizational contexts affecting this relationship. This study focusses on HR systems as an organizational context since HR systems are among the most influential dimensions regarding employee behavior and attitude. Ultimately, this study investigates the effect of knowledge hiding on individual performance and whether this relationship is moderated by a commitment HR system. A quantitative, multi-level analysis was conducted including a sample of 143 employees within 31 teams. Results showed no significant relationship between knowledge hiding and individual performance. Additionally, there was no statistically significant proof of the moderating effect of a commitment HR system. This study contributed to theory by further expanding on the effect of knowledge hiding on individual performance and the involvement of a commitment HR system as an organizational context. Limitations, theoretical contributions and practical implications were discussed.

Keywords: knowledge hiding, individual performance, commitment HR system, multi-level analysis.

Introduction

The effect of the creation and transfer of knowledge as a basis for a competitive advantage for organizations has been investigated and acknowledged in the literature (Argote & Ingram, 2000). Research has shown positive effects of knowledge sharing on organizational and team unit performance and innovativeness (Tsai, 2001; Van Wijk, Jansen, & Lyles, 2008). While the sharing of knowledge has been researched heavily, there might also be instances where employees do not wish to share knowledge, also referred to as 'knowledge hiding'. Knowledge hiding, as defined by Connelly et al. (2012, p. 65), is an "intentional attempt by an individual to withhold or conceal knowledge that has been requested by another person". The intentional character of knowledge hiding is the reason that it is not similar to knowledge sharing since knowledge sharing, or rather failing to share knowledge, occurs by mistake or unknowingly and is not intentional (Connelly et al., 2012) whereas knowledge hiding is always intentional. Previous research has shown several behavioral and contextual variables affecting and triggering knowledge hiding (i.e. knowledge-based psychological ownership, territoriality, transactional leadership, job complexity, and distrust (Connelly et al., 2012; Huo, Cai, Luo, Men, & Jia, 2016; De Hoogh, Den Hartog, & Koopman, 2004; Serenko & Bontis, 2016)). However, according to Connelly et al. (2019) the positive and negative outcomes of knowledge hiding for the requestor and the hider are still unclear. Moreover, the social exchange theory indicates that knowledge is mostly hidden when the advantages exceed the disadvantages (Krok, 2013). Additionally, knowledge is often hidden within social exchange interactions (Blau, 1964). What effect does knowledge hiding have on an individual's performance? The relationship between knowledge hiding and a performance climate has been explored in previous studies (Černe et al., 2014; Serenko & Bontis, 2016) however the findings remain inconclusive. In his research, Baer (2012) speculates that knowledge hiding reduces innovation (Baer, 2012). Furthermore, according to Černe et al. (2014) when exploring a performance climate rather than individual performance, knowledge hiding hinders individual creativity. However, previous research also indicate that knowledge hiding can have positive effects for the hider, i.e. the positive effect of knowledge hiding on the hider's performance in the short-term (Connelly et al., 2012; Wang et al., 2018).

Previous research examined performance climates and mastery climates as organizational contexts affecting knowledge hiding (Černe et al., 2014). However, Connelly et al. (2019) state that further research is needed on organizational context in which the knowledge request between requestor and hider takes place. Consequently, this study

examines an HR system as such an organizational context since HR systems have been among the most influential dimensions of organizational context regarding their effects on employee attitudes and behaviors, and are even designed so the organization can change the employee attitudes and behaviors more easily than the emerging ones (Ferris et al., 1998; Kuenzi & Schminke, 2009, as cited in Batistič, Černe, Kaše, & Zupic, 2016). An HR system, as defined by Wright and McMahan (1992, p. 298), is "the pattern of planned human resource activities intended to enable an organization to achieve its goals", and is therefore of importance for the individual performances of the employees. Furthermore, these planned patterns of human resource activities also affect (employee knowledge hiding) behavior. In their research, Lepak & Snell (1999) introduce four different types of HR systems based on human capital value and human capital uniqueness. One of those four, an HR system based on commitment, is focused on during this study. Whereas the relationship between commitment HR systems and i.e. knowledge exchange, proactivity and organizational performance has been researched thoroughly (Batistič et al., 2016; McClean & Collins, 2011; Mossholder, Richardson, & Settoon, 2011), research with regard to commitment HR systems and knowledge hiding is lacking. Commitment HR systems have high levels of human capital value and uniqueness and it "nurtures employee involvement and maximizes the firms' return on human capital investments." (Lepak & Snell, 1999 p.40). According to Arthur (1994), commitment HR systems are about loyalty, continuity and long-term organizational growth opportunities. Additionally, Lepak & Snell (1999) argue that a commitment HR system is about building a trusting relationship between the organization and the employee. Therefore, if an individual decides to hide knowledge, this could affect the loyalty levels among employees. Also, it could also harm his/her own continuity within the organization as well as affect the long-term organizational goals. Lastly, an employee's decision to hide knowledge could harm the trusting relationship between the organization and the employee, and this relationship is important within a commitment HR system (Lepak & Snell, 1999). Research has linked a commitment HR system to knowledge exchange, employee helping behavior, employee proactivity, and firm performance (Batistič et al., 2016; Collins & Smith, 2006; McClean & Collins, 2011; Mossholder, Richardson, & Settoon, 2011) however, its relationship to knowledge hiding and individual performance has not been explored. Therefore, a commitment HR system is proposed to moderate the negative relationship between knowledge hiding and individual performance where a high condition of commitment HR system within an organization strengthens the negative relationship between knowledge hiding and individual performance.

Based on the contextual theory I propose a (multilevel) moderation model, where commitment based HR systems moderate the relationship between knowledge hiding and individual performance. This specific model is a multilevel model because the variable HR system cannot be collected on the individual level. An HR system is always experienced in a specific team or across the whole organization and was therefore collected as a higher level variable. This leads to the following research question:

To what extent does knowledge hiding at the individual level relate to individual performance, and to what extent is this relationship moderated by commitment HR system?

This study contribution to the literature is twofold. First, I contribute to the knowledge hiding literature by exploring how knowledge hiding can be linked with individual performance. Even if previous studies already explored this relationship (Çerne et al., 2014; Serenko & Bontis, 2016), the findings remain inconclusive. Second, this study examines commitment HR systems as an organizational context potentially moderating this relationship. Commitment based HR systems and their relationship to individual performance or a performance climate has been researched (Bowen & Ostroff, 2004; Batistič et al., 2016) however, not in combination with knowledge hiding.

Theoretical Framework

Knowledge Hiding

The phenomenon of knowledge sharing has been researched thoroughly in management research, yet knowledge hiding is a relatively new concept. At first glance, knowledge hiding seems to be the direct opposite of knowledge sharing, however Connelly et al. (2012), who first examined and developed knowledge hiding in their study, argue that this is certainly not the case. They further elaborate on knowledge hiding by stating that it is also not similar to concepts as knowledge hoarding, counterproductive workplace behaviors and workplace incivility (Connelly et al., 2012). Knowledge hiding, as defined by Connelly et al. (2012, p. 65), is an "intentional attempt by an individual to withhold or conceal knowledge that has been requested by another person". The intentional nature of knowledge hiding is where it significantly differs from knowledge sharing as failing to share knowledge can happen unintentionally. While knowledge hiding is typically considered a deceitful act (Peng, 2013), it may have positive consequences or purposes in situations where i.e. confidentiality must be ensured or feelings or interests of a third party must be protected (Connelly et al., 2012). Moreover, the social exchange theory indicates that knowledge is mostly hidden when

the advantages exceed the disadvantages (Krok, 2012). Additionally, knowledge is often hidden within social exchange interactions (Blau, 1964). Studies have shown that an employee's decision to hide knowledge leads to similar negative knowledge behavior among colleagues, distrust among colleagues and negative effects on creativity of the hider (Černe et al., 2014; Serenko & Bontis, 2016).

Knowledge hiding and individual performance

Knowledge hiding can be beneficial. ~~However,~~ Previous research ~~also~~ indicates that knowledge hiding can have positive effects for the hider, i.e. the positive effect of knowledge hiding on the hider's performance in the short-term (Connelly et al., 2012; Wang et al., 2018). Where knowledge hiding might be beneficial for the hider in the short-term, for the long-term this might not be the case. "Knowledge hiding can result in future isolation from a knowledge exchange network, detrimental to the hider's ability to optimally perform their work duties" (Rhee and Choi, 2016 as cited in Wang et al., 2018, p 281).

Generally, knowledge hiding is regarded as not beneficial. In his research, Mangold (2017) considers knowledge hiding to be a significant danger to an individual's performance. As stated earlier, knowledge hiding is generally considered to be deceitful (Peng, 2013) however, it is not always seen as a harmful behavior (Connelly et al., 2012). In his research, Baer (2012) speculates that knowledge hiding reduces innovation (Baer, 2012). Furthermore, according to Černe et al. (2014) when exploring a performance climate rather than individual performance, knowledge hiding hinders individual creativity. Furthermore, knowledge hiding behavior leads to further knowledge hiding behavior from coworkers (as the coworkers will show reciprocal behavior) which results in less available important task-related information in general which can be harmful for individual performance (Webster et al., 2008). This would mean that after an employee's decision to hide knowledge, his/her coworkers might decide to exclude the hider from getting all of the information for a task since knowledge hiding behavior leads to additional knowledge hiding behavior from the coworkers (Webster et al., 2008). As a result, the initial knowledge hider cannot perform his/her task optimally due to not receiving all the information from coworkers. This directly effects the hiders individual performance, especially on the long-term where the hider could be further excluded from the information.

In conclusion: although knowledge hiding might, in some cases, be beneficial on the short-term for individual performance, this is not the case for the long-term as it decreases the

performance of teams and the organization (Connelly et al., 2012). Furthermore, according to Cropanzano & Mitchell (2005), knowledge hiding establishes an uncomfortable work environment, illustrated by psychological withdrawal behaviors as i.e. production defiance and absence hindering individual performance. Since long-term aims and goals always supersede short-term aims and goals, the following hypothesis has been formulated.

Hypothesis 1: Knowledge hiding is negatively related to individual performance.

Commitment HR system and Individual Performance

According to Lado & Wilson (1994, p. 701) an organization's HR system is defined as a "set of distinct but interrelated activities, functions, and processes that are directed at attracting, developing, and maintaining (or disposing of) a firm's human resources". Previous research provided insight in several examples and effects of implementing a commitment HR system. Firstly, a commitment HR system enhances the organizations return on human capital investments and it boosts employee involvement (Lepak & Snell, 1999). Secondly, commitment-based HR systems increase group motivation and social interactions while also providing career development and long-term growth opportunities (Arthur, 1994). Furthermore, commitment-based HR systems are argued to be beneficial for an organization by improving employees' knowledge, skills and abilities, as a result of improving their motivation and by organizing work to help reach the organizational goals (Huselid, 1995). Through intensive recruitment and staffing practices, a commitment HR system increases the organization capabilities (Lepak & Snell, 1999). Furthermore, a commitment-based HR system allows for further development of (1) training programs and therefore employee' knowledge and skills (Chadwick, Super & Kwon, 2013) and (2) pay systems centering around employee learning (e.g. skill-based pay) and information sharing (e.g. team-based pay) (Delaney & Huselid, 1996). It is evident that the abovementioned effects of implementing a commitment HR system are all focused on distal organizational goals rather than proximal.

This study specifically focuses on employees' perceptions of the existing HR practices. In general, HR practices differ since they can be divided into three main parts: (1) the intended HR practice; (2) the implemented HR practice; and (3) the employees' perceptions of these practices (Piening, Baluch & Ridder, 2014). Since each individual reacts or interprets a specific HR system differently, due to unequal experience, values or preferences (Bowen & Ostroff, 2004), this study focusses on employees' perceptions. The perceptions of the individuals play a vital part in this since they will result in certain behavior and reaction to

information conveyed through the organization's HR system (Bowen & Osstroff, 2004). In their research, Bowen & Ostroff (2004, p. 209) introduced two HR process features; relevance "(the degree to which) the situation is defined in such a way that individuals see the situation as relevant to an important (organizational or individual) goal", and consistency of HRM messages "(the degree to which there is) compatibility and stability in the signals sent by the HRM practices". Meeting these two processes will result in an HR system, which in turn enables employees' attitudes and individual performance (Delmotte, Winne, & Sels, 2012). According to Scarpello & Campbell (1983) an employee's performance on the job is the degree to which an individual/employee helps the organization to reach its goals. Commitment-based HR systems are all about loyalty, continuity and long-term organizational growth opportunities (Arthur, 1994). Furthermore, a strong HR commitment configuration can result in more employee proactivity combined with the right organizational climate (Batistič et al., 2016). In conclusion, an example of a high condition of a commitment HR system would be the an HR system where there is a high level of loyalty, trust and continuity within and among the employees. Additionally, a high condition of a commitment HR system would provide employees with long-term growth opportunities. Lastly it would result in more employee proactivity and increased job performance.

Commitment HR system as a moderator for the relationship between Knowledge Hiding and Individual Performance

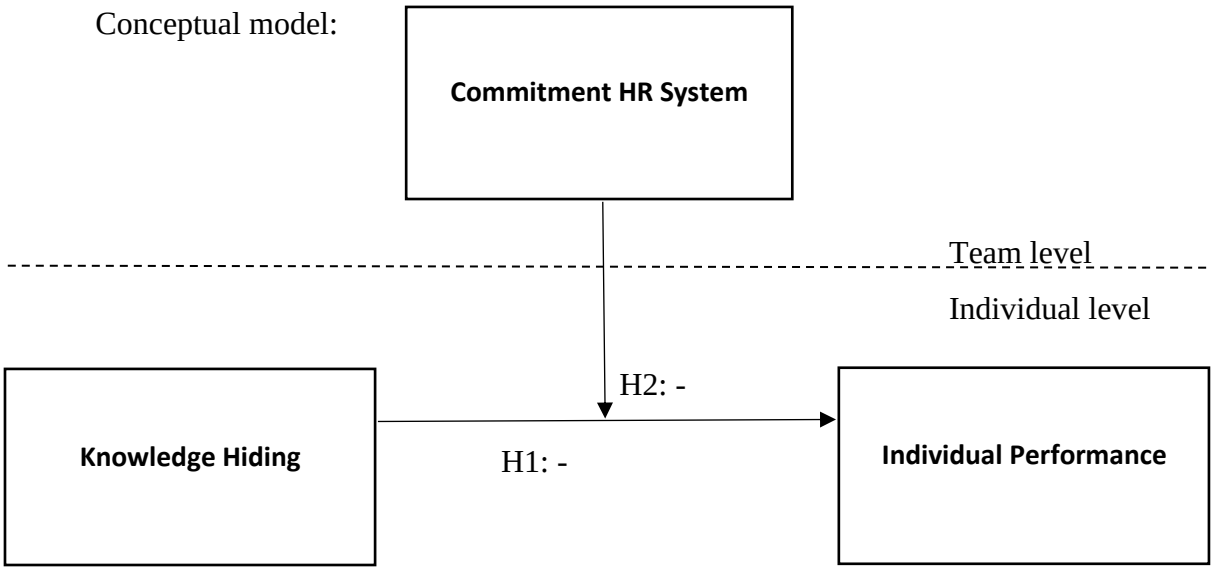
As mentioned, the relationship between commitment HR systems and individual performance has been researched thoroughly. Focusing on the long-term, a commitment-based HR system is beneficial for individual performance (Bowen & Ostroff, 2004). From previous research it is also evident that the relationship between knowledge hiding and individual performance can be negative as well as positive (Connelly et al., 2012; Cerne et al., 2014; Serenko & Bontis, 2016) and that this relationship could benefit from further research as results remain either inconclusive or confusing. As mentioned, in the short-term, hiding knowledge can be beneficial for individual performance of the hider (Connelly et al., 2012; Wang et al., 2018), but this is not the case on the long-term as it results in exclusion of information streams for the hider and to even more knowledge hiding behavior from colleagues (Wang et al., 2018; Webster et al., 2008). According to Nishii, Lepak & Schneider (2008), the assumptions that employees make about the reasoning behind the management's decision to adopt certain HR practices have consequences for their behavior and attitudes. A commitment HR system is designed to stimulate service quality and employee well-being

(Nishii et al., 2008) as well as building a trusting relationship between the organization and the employee (Lepak & Snell, 1999). In contrast, a compliance HR system is designed to see employees as costs to control and focusses on enforcing employee's compliance with organizational rules and procedures while monitoring their output (Bamberger & Meshoulam, 2000). Since knowledge hiding is generally seen as a deceitful act (Peng, 2013), this study will focus on an organizational context where knowledge hiding is not encouraged and will therefore examine a commitment HR system rather than a compliance HR system. ~~Consequently~~ Additionally, a compliance HR system is expected to result in more knowledge hiding behavior as opposed to a commitment HR system. This is another reason why a compliance HR system will be excluded from the scope of this study. Additionally, in commitment HR systems, trust, information sharing and interdependence are expected and valued (Mossholder et al., 2011). Subsequently, knowledge hiding behavior is most likely regarded to be more damaging in a commitment HR system. According to Arthur (1994), commitment HR systems are about loyalty, continuity and long-term organizational growth opportunities. Therefore, if an individual decides to hide knowledge, this could affect the loyalty levels among employees. Additionally, knowledge hiding can lead to more distrust, which is harmful for the organization since a commitment HR system includes information sharing and interdependence (Mossholder et al., 2011). It could also harm the employee's continuity within the organization as well as affect the long-term organizational goals. Lastly, an employee's decision to hide knowledge could harm the trusting relationship between the organization and the employee, and this relationship is of significant importance within a commitment HR system (Lepak & Snell, 1999).

In conclusion, an organizational context and an HR system in particular could affect the relationship between knowledge hiding and individual performance. Moreover, knowledge hiding behavior is supposed to be more damaging in a commitment HR system, knowledge hiding can lead to more distrust which is more harmful in a commitment HR system than any other HR system. Consequently, as a result of the abovementioned arguments, a commitment HR system is expected to moderate the relationship between knowledge hiding and individual performance where the relationship between knowledge hiding and individual is proposed to be more negative under a high condition of a commitment HR system as an organizational state rather than a low condition of a commitment HR system.

Hypothesis 2: Commitment HR system moderates the relationship between knowledge hiding and individual performance such that the negative effect is stronger under a high condition of commitment-based HR system.

Conceptual model:



Methods

Research design

To answer the research question, this study conducted an explanatory research. The model, including the three variables (commitment HR system on team level and knowledge hiding and individual performance on individual level), were tested through an online survey/questionnaire with a quantitative cross-sectional research design since the data was collected at one singular point in time across a sample population. The web-based survey tool Qualtrics was used to conduct the questionnaires. Conduction of the questionnaire and data collecting is performed by a group of four master Human Resource Studies students (including myself), who all focus on the same central subject which is knowledge hiding. The group approached organizations that were easily accessible so data collection primarily happened within the own personal networks of the students. This means a convenience

sampling method was used. Since this research follows an international master's thesis program, the questionnaire was available in English and Dutch. The back-translation method was used to translate scales if necessary (Brislin, 1970). This method ensures the reliability of the scale stays intact (Cha, Kim, & Erlen, 2007). To check the validity, a confirmatory factor analysis was conducted (with AMOS26) because scales were provided from previous studies (Leong & Austin, 2006).

Sample and Procedure

The study focusses on teams within organizations. Each student approached several teams in order to attain a good sample size. A convenience sampling method was used for as sampling method. Since this study is on both individual level as well as on team level, the sample size should be at least at 30 teams or more at the higher level to conduct multilevel analysis (Maas & Hox, 2005). A team consisted of at least five members/employees and one line manager. Also, one Human Resource expert should be contacted for each organization. There were no country/location and/or sector restrictions for the questionnaire. Organizations could participate worldwide in a varied range of industries. The students contacted organizations and explained the topic, focus and goal of the study in order to ask for participation. The students made sure to ask for the email addresses of the participators to link the right questionnaire to the right respondent or, when the line manager of the team distributes the link to the respondents, that specific team will be linked by asking the initials of the supervisor. The questionnaire provided the respondents with information about the design, the background and goal(s) of the study at the start of the questionnaire i.e. via a cover letter (Appendix A). Furthermore, it was clearly stated and extensively emphasized that the questionnaire is strictly confidential in order to reduce potential effects of biases and to enhance the reliability of the questionnaire as we collected undesired behavior (knowledge hiding) which may have caused the respondents to underreport their own knowledge hiding behavior (Connelly et al., 2012).

Following the collection of the data, the dataset was cleaned (description in Appendix C). No items needed to be coded in reversed. Since it is believed that it is more important to have more groups at the higher level (level 2) than respondents of the group at the lower level (level 1) for multi-level analysis (Scherbaum & Ferreter, 2009; Hox 2010), it was decided to delete the employees that were not part of team. Subsequently, for the abovementioned reason it was decided to delete the respondents in a team smaller than three members. This resulted

in the deletion of 5 teams, including 10 employees, as they were all part of a two-member team. For the missing values, Schafer (1999) argued that a missing rate of 5% or less is inconsequential, which was the case for this study. Furthermore a 'Missing Completely At Random (MCAR) procedure (Little, 1988) was conducted to check whether the data is missing randomly or not. The MCAR test resulted in $\chi 2(83) = 67.052$, p=.899, indicating that the data is randomly missing. Afterwards, the Outlier Labeling Rule (Hoaglin & Iglewicz, 1987) was used to check for potential outliers. At last, homoscedasticity assumptions need to hold up which was done by checking the plot conducted with SPSS for particular patterns. The plot suggests homoscedasticity is met. Ultimately, the data sample for this study consisted of 143 employees that were part of 31 different teams and 29 different companies. The largest team consisted of 7 members and the smallest team consisted of 3 members. The average was 4.5 members per team. Before cleaning, the collected data for this research consisted of 202 respondents, including 154 employees, 36 line managers and 12 HR experts from 33 companies/organizations. However, this study only uses the data from employees as described in Appendix C.

The data sample included 39.2% male participants, 59.4% female participants and 0.7% that classified themselves as 'other'. The minimum age of a single respondent was 18 years old and the maximum age 65 years old (M = 31.09, SD = 10.72). The response rate was 91.23%. On average respondents have been employed for 36.67 months within their respective organization. The respondents resided in four different countries (Netherlands, Austria, Vietnam and Indonesia) across two different continents (Europe & Asia). The sectors of the participating teams varied widely i.e. from the financial sector to the educational sector.

In previous research regarding multi-level analysis, it has been argued that the statistical power of the test is more dependent on the number of groups involved within the research (team level) than on the number of respondents in the lower level of the analysis (individual level) (Hox, 2010; Scherbaum & Ferreter, 2009). Therefore, and due to the limitation of available data, it was decided to keep the teams that consist of at least three members, seeing as the number of teams is more important than the number of individuals per group, even though this does not meet the 50/20 rule (50 teams with at least 20 individuals) for cross-level interactions (Hox, 2010; Maas & Hox, 2005). Furthermore, Hox (2010) argues that the maximum likelihood estimate seems to be the most accurate contrasted to other estimates to determine the minimum sample size. Additionally, this research does not meet the criteria for full maximum likelihood with 50 teams as there are only 31 teams included

this means restricted maximum likelihood was used (Hox, 2010). Additionally, as stated by Maas and Hox (2005), the minimum number of teams to perform a multi-level analysis is 30, making the 31 teams from this research sufficient for the analysis.

Instruments

For this study, the conceptual model and its variables were analyzed by utilizing already existing scales from previous literature and research. The reliability of the scale is determined by measuring the Cronbach's coefficient alpha (α). The higher the Cronbach's alpha value, the higher the level of internal consistency between the items measuring the construct and the higher the reliability of the scale (Pallant, 2013). Additionally, this study used multilevel modeling to determine interactions between the three different variables at different levels (source). In this model, the variables knowledge hiding and individual performance were analyzed at the individual level, while commitment HR system was analyzed at the team level. For the commitment HR system variable, the aggregated scores of teams were calculated in order to analyze the higher level variable. This was justified by testing the variable under the condition: a high level of systematic between-group variations (ICC(1) and ICC(2)) in second level (level 2) variables (Shen 2016).

Knowledge Hiding

Knowledge hiding as a variable was measured using a 12-item scale previously established in the research by Connelly et al. (2012) and stated great internal consistency and reliability (α =.941). Each of the 12 items was scored on a Likert scale including seven points in which respondents specify to what extent they agree with a certain statement (1: not at all, 4: somewhat and 7: to a very great extent). The scale's reliability was proved to be excellent. Each of the 12 items followed an opening phrase; "Please think of a recent episode in which a specific co-worker requested knowledge from you and you declined to share your knowledge or expertise with him/her or did not give all of the information needed. In this instance I…". One of the items was "gave/him her a little bit of assistance, but didn't help him/her to the extent s/he wanted" (Connelly et al. 2012, p. 74).

Individual Performance

Individual Performance as a variable was measured using a 9-item scale previously established by Goodman and Svyantek (1999) and stated good internal consistency and reliability (α =.867). Each of the 9 items was scored on a Likert scale including seven points

where 1 = strongly disagree and 7 = strongly agree. “Is competent in all areas of the job, handles tasks with proficiency” is one example of the nine items.

Commitment HR system

Nishii et al. (2008) argue that the effect of HR practices is likely not automatic and as expected but will exist in the meanings that employees attach to those practices. Therefore, it is argued that HR systems are not interpreted the same by all employees. Therefore, gathering and analyzing an individual’s perspectives of HR practices is expected to be more valuable opposed to asking HR experts about the HR practices. Hence, the 10-items ‘Quality and Employee Enhancement HR Attribution scale’ was used to determine the in placement of a commitment HR system. It showed good internal consistency and reliability (α =.896). The scale is focused on five HR practices (training, benefits, staffing, pay and scheduling) each scored on a five-point Likert scale where ‘1 = not at all’ and ‘5 = to a great extent’. Within the items, respondents suggest the degree to which they perceive that the quality and employee enhancement HR attributions are matched with the HR practices (Nishii et al., 2008) One of the items included “the company provides employees the training in order to help employees deliver quality service to customers”. To analyze the commitment HR system scores, the scores of the individuals (employees) in a team will be aggregated. Aggregating the scores of employees was justified by testing the variable under the condition: a high level of systematic between-group variations (ICC(1) and ICC(2)) in second level (level 2) variables (Shen 2016). Intraclass correlation scores (ICC) between 0.11 and 0.20 means medium to high values for group-level analysis (Bliese, 2000). ICC(2) measures the reliability of the mean and scores between 0.40 and 0.75 are deemed fair to good (Fleiss, 2011). SPSS was used to determine the level of systematic between-group variations. Based on the results, all criteria for justification are met. The results show an interrater agreement score ($r_{wg)}$ .89, an *ICC(1)* score of .145 and an *ICC(2)* score of .448. This validates the use of the aggregation method.

Control Variables

For this study age and gender are added as control variables, where respondents were asked at the start of the survey to fill in their respective age and gender. For the control variable gender, it was coded as 1 = male, 2 = female. The category ‘other’ was treated as an outlier. Both control variables are proven to be related to performance (Ancona & Caldwell, 1992). McEvoy & Cascio (1989) argue that the younger the employee, the better their

performance. Furthermore, there is significant evidence that gender-based differences exist in performance dimensions (Green, Jegadeesh & Tang, 2009).

Analysis

The normality of distribution of the data was checked. The variables commitment HR system and knowledge hiding were moderately skewed. Commitment HR system was moderately skewed to the right (*skewness* = -.847, *kurtosis* = 1.146), whereas knowledge hiding was moderately skewed to the left (*skewness* = .965, *kurtosis* = -.077). Additionally, individual performance skewed to the right (*skewness* = .-309, *kurtosis* =. Furthermore, a Shapiro-Wilk test was conducted for the variables HR system and knowledge hiding since those were significant. HR system: $W(143) = .946$, p=.000; knowledge hiding: $W(143) = .858$, p=.000), meaning that normal distribution cannot be assigned to those variables. However, after visually inspecting the distribution using Q-Q plots, it did not seem like the data for the two variables were considerably not normally distributed to conduct the analysis (Ghasemi & Zahediasl, 2012). It was not decided to force the data into a normal distribution for knowledge hiding since it is an undesired behavior and is therefore often underreported (Connelly et al., 2012).

Since all the scales from this study are already tested and developed in previous research, confirmatory factor analysis (CFA) was conducted (Leong & Austin, 2006). AMOS26 (Appendix D) was used to test whether the data fitted the conceptual model (Field, 2009). Furthermore, the confirmatory factor analysis checked the fit among the latent factors and the data and through restricted ML estimation, the factors should be confirmed (Hox, 2010). However, since the sample size for the higher level variable is not big enough, CFA was only performed for the individual variables knowledge hiding and individual performance. Additionally, to interpret the results and evaluate the model, Hu and Bentler's cut-off criteria (1999) will be used. According to Hu and Bentler (1999), the thresholds for a good model fit are as follows: *Comparative Fit Index (CFI)* should be at least .90, *Adjusted Goodness-of-Fit Index (AGFI)* should be above .80, *Standardized Root Mean Square Residual (SRMR) should be <.09, Root Mean Squared Error of Approximation (RMSEA) should be <.10 and the smaller this is the better, and PCLOSE should be >.05.*

After running and improving the model fit using AMOS 26 modification indices (Appendix D.2), the model was improved. This resulted in the individual level showing the following chi-square analysis: $X^2(181) = 396.248$, *CMIN/DF* = 2.189, $p < .000$. Moreover,

CFI = .891 (>.90), *TLI* = .874, *AGFI* = .741 (>.800), *SRMR* = .127 (<.09), *RMSEA* = .092 (<.10), *PCLOSE* = .000 (>.05). The results indicate a poor model fit. Furthermore, knowledge hiding and individual performance experienced a moderate correlation (*r* = -.33). Most of the factor loadings were high and the two lowest factor loadings were scored in the Individual Performance scale, which could indicate that these two items are not evaluating individual performance. Yet, in the research by Goodman and Svyantek (1999), these items showed higher factor loadings proving these items measure Individual Performance and belong to the validated scale. Consequently, it was determined to not delete these items but include them in the analysis.

Ultimately, the proposed hypotheses were analyzed using hierarchical linear modeling. The data included 143 employees in level 1, which were nested in 31 teams (level 2). To start the analysis, a bottom-up strategy was used to test the hypotheses, in which the initial model solely consists of the intercept as described in the null model; step 1 by Hox (2010). In the following step all individual level variables (knowledge hiding and the control variables) were included in order to test the first hypothesis (H1). Afterwards, the multi-level variable (commitment HR system) was added to test its effect on individual performance (Hox, 2010). The last step consisted of assessing slope differences which could indicate a cross-level interaction effect (H2; Hox, 2010).

Results

Descriptive statistics

Table 2 shows the descriptive statistics and the correlations of the current study done with SPSS. Results show that knowledge hiding was negatively correlated with individual performance ($r = -.314$, $p < .01$) and age ($r = -.191$, $p < .05$), suggesting that high scores on knowledge hiding lead to decreased individual performance. Furthermore, individual performance was positively correlated to age ($r = .278$, $p < .01$). Additionally, age was negatively correlated with commitment HR system ($r = -.176$, $p < .05$).

Table 1. *Descriptive statistics, correlations and scale reliabilities*

	Variable	Mean	SD	1	2	3	4	5
1	Knowledge Hiding	2.1608	1.236	(.941)				
2	Individual Performance	5.5268	.752	-.314**	(.867)			

3	Commitment HR system	4.9951	1.100	.072	-.063	(.896)		
4	Gender[a]	-	-	-.044	-.079	.102	-	
5	Age	31.09	10.724	-.191*	.278**	-.176*	-.098	-

Notes. Level 1 N = 143, level 2 N =31. Scale reliabilities (Cronbach's alpha) are on the diagonal. SD, standard deviation.

[a]For gender: 1 = male, 2 = female,

*. Correlation is significant at the 0.05 level (2-tailed)

**. Correlation is significant at the 0.01 level (2-tailed

Multilevel analysis

In order to test the relationship between knowledge hiding and individual performance and if this relationship is in any way moderated by a commitment HR system, hierarchical linear modeling (in HLM8 Basic) was used. Table 3 shows the results of the multilevel analysis including the deviance and the Pseudo R^2 developed by Snijders and Bosker (1999). This Pseudo R^2 is of importance since it accounts for the different levels of variance in the proposed model, presuming that the proportion of the fixed effects are accurately specified (Recchia, 2010). Additionally, all of the models are included in table 3.

Variable	Model 1 *β (SE)*		Model 2 *β (SE)*		Model 3 *β (SE)*		Model 4 *β (SE)*	
Level 1 (individual level)								
Intercept	5.50**	(.072)	5.692**	(.202)	5.691**	(.202)	5.667**	(.205)
Gender			-.106	(.129)	-.105	(.128)	-.098	(.128)
Age			.018**	(.004)	.019**	(.004)	.019**	(.004)
Knowledge hiding			-.110	(.072)	-.110	(.073)	-.129	(.083)
Level 2 (team level)								
Commitment HR system					.028	(.114)	-.018	(.103)
Level 2 interaction term								

KH x commitment HR system				0.007	(.133)
Pseudo-R^2		.2511	0.24	0.2184	
Deviance	322.460	322.615	326.874		322.809

Table 1. *Results of multilevel analysis*

Notes. Level 1 N = 143, Level 2 N = 31. The results are estimates of fixed effects with robust standard errors. ***p*<.005.

The first step of this study's multilevel analysis was testing the null model (intercept only). As described by Hox, this is done by assigning individual performance as the outcome variable. The null model is essential to test whether multilevel analysis is even needed. The null model (model 1 in table 3) showed an ICC score of approximately .09 (.051/(.523+.051)) meaning that close to 9% of the variance in individual performance is between the higher levels which are teams in this case. The other 91% is variance caused at the individual level, which are employees in this case. Additionally, the null model was significant with a chi-square test of X^2 (30) = 43.746, p < .10 (p = .05). Consequently, this suggests that the variable individual performance is explained by a higher level. For this study, multilevel analysis was necessary.

In the second step, all of the level 1 (individual level) variables were included in the model. The control variable gender was added as uncentered whereas the variable age was added as grand mean centered. The last level 1 variable (knowledge hiding) was added as group mean centered. This improves the interpretability and computation of the effects (Hox, 2010). In this step the first hypothesis (H1) of this study was examined, namely the suggested negative relationship between knowledge hiding and individual performance. Results show that knowledge hiding negatively affects individual performance, however narrowly not significant (β = -.110, p > .10). The significance threshold of .10 is often used for explorative analysis (Hox, 2010), however in this study the p-value was .131 resulting in it not being significant. Therefore, it cannot be stated that employees who hide a lot of knowledge are more likely to performance worse.

Step 3 consisted of adding the higher level (level 2) variable (Commitment HR system) to the model. Commitment HR system was added grand mean centered to make it easier to interpret the results (Hox, 2010) and was used to test the cross-level effect of commitment HR system on individual performance. The model (3) was not significant for the

direct effect of the second level variable commitment HR system on the first level variable individual performance (β = .028, p = .807).

In the final step, all variables were added to the model, including the cross-level interaction effect of commitment HR system. In this step the second hypothesis was tested (Appendix E), which suggested commitment HR system to be a moderator for the relationship between knowledge hiding and individual performance. The results show no significant interaction between knowledge hiding and individual performance even under the potential moderating role of commitment HR system (β = .007, p =.959). Since the relationship of the proposed hypotheses are not significant, no plots were conducted.

Discussion

The present research examined the effect of knowledge hiding on individual performance. Moreover, it was proposed that a commitment HR system moderates the relationship between knowledge hiding where the relationship would be more negative under a high condition of commitment HR system. Following the social exchange theory (Blau, 1968), it was anticipated that knowledge hiding behavior would have a negative effect on an employee's individual performance. Additionally, a commitment HR system was explored as an organization context regarding knowledge hiding behavior. HR systems have been among the most influential dimensions of organizational context regarding their effects on employee attitudes and behaviors, and are even designed so the organization can change the employee attitudes and behaviors more easily than the emerging ones (Ferris et al., 1998; Kuenzi & Schminke, 2009~~, as cited in Batistič, Černe, Kaše, & Zupic, 2016~~). Multilevel, results did not show a significant relationship between knowledge hiding behavior and an employee's individual performance. Moreover, there was no significant statistical evidence of the moderating role of commitment HR system as an organizational context regarding the relationship between knowledge hiding and individual performance. In conclusion, there was no statistical evidence found supporting hypothesis 1 nor hypothesis 2. This would suggest that knowledge hiding does not have a negative effect on individual performance and that this relationship is not moderated by a commitment HR system.

Theoretical contribution

Present research's theoretical contribution is relevant in two specific ways. Firstly, it adds value for the knowledge hiding literature and its link with individual performance. As

stated, previous research already explored this particular relationship (Cerne et al., 2014; Serenko & Bontis, 2016) however, the findings remained questionable. Furthermore, previous research stated that knowledge hiding might, in some cases, be beneficial on the short-term for individual performance, this is not the case for the long-term as it decreases the performance of teams and the organization (Connelly et al., 2012). Furthermore, according to Cropanzano & Mitchell (2005), knowledge hiding establishes an uncomfortable work environment, illustrated by psychological withdrawal behaviors as i.e. production defiance and absence hindering individual performance. In his research, Mangold (2017) went as far as stating that knowledge hiding is a significant danger to individual performance. Present research found no statistically significant evidence for the relationship between knowledge hiding and individual performance. This supports the inconclusive findings previous research made regarding the effect of knowledge hiding behavior on an employee's performance. Even though knowledge hiding is generally considered as an undesired behavior and could therefore be underreported by the respondents (Connelly et al., 2012), this should not be a problem according to Cerne et al. (2014). Moreover, the social exchange theory indicates that knowledge is mostly hidden when the advantages exceed the disadvantages (Krok, 2012).

Secondly, commitment HR system was examined as an organizational context regarding knowledge management. As stated earlier, HR systems have been among the most influential dimensions of organizational context regarding their effects on employee attitudes and behaviors (Ferris et al., 1998). Commitment based HR systems and their relation to individual performance and performance climates have been researched (Bowen & Ostroff, 2004; Batistič et al., 2016) however, not in combination with knowledge hiding. A commitment HR system has several benefits as an organizational context for organizational as well as individual performance. It was proposed that the commitment-based HR system as an organizational context could cause the relationship between knowledge hiding and individual performance to be more negative as the positive aspects of the system could lead to more knowledge hiding behavior (Webster et al., 2008). However, present research found no statistical evidence of commitment HR system as a moderator for the relationship between knowledge hiding and individual performance. Furthermore, this study found no significant evidence that a commitment HR system is beneficial for individual performance. Yet, in multiple studies this was proven to be the case. The reason for the non-significant could be the autonomy employees get within commitment HR systems. According to Monks et al., (2013), commitment HR practices are aimed to boost autonomy. In places where autonomy is usually

encouraged, employees within the system will gradually presume ownership of their decisions (Bindl & Parker, 2011). This results in less to no punishment from the higher management but rather informal punishments take place in this context among colleagues such as interpersonally deviant behaviors like intentional knowledge hiding (Arthur, 2011). The combination of moral standards like trust and loyalty with the lack of formal punishments from higher management within a commitment HR system could be the reason for the insignificance. Additionally, a reason for the insignificant relationship could be that employees often emotionally attach themselves to the organization they work for in commitment HR systems (Nishii et al., 2008). In an organization with a high condition of a commitment HR system, employees often believe that the HR practices will generate beneficial outcomes for them and are often willing to give back to the organization through commitment (Nishii et al., 2008). If the knowledge is provided by higher management while stating the information is confidential, employees in a commitment HR system might feel obligated to ensure the information remains a secret which leads to knowledge hiding behavior, even among colleagues.

Limitations and suggestions for future research

Multiple limitations must be taken into account when considering present research's results. The first two limitations start with the sample. For this research, a convenience sampling method has been used to gather data. This means that there may be insufficient variation within the study's sample and this could cause selection bias (Acharya, Prakash, Saxena, & Nigam, 2013). A lack of variety between employee teams could also affect the results. It might be the case that in some jobs and/or industries that are highly competitive, there might be more knowledge hiding behavior in general or more incentives to hide knowledge. A job characteristic may affect employee behavior (Humphrey, Nahrgang, & Morgeson, 2007) and therefore affect knowledge hiding behavior. Most importantly, multilevel studies in particular are sensitive for convenience sampling which could cause wrong or unsure results of the effect of the higher level variable(s) (Heck & Thomas, 1999). It is advised for future research to not use a convenience sampling method but rather a random sampling method to conduct research. Additionally, the data for the present research was collected in one single point in time. This means that present research used a cross-sectional research design and therefore conclusions regarding any causality cannot be drawn. Future research should use a longitudinal study with multiple measurement points in time in order to provide improved proof about potential causality between the variables (Rindfleisch, Malter,

Ganesan, & Moorman, 2008). A latent growth model could be used as an example of a longitudinal study, where constructs are required to be assessed in at least three occasions. This helps to define latent constructs and potential variable change within the time period (Bentein, Vandenberghe, Vandenberg, & Stinglhamber, 2005). According to Venkatesh & Davis (2000), this could be done through conducting questionnaires at the start, after one month and after three months of implementation. Since teams and knowledge hiding are both subject to change over time, a latent growth model could be beneficial to examine and analyze these changes over time.

The second limitation entails the sample size. As stated earlier, to conduct a multilevel analysis the sample size should be at least at 30 teams or more at the higher level (Maas & Hox, 2005). With a sample size of 31, present research is only slightly above the absolute minimum of 30 teams to do multilevel analysis. In their research, Maas and Hox (2005) also state that the more higher level teams there are, the more accurate the multilevel analysis is. Due to the corona crisis during present research, data collection was very hard and limited. For future research it is advised to have a higher sample size, especially at the higher level, since it has been argued that the statistical power of the test is more dependent on the number of groups involved within the research (team level) than on the number of respondents in the lower level of the analysis (individual level) (Hox, 2010; Scherbaum & Ferreter, 2009). Previous research proposed a sample size of at least 100 for the higher level variable, which present research is not even close to (Green, 1991; Van der Leeden, Busing, & Meijer, 1997). Therefore, it is advised to have at least a sample size of 100 for the higher level variable in future research. Additionally, present research did not meet the criterium to use full maximum likelihood estimates. Instead, restricted maximum likelihood has been used for present research which could affect the results (Hox, 2010).

Finally, present research only examined a commitment HR system as a contextual state potentially influencing the relationship between knowledge hiding and individual performance rather than another potential contextual HR system i.e. compliance HR system. A commitment HR system is designed to stimulate service quality and employee well-being (Nishii et al., 2008) as well as building a trusting relationship between the organization and the employee (Lepak & Snell, 1999). In contrast, a compliance HR system is designed to see employees as costs to control and focusses on enforcing employee's compliance with organizational rules and procedures while monitoring their output (Bamberger & Meshoulam, 2000). A commitment HR system is therefore more open and transparent than a compliance

HR system is. Consequently, a compliance HR system could have significant and/or different effects on the relationship between knowledge hiding and individual performance. Future research is advised to examine a compliance HR system as an organizational contextual factor or even researching both a compliance as well as a commitment HR system in order to be able to differentiate better.

Practical implications

Since both proposed hypotheses were insignificant, no real new practical implications can be made following the main research question. Findings regarding the relationship between knowledge hiding and individual performance remain inconclusive this could have been caused by the low sample size of the higher level variable. For multilevel analysis the sample size should be at least at 30 teams or more at the higher level (Maas & Hox, 2005). With a sample size of 31, present research is only slightly above the absolute minimum of 30 teams to do multilevel analysis. In their research, Maas and Hox (2005) also state that the more higher level teams there are, the more accurate the multilevel analysis is. Additionally, other research proposed a sample size of at least 100 for the higher level variable, which present research is not even close to (Green, 1991; Van der Leeden, Busing, & Meijer, 1997).

In most cases, research argues that knowledge hiding is detrimental for individual performance (Cropanzano & Mitchell, 2005; Connelly et al., 2012; Cerne et al., 2014; Serenko & Bontis, 2016; Mangold, 2017). Yet, in other research it is proved that knowledge hiding can be beneficial for individual performance, especially on the short term (Connelly et al., 2012; Wang et al., 2018). Following the trend of past research, when focusing on long term organizational gains it is advised for teams and companies to diminish knowledge hiding behavior as much as possible.

Findings regarding the moderating role of commitment based HR system on the relationship between knowledge hiding and individual performance were also insignificant. This implies no effect of commitment based HR system on the relationship between knowledge hiding and individual performance as well as no effect on individual performance itself. However, past research proved the benefits a commitment HR system has on the employees' individual performance. According to past research, a commitment based HR system has several benefits as an organizational context for organizational as well as individual performance. It enhances return on human capital investments and boosts

employee involvement (Lepak & Snell, 1999). It increases group motivation and social interactions (Arthur, 1994). Furthermore, it improves the employees' knowledge, skill and ability (Huselid, 1995). Lastly, a commitment based HR system can increase organizational capabilities (Lepak & Snell, 1999).

However, when examining the control variables and the correlation table, some other practical implications can be made outside of this study's research question. Results show that knowledge hiding was negatively correlated with individual performance suggesting that high scores on knowledge hiding lead to decreased individual performance. Furthermore, individual performance was positively correlated to age suggesting older employees perform better individually than younger employees.

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Appendices

Appendix A

Cover letter

Dear Sir/Madam,

We are students from Tilburg University who are conducting research about knowledge sharing and HR effectiveness in organizations.

You are being approached to participate in this research together with other colleagues from your organization. For us as students, this is our graduation project (master thesis) for our master Human Resource studies.

Strict anonymity of your answer is guaranteed. All data will be replaced by code, nobody other than the research team of Tilburg University will have access to you answer. The data will be used for education and research purposes only.

In the questionnaire you will find statements about your work and some general questions. Please choose the answer which best represents your opinion and carefully read the instruction with each set of questions before filling out your answers. It will take you **approximately 15 minutes to complete the questionnaire.**

Thank you very much for your participation!

On behalf of the research team,

Kind regards

Begeleidende brief

Geachte heer / mevrouw,

Wij zijn studenten van de Universiteit van Tilburg en voeren een onderzoek uit naar kennisdeling en HR effectiviteit binnen organisaties.

U wordt benaderd om deel te nemen aan dit onderzoek, samen met uw collega's. Voor ons is dit het afstudeerproject (scriptie) voor de master Human Resource Studies.

Volstrekte anonimiteit van uw antwoorden is gegarandeerd. **Alle data worden vervangen door codes, niemand anders dan het onderzoeksteam van de Universiteit van Tilburg heeft toegang tot uw antwoorden.** De data wordt alleen gebruikt voor onderwijs en onderzoeksdoeleinden.

In de vragenlijst vindt u stellingen met betrekking tot uw werk en algemene vragen. Kies alstublieft het antwoord dat het best bij u past en lees zorgvuldig de instructies behorende bij iedere set van stellingen voordat u de antwoorden invult. Het invullen van de vragenlijst zal **ongeveer 15 minuten van uw tijd vragen.**

Hartelijk bedankt voor uw deelname!

Namens het onderzoeksteam,

Met vriendelijke groet

Appendix B

Questionnaire for employees

Q1 Please provide us with the first two initials of your supervisors' name and surname (e.g., for John Doe, put JODO). We need this information to be able to compare and link answers. No one, including your supervisor, will get to see your answers (except the Tilburg University research team).

Q1 Geef ons alstublieft de eerste twee initialen van de voor- en achternaam van uw leidinggevende (bijvoorbeeld: Voor Karin de Vries, geef KAVR). We hebben deze informatie nodig om antwoorden te kunnen vergelijken en koppelen. Niemand, inclusief uw leidinggevende, krijgt uw antwoorden te zien (behalve het onderzoeksteam van de Universiteit van Tilburg).

Q2 *Knowledge Hiding*

Please think of a recent episode in which a specific co-worker requested knowledge from you and you declined to share your knowledge or expertise with him/her or did not give all of the information needed. **In this instance, I:**

1	2	3	4	5	6	7
Not at all			Somewhat			To a great extent

1.	Agreed to help him/her but never really intended to.	1	2	3	4	5	6	7
2.	Agreed to help him/her but instead gave him/her information different from what she/he wanted.	1	2	3	4	5	6	7
3.	Told him/her that I would help him/her out later but stalled as much as possible.	1	2	3	4	5	6	7
4.	Offered him/her some other information instead of what he/she really wanted.	1	2	3	4	5	6	7
5.	Pretended that I did not know the information.	1	2	3	4	5	6	7
6.	Said that I did not know, even though I did.	1	2	3	4	5	6	7
7.	Pretended I did not know what she/he was talking about.	1	2	3	4	5	6	7
8.	Said that I was not knowledgeable about the topic.	1	2	3	4	5	6	7
9.	Explained that I would like to tell him/her, but was not supposed to.	1	2	3	4	5	6	7
10.	Explained that the information is confidential and only available to people on a particular project.	1	2	3	4	5	6	7
11.	Told him/her that my boss would not let anyone share this knowledge.	1	2	3	4	5	6	7

12.	Said that I would not answer his/her questions.	1	2	3	4	5	6	7

Q2 *Kennisdeling*

Denkt u alstublieft aan een recente situatie waarin een collega u om kennis verzocht en u weigerde uw kennis/expertise met hem/haar te delen of u niet al de informatie gaf die u heeft. **Tijdens deze situatie:**

1	2	3	4	5	6	7
Helemaal niet			Enigszins			In zeer grote mate

1.	Beloofde u hem/haar te helpen zonder dat u dit daadwerkelijk meende.	1	2	3	4	5	6	7
2.	Beloofd u hem/haar te helpen, maar deelde u in plaats daarvan andere informatie dan hij/zij nodig had.	1	2	3	4	5	6	7
3.	Vertelde u hem/haar dat u hem/haar later zou helpen, maar bleef u dit zo lang mogelijk uitstellen.	1	2	3	4	5	6	7
4.	Gaf u andere informatie dan hij/zij nodig had.	1	2	3	4	5	6	7
5.	Deed u alsof u de kennis niet had.	1	2	3	4	5	6	7
6.	Zei u dat u het niet wist, hoewel u het wel wist.	1	2	3	4	5	6	7
7.	Deed u alsof u niet wist waarover hij/zij het had.	1	2	3	4	5	6	7
8.	Zei u dat u niet van het onderwerp af wist.	1	2	3	4	5	6	7
9.	Legde u uit dat u het hem/haar wel zou willen vertellen, maar dat dit niet de bedoeling was.	1	2	3	4	5	6	7
10.	Legde u uit dat de informatie vertrouwelijk is en alleen beschikbaar voor mensen uit een bepaald project.	1	2	3	4	5	6	7
11.	Vertelde u hem/haar dat uw baas die kennis met niemand wilde laten delen.	1	2	3	4	5	6	7
12.	Zei u dat u zijn/haar vragen niet zou beantwoorden.	1	2	3	4	5	6	7

Q3 *Individual Performance*

Please indicate to what extent the following statements are applicable to you, ranging from ‘never applicable’ to ‘always applicable’.

1	2	3	4	5	6	7
Never applicable			Neutral			Always applicable

1.	I achieve the objectives of the job.	1	2	3	4	5	6	7
2.	I meet the criteria for performance.	1	2	3	4	5	6	7
3.	I demonstrate expertise in all job-related tasks.	1	2	3	4	5	6	7
4.	I fulfill all the requirements of the job.	1	2	3	4	5	6	7
5.	I could manage more responsibility than typically assigned.	1	2	3	4	5	6	7
6.	I appear suitable for a higher level role.	1	2	3	4	5	6	7
7.	I am competent in all areas of the job, handles tasks with proficiency.	1	2	3	4	5	6	7
8.	I perform well in the overall job by carrying out tasks as expected.	1	2	3	4	5	6	7
9.	I plan and organize to achieve objectives of the job and meet deadlines.	1	2	3	4	5	6	7

Q3. *Individual performance*

Geef aan in hoeverre de volgende stellingen van toepassing op u zijn, variërend van ‘nooit van toepassing’ tot ‘altijd van toepassing’.

1	2	3	4	5	6	7
Nooit van toepassing			Neutraal			Altijd van toepassing

1.	Ik behaal de doelstellingen in mijn werk.	1	2	3	4	5	6	7
2.	Mijn prestaties voldoen aan de gestelde criteria.	1	2	3	4	5	6	7
3.	Ik toon expertise/deskundigheid in mijn werktaken.	1	2	3	4	5	6	7
4.	Ik voldoe aan alle eisen van mijn functie.	1	2	3	4	5	6	7
5.	Ik kan meer verantwoordelijkheid aan dan ik krijg toegewezen.	1	2	3	4	5	6	7
6.	Ik kan laten zien dat ik geschikt ben voor een hogere functie.	1	2	3	4	5	6	7
7.	Ik ben bekwaam op elk gebied van mijn functie, mijn taken worden vakkundig verricht.	1	2	3	4	5	6	7
8.	Ik presteer goed door de taken uit te voeren zoals van mij verwacht wordt.	1	2	3	4	5	6	7

9.	Ik organiseer zo dat de doelstellingen en deadlines in mijn werk worden behaald.	1	2	3	4	5	6	7

Q4. *HR system*

In this section, we would like to know your opinion about why your company has the personnel policies and practices it has. Please tell us the extent to which you agree with each of the statements below.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Fairly Agree	Strongly Agree

My organization provides employees the training that it does:

1.	In order to help employees deliver quality service to customers;	1	2	3	4	5	6	7
2.	So that employees will feel valued and respected—to promote employee well-being;	1	2	3	4	5	6	7
3.	To try to keep costs down;	1	2	3	4	5	6	7
4.	In order to get the most work out of employees.	1	2	3	4	5	6	7

My organization provides employees the benefits that is does (e.g., health care, retirement plans):

5.	In order to help employees deliver quality service to customers;	1	2	3	4	5	6	7
6.	So that employees will feel valued and respected—to promote employee well-being;	1	2	3	4	5	6	7
7.	To try to keep costs down;	1	2	3	4	5	6	7
8.	In order to get the most work out of employees.	1	2	3	4	5	6	7

My organization makes the hiring choices that it does (i.e., the number and quality of people hired):

9.	In order to help employees deliver quality service to customers;	1	2	3	4	5	6	7
10.	So that employees will feel valued and respected—to promote employee well-being;	1	2	3	4	5	6	7
11.	To try to keep costs down;	1	2	3	4	5	6	7

12.	In order to get the most work out of employees.	1	2	3	4	5	6	7

My organization pays its employees what it does:

13.	In order to help employees deliver quality service to customers;	1	2	3	4	5	6	7
14.	So that employees will feel valued and respected—to promote employee well-being;	1	2	3	4	5	6	7
15.	To try to keep costs down;	1	2	3	4	5	6	7
16.	In order to get the most work out of employees.	1	2	3	4	5	6	7

My organization schedules employees the way it does (hours, flexibility, leave policies):

17.	In order to help employees deliver quality service to customers;	1	2	3	4	5	6	7
18.	So that employees will feel valued and respected—to promote employee well-being;	1	2	3	4	5	6	7
19.	To try to keep costs down;	1	2	3	4	5	6	7
20.	In order to get the most work out of employees.	1	2	3	4	5	6	7

Q4. *HR system*

In deze sectie zouden wij uw mening willen weten over de reden waarom uw afdeling het huidige personeelsbeleid en de huidige personeelspraktijken hanteert. Kunt u aangeven in welke mate u het eens bent met de volgende stellingen:

1	2	3	4	5	6	7
Volledig mee oneens	Mee oneens	Deels mee oneens	Neutraal	Deels mee eens	Mee eens	Volledig mee eens

De organisatie voorziet het personeel van training:

1.	Om werknemers te helpen kwalitatief werk aan klanten te leveren.	1	2	3	4	5	6	7
2.	Opdat werknemers zich gewaardeerd en gerespecteerd voelen; om het welzijn van werknemers te bevorderen.	1	2	3	4	5	6	7
3.	Om de kosten zo laag mogelijk te houden.	1	2	3	4	5	6	7
4.	Om de werknemers zo hard mogelijk te laten werken.	1	2	3	4	5	6	7

De organisatie voorziet het personeel van arbeidsvoorwaarden (bijvoorbeeld op het gebied van gezondheidszorg en/of pensioenvoorzieningen:

1.	Om werknemers te helpen kwalitatief werk aan klanten te leveren.	1	2	3	4	5	6	7
2.	Opdat werknemers zich gewaardeerd en gerespecteerd voelen; om het welzijn van werknemers te bevorderen.	1	2	3	4	5	6	7
3.	Om de kosten zo laag mogelijk te houden.	1	2	3	4	5	6	7
4.	Om de werknemers zo hard mogelijk te laten werken.	1	2	3	4	5	6	7

De organisatie selecteert en werft haar personeel:

1.	Om werknemers te helpen kwalitatief werk aan klanten te leveren.	1	2	3	4	5	6	7
2.	Opdat werknemers zich gewaardeerd en gerespecteerd voelen; om het welzijn van werknemers te bevorderen.	1	2	3	4	5	6	7
3.	Om de kosten zo laag mogelijk te houden.	1	2	3	4	5	6	7
4.	Om de werknemers zo hard mogelijk te laten werken.	1	2	3	4	5	6	7

De salariëring van de organisatie is dusdanig:

1.	Om werknemers te helpen kwalitatief werk aan klanten te leveren.	1	2	3	4	5	6	7
2.	Opdat werknemers zich gewaardeerd en gerespecteerd voelen; om het welzijn van werknemers te bevorderen.	1	2	3	4	5	6	7
3.	Om de kosten zo laag mogelijk te houden.	1	2	3	4	5	6	7
4.	Om de werknemers zo hard mogelijk te laten werken.	1	2	3	4	5	6	7

De organisatie roostert haar personeel in op een manier (arbeidsuren, flexibiliteit, verlof):

1.	Om werknemers te helpen kwalitatief werk aan klanten te leveren.	1	2	3	4	5	6	7
2.	Opdat werknemers zich gewaardeerd en gerespecteerd voelen; om het welzijn van werknemers te bevorderen.	1	2	3	4	5	6	7
3.	Om de kosten zo laag mogelijk te houden.	1	2	3	4	5	6	7
4.	Om de werknemers zo hard mogelijk te laten werken.	1	2	3	4	5	6	7

Appendix C

Data preparation for analysis

The collected data for this research consisted of 202 respondents, including 154 employees, 36 line managers and 12 HR experts from 33 companies/organizations. Since this study focusses on the individual and team level, and since the team level is derived from aggregating the individuals in a team, only the data from the employees' questionnaire is used in this study.

The data from the variables knowledge hiding, individual performance and HR system were not needed to be reversed. Furthermore, items were pooled if necessary to match the respondent's score on their specific construct.

In the dataset there are small and big teams and even cases where line managers and/or employees did not have a team at all. Since it is believed that it is more important to have more groups at the higher level (level 2) than respondents of the group at the lower level (level 1) for multi-level analysis (Scherbaum & Ferreter, 2009; Hox 2010), it was decided to delete the employees that were not part of team. Subsequently, for the abovementioned reason it was decided to delete the respondents in a team smaller than three members. This resulted in the deletion of 5 teams, including 10 employees, as they were all part of a two-member team.

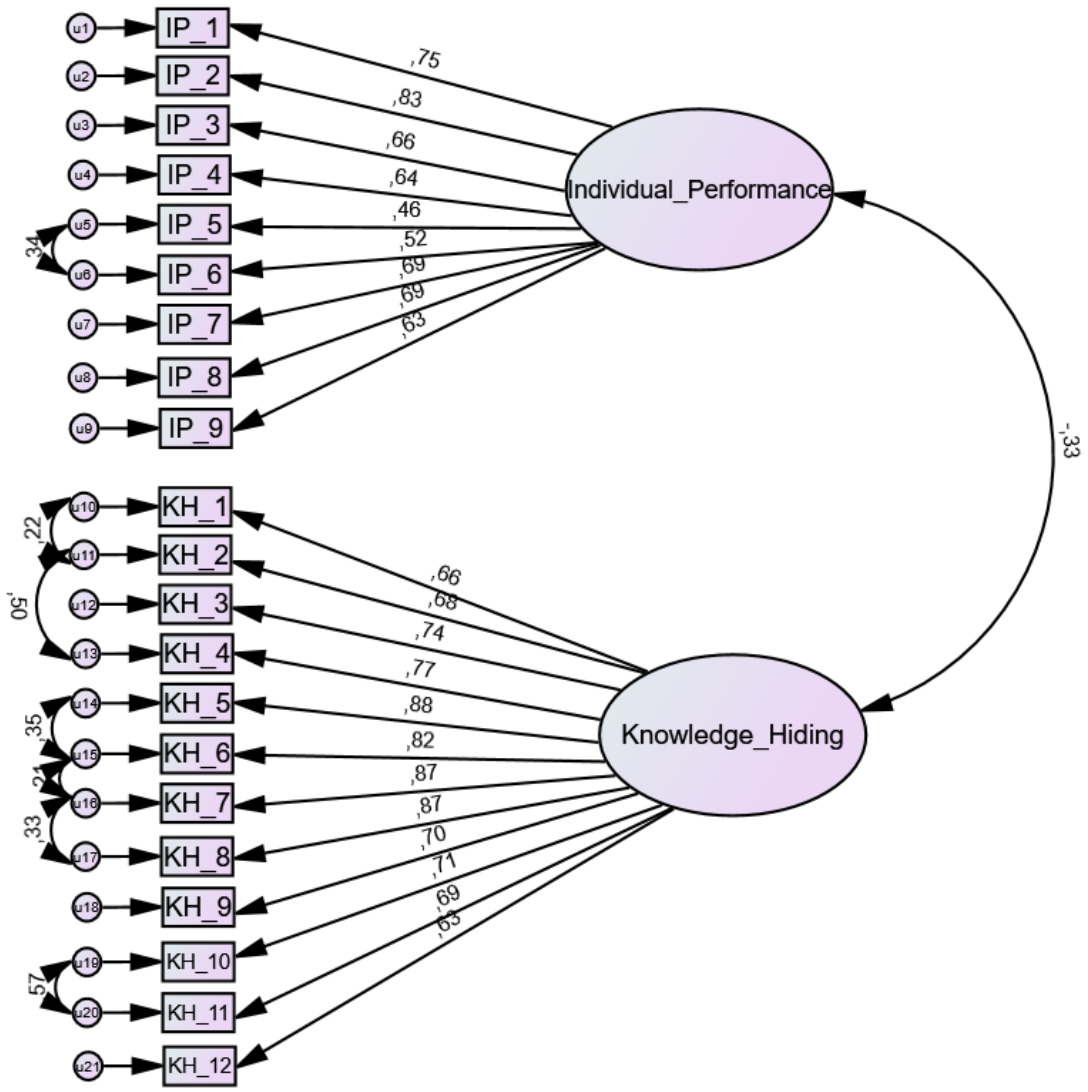
For the missing values, Schafer (1999) argued that a missing rate of 5% or less is inconsequential. Fortunately, this was the case for this study, meaning that the missing data are inconsequential. Furthermore a 'Missing Completely At Random (MCAR) procedure (Little, 1988) was conducted. This procedure checks whether the data is missing randomly or not. The MCAR test resulted in $\chi^2(83) = 67.052$, $p=.899$, indicating that the data is randomly missing.

As far as outliers go, it was decided to not delete potential outliers in the Likert-scales. This is because the Likert-scales are proven to be reliable in previous research and since outliers do not really exist in Likert-scales. However, one outlier has been deleted since that respondent entered the year of birth 194 making the respondent supposedly well over a thousand years old which is impossible and falling significantly over the threshold of the Outlier Labeling Rule (Hoaglin & Iglewicz, 1987). Furthermore, the organizational tenure is widespread but all data entries are possible and plausible when linked to the age of the respondent, so it is argued that this does not affect the results. Therefore, potential outliers in the control variable tenure were untouched. The abovementioned resulted in data used from 143 employees in 31 teams.

At last, homoscedasticity assumptions need to hold up. The plot conducted with SPSS showed no particular pattern when the standardized residuals were plotted against the standardized predicted variable, which suggests homoscedasticity is met.

Appendix D

D.1. Confirmatory factor analysis AMOS26; Improved model fit



D.2

Item correlations of knowledge hiding and individual performance

When exploring the CFA, some problems with model fit arose. Therefore, some items of individual performance and knowledge hiding were forced to covariate to ultimately increase the model fit. The tables underneath show the correlations. For individual performance this meant that Q5 and Q6 correlate with each other. Looking at the questions, those seem to be asking similar information. For knowledge hiding it was decided to only force covariations when the questions were from the same kind of knowledge hiding (rationalized hiding, playing dumb and evasive hiding).

Table D2.1. *Item correlations of individual performance*

Item	Correlates with
Q5. I could manage more responsibility than typically assigned.	Q6. I appear suitable for a higher level role.

Table D2.2. *Item correlations of knowledge hiding*

Item	Correlates with
Q1. Agreed to help him/her but never really intended to.	Q2. Agreed to help him/her but instead gave him/her information different from what she/he wanted.
Q2. Agreed to help him/her but instead gave him/her information different from what she/he wanted	Q4. Offered him/her some other information instead of what he/she really wanted.
Q5. Pretended that I did not know the information.	Q6. Said that I did not know, even though I did.
Q6. Said that I did not know, even though I did.	Q7. Pretended I did not know what she/he was talking about.
Q7. Pretended I did not know what she/he was talking about.	Q8. Said that I was not knowledgeable about the topic.
Q10. Explained that the information is confidential and only available to people on particular project.	Q11. Told him/her that my boss would not let anyone share this knowledge.

D.3.

Initial model

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	43	552,142	188	,000	2,937
Saturated model	231	,000	0		
Independence model	21	2184,647	210	,000	10,403

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,150	,726	,663	,591
Saturated model	,000	1,000		
Independence model	,830	,238	,162	,217

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,747	,718	,818	,794	,816
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,895	,669	,730
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

NCP

Model	NCP	LO 90	HI 90
Default model	364,142	297,505	438,410
Saturated model	,000	,000	,000
Independence model	1974,647	1828,273	2128,415

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	3,888	2,564	2,095	3,087
Saturated model	,000	,000	,000	,000
Independence model	15,385	13,906	12,875	14,989

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,117	,106	,128	,000
Independence model	,257	,248	,267	,000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	638,142	653,908	765,544	808,544
Saturated model	462,000	546,700	1146,417	1377,417
Independence model	2226,647	2234,347	2288,867	2309,867

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	4,494	4,025	5,017	4,605
Saturated model	3,254	3,254	3,254	3,850
Independence model	15,681	14,650	16,763	15,735

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	57	61
Independence model	16	17

D.4. Improved Model

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	50	396,248	181	,000	2,189
Saturated model	231	,000	0		
Independence model	21	2184,647	210	,000	10,403

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,127	,797	,741	,624
Saturated model	,000	1,000		
Independence model	,830	,238	,162	,217

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,819	,790	,893	,874	,891
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,862	,706	,768
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

NCP

Model	NCP	LO 90	HI 90
Default model	215,248	161,554	276,682
Saturated model	,000	,000	,000
Independence model	1974,647	1828,273	2128,415

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2,790	1,516	1,138	1,948
Saturated model	,000	,000	,000	,000

Model	FMIN	F0	LO 90	HI 90
Independence model	15,385	13,906	12,875	14,989

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,092	,079	,104	,000
Independence model	,257	,248	,267	,000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	496,248	514,581	644,390	694,390
Saturated model	462,000	546,700	1146,417	1377,417
Independence model	2226,647	2234,347	2288,867	2309,867

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	3,495	3,117	3,927	3,624
Saturated model	3,254	3,254	3,254	3,850
Independence model	15,681	14,650	16,763	15,735

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	77	82
Independence model	16	17

Minimization: ,024
Miscellaneous: ,313
Bootstrap: ,000
Total: ,337

Appendix E

HLM Results

Specifications for this HLM2 run

Problem Title: no title

The data source for this run = final.mdm
The command file for this run =
C:\Users\Thoma\AppData\Local\Temp\whlmtemp.hlm
Output file name = C:\Users\Thoma\Desktop\UvT\Thesis\hlm2.html
The maximum number of level-1 units = 143
The maximum number of level-2 units = 31
The maximum number of iterations = 100
Method of estimation: restricted maximum likelihood

The outcome variable is INDIVIDU

Summary of the model specified

Step 2 model

Level-1 Model

$$INDIVIDU_{ij} = \beta_{0j} + \beta_{1j}*(GENDER_{ij}) + \beta_{2j}*(AGE_{ij}) + \beta_{3j}*(KNOWLEDG_{ij}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}*(COMMITME_j) + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + u_{1j}$$
$$\beta_{2j} = \gamma_{20} + u_{2j}$$
$$\beta_{3j} = \gamma_{30} + \gamma_{31}*(COMMITME_j) + u_{3j}$$

KNOWLEDG has been centered around the group mean.

AGE has been centered around the grand mean.

COMMITME has been centered around the grand mean.

Mixed Model

$$INDIVIDU_{ij} = \gamma_{00} + \gamma_{01}*COMMITME_j + \gamma_{10}*GENDER_{ij} + \gamma_{20}*AGE_{ij} + \gamma_{30}*KNOWLEDG_{ij} + \gamma_{31}*COMMITME_j*KNOWLEDG_{ij} + u_{0j} + u_{1j}*GENDER_{ij} + u_{2j}*AGE_{ij} + u_{3j}*KNOWLEDG_{ij} + r_{ij}$$

Final Results - Iteration 4037

Iterations stopped due to small change in likelihood function

$\sigma^2 = 0.44972$

τ

INTRCPT1,β_0	0.22373	-0.16768	-0.00218	0.04459
GENDER,β_1	-0.16768	0.12939	0.00161	-0.04473
AGE,β_2	-0.00218	0.00161	0.00002	-0.00036
KNOWLEDG,β_3	0.04459	-0.04473	-0.00036	0.04423

τ (as correlations)

INTRCPT1,β_0	1.000	-0.986	-0.984	0.448
GENDER,β_1	-0.986	1.000	0.957	-0.591
AGE,β_2	-0.984	0.957	1.000	-0.368
KNOWLEDG,β_3	0.448	-0.591	-0.368	1.000

Random level-1 coefficient	Reliability estimate
INTRCPT1,β_0	0.081
GENDER,β_1	0.119
AGE,β_2	0.006
KNOWLEDG,β_3	0.154

Note: The reliability estimates reported above are based on only 18 of 31 units that had sufficient data for computation. Fixed effects and variance components are based on all the data.
The value of the log-likelihood function at iteration 4037 = -1.614044E+02

Final estimation of fixed effects:

Fixed Effect	Coefficient	Standard error	*t*-ratio	Approx. *d.f.*	*p*-value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	5.667197	0.216305	26.200	29	<0.001
COMMITME, γ_{01}	-0.017984	0.121119	-0.148	29	0.883
For GENDER slope, β_1					
INTRCPT2, γ_{10}	-0.097628	0.134933	-0.724	30	0.475

For AGE slope, β_2					
INTRCPT2, γ_{20}	0.018837	0.005994	3.143	30	0.004
For KNOWLEDG slope, β_3					
INTRCPT2, γ_{30}	-0.129456	0.082806	-1.563	29	0.129
COMMITME, γ_{31}	0.007479	0.144105	0.052	29	0.959

Final estimation of fixed effects
(with robust standard errors)

Fixed Effect	Coefficient	Standard error	*t*-ratio	Approx. *d.f.*	*p*-value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	5.667197	0.204501	27.712	29	<0.001
COMMITME, γ_{01}	-0.017984	0.103199	-0.174	29	0.863
For GENDER slope, β_1					
INTRCPT2, γ_{10}	-0.097628	0.128304	-0.761	30	0.453
For AGE slope, β_2					
INTRCPT2, γ_{20}	0.018837	0.003834	4.914	30	<0.001
For KNOWLEDG slope, β_3					
INTRCPT2, γ_{30}	-0.129456	0.082546	-1.568	29	0.128
COMMITME, γ_{31}	0.007479	0.132726	0.056	29	0.955

Final estimation of variance components

Random Effect	Standard Deviation	Variance Component	*d.f.*	χ^2	*p*-value
INTRCPT1, u_0	0.47300	0.22373	16	19.06250	0.265
GENDER slope, u_1	0.35970	0.12939	17	29.34736	0.031
AGE slope, u_2	0.00469	0.00002	17	13.93795	>0.500
KNOWLEDG slope, u_3	0.21030	0.04423	16	17.15261	0.376
level-1, r	0.67061	0.44972			

Note: The chi-square statistics reported above are based on only 18 of 31 units that had sufficient data for computation. Fixed effects and variance components are based on all the data.

Statistics for current covariance components model

Deviance = 322.808702

Number of estimated parameters = 11