

Reverse Mentoring: Improving Technological Skills of Older Peers: A Moderated Mediation Approach

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Article Info	Abstract
<p>Article History</p> <p>Received: February 18, 2021</p> <p>Accepted: April 25, 2021</p> <p>Keywords : Reverse Mentoring, Motivation, Knowledge Sharing, Positive Affect, Trust, Skill Development</p> <p>DOI: 10.5281/zenodo.4718684</p>	<p><i>Reverse mentoring has been appeared as a significant area of research in the field of management and psychology. Grounded on reverse mentoring theory, we empirically explored the psychological processes that enhance skill development through a mechanism where knowledge is transmitted from youngers to senior individuals. To test the moderated mediation models, we select a sample of older learners (n = 345) and younger mentors (n = 310). Using a quasi-experimental research design, we collected the data from respondents at three different waves with a one-month gap between each interval. We found that extrinsic motivation is the primary driver of skills development in younger mentors, while intrinsic motivation plays a vital role in seeking technological skills among older learners. Moreover, individual personal factors like efficacy, positive affect, knowledge sharing, and trust can serve as personal resources. We concluded that organizations should strive to practice reverse mentoring initiatives to promote intergenerational knowledge transfer that simultaneously benefits youngers in improving mentoring skills and older to enhance tech-related skills. Implications for practice and theoretical contributions are also discussed.</i></p>

Introduction

The aging workforce and the Millennials' parallel arrival constitute a significant demographic and sociological trend that can have overall dominant consequences for organizations. This creates a scenario where, for the next decade, the Boomers and Millennials will work together. This creates a bigger tenacity for HRD experts to concentrate more time on maintaining these combined generations' employees and to engage them effectively (Chaudhuri and Ghosh, 2012).

Research has found that mentoring supports people and organizations (Ragins and Kram, 2007; Allen et al., 2004). Mentoring partnerships have historically been comprised of an older, senior manager giving guidance and support a fledgling, junior counterpart (Kram, 1985). Reverse mentoring (RM) flips its back on this formula. Reverse mentoring (RM) is described as a partnership of a younger, junior employee who serves as a mentor to share the experience with an older, senior colleague as the mentee (Gerpott et al., 2017). Former CEO of General Electric, Jack Welch, is widely credited with initiating a structured RM scheme in 1999 when he directed 500 of his top executives to identify new workers who could educate them over the Internet (Murphy, 2012). For organizations, a simple advantage of RM is tapping into the knowledge and technical abilities of young workers (Sesodia and Agarwal, 2020). RM, though, also carries the opportunity to develop the leadership pool, cultivate stronger intergenerational partnerships, strengthen diversity programs, and accelerate creativity (Dunham and Ross, 2016). RM is an incentive for all partners to learn and an innovative means of influencing young workers and individuals (Murphy, 2012).

Over the past 30 years, work, and interest in mentoring and growth ties has gradually grown (Chandler et al., 2011). Given the growing number of millennial workers joining the workforce, it would be prudent for academics and professionals to intensify their emphasis on mentoring's ability to recruit and sustain young talent. More specifically, millennials want tailored opportunities to make meaningful changes and get their voices "heard." RM offers a platform for the direct influence of millennial workers and builds good working relationships with corporate members (Hewlett et al., 2009). HR researchers and professionals should draw on a long tradition of study in social interaction and mentoring, along with more recent studies on superior relationships and learning, to create a basis for understanding RM ties.

Mentoring as a working rapport between an older, more experienced adult (mentor) and a young adult (mentee or protégé) that augments career development. Mentors offered valuable services for mentees' professional progress in work and psychosocial support (Kram, 1985). Subsequent studies link mentoring and guidance from such a developmental partnership to a variety of successful work results, including organizational

engagement (Ragins et al., 2000), employment fulfillment (Ensher et al., 2001), compensation (Chao et al., 1992), learning (Lankau and Scandura, 2002), and promotion (Scandura and Williams 2002).

In this sense, RM is described as a case where fledgling, subordinate employees act as a tutor to guide and exchange experience with the mentee (an older, senior colleague). Thus, conventional mentoring and RM are two contradictory concepts. Harvey et al. (2009) claimed that RM is a perfect resource for older leaders of the company to develop professional expertise, think about emerging events, obtain a global cross-cultural viewpoint, and consider younger generations. This also offers junior workers visibility into the organization's upper levels for improving their market comprehension (Meister and Willyerd, 2010). Although longitudinal research work on RM has not been undertaken to date, two case reports in the education literature confirm promising findings (Leh, 2005). Through the research of Cotugna and Vickery, (1998), college students were partnered with experts to teach skills on the Internet. Mentees suggested they were pleased in that position and appreciated learning from mentors of the students. Throughout the research of Leh (2005), senior students were partnered with the faculty to guide them on using the latest technology in the classroom. Findings suggest that mentees considered the personalized instruction beneficial and that the learning improved the self-esteem of mentors.

Despite RM work lagging behind implementation, it is about time researchers critically looked at this trend and offered evidence-based guidelines for HR professionals. Past findings and the latest academic research on intergenerational interaction indicate that combining senior and junior people in RM programs may provide substantial benefits for all dyad participants. For starters, younger workers will gain empathy, mentoring skills, and insight into company processes, at the same time developing more favorable behaviors towards their senior colleagues (Penick et al., 2014; Harvey et al., 2009). In comparison, older workers can access new information, extend their social links, and develop a comprehensive perspective. Besides, today's technology is playing a significant role in our lives, and fledgling employees are exceptionally well placed to share their expertise and assistance relevant to technology with their seniors, perhaps less tech-knowing peers (Chen, 2013).

Given the plausible advantages of RM, it is remarkable that this exchange's strategy is entirely unexplored. We add to HR literature and practice in our paired two-sample research by exploring the motivating procedures that help younger mentors in career development and learners (older mentees) enhance their technological skills. In specific, our study contributes to this emerging field of education by introducing a hypothetical model of in-person systems, including extrinsic and intrinsic motives, positive influence, efficacy, knowledge sharing, and trust, which will guide the growth of ability in this sense. We determine that motivation sources, i.e., intrinsic and extrinsic not similarly affect the performance of seniors and younger members, for mentors' (hereafter for younger) extrinsic motive (EM) is the driving force and for learners' (henceforth for older) intrinsic motive (IM) is more appropriate. Further, we also test that personal resources like self-efficacy and positive affect help to covert motivation into active skill development for mentors. Besides, we expend the model of Kase et al. (2018) by introducing moderated mediation, i.e., trust and knowledge sharing between RM and skill development relationship. We proposed that the skill development of learners will increase when knowledge sharing between mentor and mentee occurs. This relationship is strong when the learners' trust in mentors is high. Thus, trust plays a boundary condition between the relationship between RM and knowledge sharing. In sum, our study contributions advance the knowledge of skills development through RM relationships, especially those aimed at promoting contemporary workplace "digital fluency" (Colbert et al., 2016).

2. Theoretical Background and Hypotheses Development

Currently, older members are technically less competent employees, They share the workplace with the "modern generation," which comprises young people that have grown up with digital era apps, and persons who have readily embraced emerging technology later in existence (Colbert et al., 2016). Our functional model is designed around senior learners and younger mentors, in line with RM's fundamental concept. Workplace relationships between members of various age classes were usually examined from a demographic context (e.g., Urick et al., 2017; Rudolph et al., 2020), and also attracted considerable interest from experts (Macrae, 2017). Although, few studies revealed disparities in work-related behaviors, beliefs, and motives among Gen X participants, Gen Y participants, and Boomers, while others noted the existence of inconsistent results in the literature, including the possible limitations of this literature (Twenge et al., 2010; Cugin, 2012). Furthermore, a new analysis has found that the use of generational identifiers, including the "Baby Boomer" mark, creates derogatory stereotypes and encourages sexism in the workforce (Cox et al., 2019). To avoid these worries, we, in the current research, use the terms "Older" and "Younger" workers to differentiate the two groups, in line with conceptualizing RM (Murphy, 2012).

2.1. Motivation and Skills Development in Reverse Mentoring

People are viewed as naturally inspired by engaged in work that is potentially fascinating, important, stimulating, or joyful. Instead, as they participate in tasks to accomplish an aim that is different from the job itself, they are known to be extrinsically motivated (Amabile, 1993). Whereas extrinsic and intrinsic motives are often described as different ends of an individual spectrum. However, a new meta-analysis covering 40 years of

motivational studies found that the two concepts cannot be regarded as incompatible, as they perform a shared role in forecasting critical outcomes such as success (Cerasoli et al., 2014). That why we were discussing them at the same time.

Intrinsic motivation (IM) involves a strong inclination towards mastery of knowledge, experimentation, and cognitive versatility, which facilitates to enhance engagement in learning activities (Amabile, 1993). Therefore, as younger mentors are emotionally inspired to participate in a role (i.e., guiding their senior fellows), this will invigorate them, promote their learning of expertise, and eventually contribute to higher expectations of mentoring skills growth. Likewise, senior mentees who are primarily inspired to learn from their junior peers are guided mainly by a keen interest in learning a given range of skills. This inherent value in the training and development of one's skills appears to be correlated with favorable outcomes and performance, including high-quality learning and work engagement (Ryan and Deci, 2010). Henceforth, when learning technology-related skills, the mentees' intrinsic motives push them to engage in the learning process actively and, thus, upsurge their level of ease with using the latest technologies.

Nevertheless, only IM is not the primary motivator of performing a task, but some instrumental benefits attract the individual to perform a task. One of them is extrinsic motivation (EM), which attracts individuals to perform mainly in situations where career development depends on extrinsic goals (Bejakovic and Mrnjavic, 2019). In our research, we analyze whether mentors motivated by extrinsic factors (quick promotion and career-building) can achieve benefit from the RM cycle. We suggest that when junior mentors devoted their efforts and time to improve their career opportunities, which is an external self-objective that they actively seek, EM encourages their participation and engagement in the program.

Mentees take part in RM can also be pushed for extrinsic purposes. In today's world, technology is omnipresent that adversely affects the senior leaders as they have less command over it (Kautz et al., 2014). As a result, senior mentees are motivated not by innate desire to learn skills to partake in digital technology training but to maintain their jobs and to earning capacity. Despite financial motivations expected to decrease in later career levels, societal factors like family or job demands may also be critical external triggers for tech-skills growth (Gagne and Deci, 2005). Although such social interference can have a detrimental effect on results, it can also motivate persons into action till the activity is not too challenging yet to obtain the desired outcome (Cerasoli et al., 2014). Externally inspired learners should then find that their new abilities depend on continually participating in reverse mentoring, which would encourage their development, meeting outside aspirations. Putting it together, we are proposing:

H1: *Positive and significant relationship is expected between mentors' (Youngers) intrinsic and extrinsic motivations and their skills development.*

H2: *Positive and significant relationship is expected between learners' (Older) intrinsic and extrinsic motivations and their skills development.*

2.2. Motivation Changes in Life Cycle

Job and learning motivation change with age, the experiences, and values retained by people during their lives contribute to both (Kanfer et al., 2017; Lent and Brown, 2006). Grounded on social cognitive career theory, which indicates that involvement in job-related tasks and ability learning grows through sustained task participation and social strengthening. However, that cycle persists throughout life, and it becomes more complex and decisive in the late teenage years and early old age. This means that environmental input, like extrinsic benefits, yields more impact in one's career. This effect is further strengthened by one's views of how they apply their contributions to achieving results. According to the theory of life span development, people change their motivating mechanisms in response to the challenges they faced at the workplace or changing opportunities in other areas of life (Heckhausen et al., 2010). Younger individuals are more concerned about their performance than their older counterparts (Kanfer & Ackerman, 2004). Accordingly, more effective strategies are generally employed to control external circumstances, which may also enhance the motivation of extrinsic results (Kooij et al., 2013). Therefore, we believe that extrinsic, career-related motivations motivate the involvement of mentors in RM up to a considerable level.

Work-related priorities appear to crystallize primary in one's profession, but evolving conditions of life and employment, particularly technical advances, will spark a reassessment of those priorities and the creation of new skills. Nonetheless, how such abilities eventually grow in later career periods is more dependent on inherent rather than extrinsic influences (Lent and Brown, 2006), as the expected utility of success declines with age. The association between senior workers' contributions and job incentives is less, making extrinsic factors less effective (Kooij et al., 2013). Instead, senior adults prefer to participate in self-directed management techniques, relying primarily on objectives that are emotionally satisfying, realistic, and within their influence. A recent meta-analysis study of Kooji et al. (2013) supported this notion arguing that IM for achieving higher performance is increases with age. On the other hand, EM for attaining outcomes are declines with age. Therefore, we assume extrinsic influences affect the success of senior learners, and IM play a significant role in shaping their skills development. So, we hypothesize as:

H3: For youngers (mentors), extrinsic motivation is the reliable driver of skill development compared to learners (older mentees).

H4: For learners (older mentees), intrinsic motivation is the reliable driver of skill development as compared to youngers (mentors).

2.3. Motivation a Driver of Skill Development

It is suggested that positive effects that capture the experience of good feelings like enthusiasm and exhilaration may help understand the relationship between IM and skill development. It is not shocking that engaging in behaviors viewed as exciting and pleasant appears to elicit desirable affective experiences; therefore, positive influence is considered a result of IM (Grant and Shin, 2012). In this research, intrinsically driven mentors have a deep interest in mentoring their senior peers. Likewise, in our study, intrinsically motivated older learners to have an intense curiosity in evolving their digital skills (Cropanzano and Rupp, 2003). Consequently, the learning cycle will promote their participation in the practice and elicit positive emotions, thereby the positive results. In sum, feeling good mood during RM will bode well for their success, for younger mentors and older learners alike.

We believe that positive attitudes play a significant role in RM as they invigorate individuals to become involved in the relationship and set the tone for the successful sharing of information. Evidence for this comes from research demonstrating that positive impact contributes to problem-solving, increased job performance, and boost cognitive resilience (Ashby et al., 1999; Erez and Isen, 2002; Nadler et al., 2010). Older learners' digital skills are improved through their positive moods as it is significantly related to training success and ability to memorize the work (Chaiburu and Carpenter, 2013; Hertal et al., 2003). In summary, we suggest that when individuals are fundamentally inspired to undergo RM, this encourages motivation and anticipation, that in effect, facilitates the transfer of information. Thus, we proposed that:

H5: *The relationship between mentors' and mentees' intrinsic motivation and skill development is mediated by positive affect.*

Similarly, we also postulate that individuals having a high level of self-efficacy may enhance the relationship between intrinsic motivation and positive effect, which is the confidence of individuals in their skills to accomplish a specific task (Bandura, 1986). Based on the cognitive evaluation theory, that provides some contingencies of IM directed us to develop this hypothesis. Intrinsic motivation refers to intrinsically exciting, rewarding, essential, or demanding behaviors. Nevertheless, people need to feel confident in their behavior to maintain this incentive or have strong self-efficacy (Bobanovic, 2020; Ryan and Deci, 2010). Consequently, we suggest that IM influence on a positive outcome is more considerable for those having higher self-efficacy expectations. Precisely, when mentors have poor mentoring expectations, their inherent encouragement will not evoke the same degree of positive impact (Afsar et al., 2019). In the same way, if learners do not feel comfortable in their technical abilities, any increases in positive outlook resulting from their inherent value in learning will be minimized.

H6: *Mentors and learners' self-efficacy moderate the relationship between mentors and mentees' intrinsic motivation and positive affect such that the relationship is healthy when self-efficacy of mentors and mentees is high.*

2.4. Knowledge Sharing, Skills Development, and Reverse Mentoring

The primary method of knowledge sharing is the direct exchange of information among individuals such as mentors and mentees (Palmer and Schoorman, 2011). Today's less attention is given to the age difference between mentor and mentees, while scholars focusing on the knowledge sharing process occurred between mentors and mentees (Roobol and Koster, 2020). Mentoring is the best source to share and create knowledge among individuals. Further, it can enable knowledge sharing among different generations to facilitate learning and competencies (Roobol and Koster, 2020). It is a two-way exchange of beliefs, skills, competencies, and knowledge. Through mentoring, employees of each generation know about the preferences and values of each group. Notably, mentoring is highly appreciated practice in the form of sharing of knowledge among workers belong to different generations (Taylor, 2013). The widely acceptable and practicable means of knowledge sharing among different generations is from senior members (mentors) to younger employees (mentees). Of late, however, a concept of reverse mentoring has emerged where young colleagues (mentors) share their skills with the most senior one (mentees) (Murphy, 2012). This emerging trend is prevalent in situations where Gen X or baby boomers want to learn tech-related skills from their younger peers, i.e., Gen Y tech-savvy employees (Younas and Bari, 2020). Though Aker, (2009) argued that cross-generational make it challenging to develop a mind-set of reverse mentoring as senior employees may not accept to work under the supervision of their joiner counterpart, this may adversely affect knowledge sharing, and the amount of knowledge to share is lower as compared to the desired one (Brcic and Mihelic, 2015).

Mentees may acquire skills as their mentors pass on knowledge to them through training and performance feedback. A comprehensive interpretation of the mentoring roles demonstrates, in part, how the trainer consciously transfers information on to the defense so that the mentee receives the experience that helps both himself and the company. In the role of exposure-and-visibility, a mentor facilitates the creation of

awareness of a mentee about certain facets of the enterprise by assigning tasks whereby the defense communicates with critical organizational leaders (Kram, 1985). Such mentoring features demonstrate the kinds of actions a mentor shows when passing information to a mentee (Bencsik et al., 2016).

Research advocates that the mentees profit from their mentors' expertise and knowledge passed to them. The acquisition of career-related mentoring roles had a positive impact on the mentees' organizational and technical awareness (Kowtha and Tan, 2008). Empirical evidence has been found for the beneficial impact of demanding assignments on their team and organization's awareness of the mentee (Lancaric et al., 2015; Lankau and Scandura, 2002). Lankau and Scandura (2007) suggest that mentoring researchers continue to concentrate on enhancing understanding of the effect of mentoring roles in mentoring relationships on learning and knowledge transfer. Thus, we suggest that mentoring can be viewed as a type of developmental relationship that facilitates the transfer of knowledge between mentors and mentees through coaching, supporting, exposure and visibility mentoring / information functions and challenging assignments (Brcic and Mihelic, 2015). Thus, we proposed that:

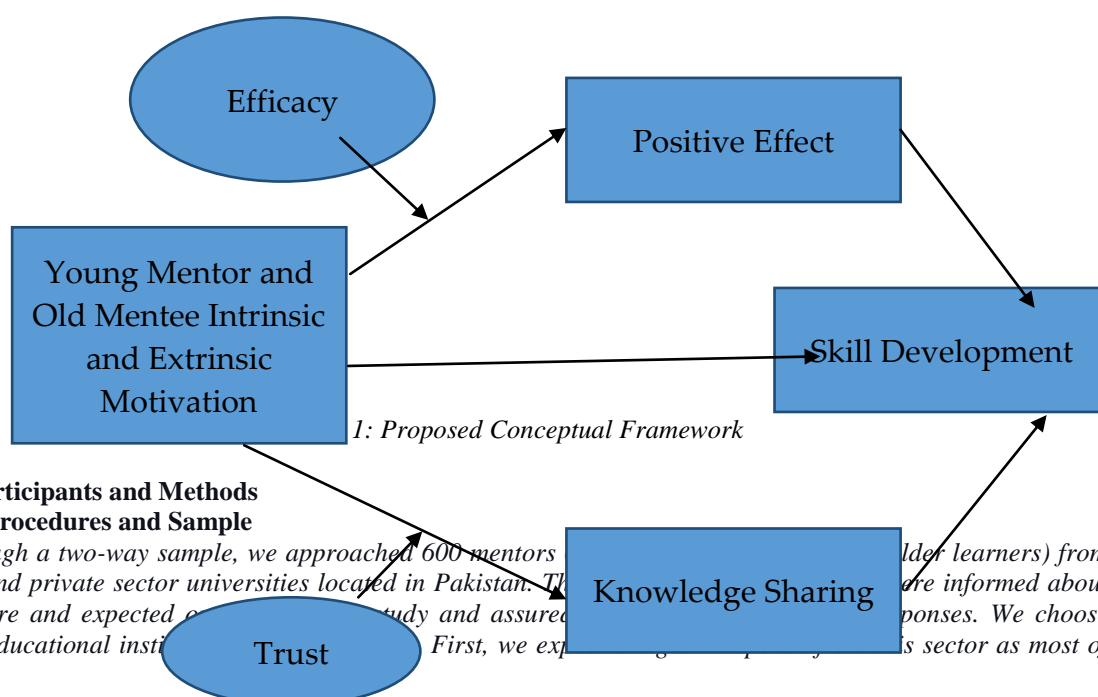
H7: *The relationship between mentors and mentees' intrinsic motivation and skill development is mediated by knowledge sharing.*

2.5. Trust as a Moderator of Mentoring and Knowledge Transfer

Previous qualitative studies on mentoring have explored the role of trust. As mentees reported that at a critical phase of their career or life transitions, they pursue the advice and knowledge gained from their mentors (Liang et al., 2008). Mentees also reported that the mentoring relationships is influenced by the degree of trust that may also affect the learning process (Dymock, 1999). The degree of knowledge sharing is more when mentees' trust is high on their mentors. Research in the area of knowledge management highlighted that trust-based relationship between mentees and mentors is vital and increase the chances that the knowledge received will be learned and used it correctly (Allen et al., 2009; Szulanski et al., 2004). Levin and Cross (2004) also argued that trust is the primary motivational tool of knowledge transfer. However, in routine business, due to internal and external motivators, knowledge sharing occurs without considering the degree of trust between learners and mentors.

Similarly, when mentees have a high level of trust in their mentors, they are willingly admitting the mistakes in the learning process (Kram, 1985). Mentees believe that the mentors will support their efforts even if they do something wrong as they are learning new methods of performing work-related tasks. Thus, when the degree of trust is high, mentees will be more interested in receiving career-related knowledge. On the other hand, when the level of trust of mentees on mentors is low, the level of knowledge sharing and learning is low. A mentees low level of trust, reluctant to confess mistakes, and do not picture deficiency in his/her knowledge make mentors unable to provide valuable feedback that enhances knowledge acquisition. Thus, we propose that trust play a moderating role in mentors and knowledge-sharing relationship.

H8: *Trust moderates the relationship of mentors and mentees' intrinsic motivation and knowledge sharing such that the relationship is strong when the degree of trust is high.*



3. Participants and Methods

3.1. Procedures and Sample

Through a two-way sample, we approached 600 mentors (older learners) from public and private sector universities located in Pakistan. They were informed about the nature and expected outcomes of the study and assured confidentiality of their responses. We choose higher educational institutions from the public sector as most of

the respondents have research experience, and they know the protocol of the survey method. Second, in our case, senior professors (mentees) are not too expert in technology, primarily software is used for research, i.e., SPSS, AMOS, Smart PLS, EViews, STATA and M Plus. The younger peers who completed their PhDs in the last five years are well equipped and have a sound knowledge of these tech-savvy software. They guide their seniors about how to use these research software's through direct mentoring i.e., one-to-one meetings, workshops, classroom training, guidance, hands-on assistance, seminars, and feedback. Thus, tech-related knowledge transfers from mentors (younger colleagues) to learners (senior mentees), by doing so, the development of tech-related skills development of senior colleagues is enhanced.

The inclusion and exclusion criteria for both types of samples is:

For Mentors: (a) completed their Ph.D. within the last five years, (b) sound knowledge of research software's, (c) belong to Gen Y, i.e., born between 1981-2000 (Naim and Lenka, 2017), (d) Play a role of mentor in the recent past.

For Mentees: (a) belong to Baby boomers or Gen X, i.e., born between 1946-1960; 1961-1980, respectively (Naim and Lenka, 2017), (b) no or less knowledge of technology i.e., research software's, and (c) received tech-related training from their junior colleagues.

Based on the quasi-experimental research design, we collect the data in three different intervals. Using a survey method, in the first interval (T1), we contacted 600 younger mentors and 800 older mentees to assess their intrinsic and extrinsic motivation. After a one-month break, in the second interval (T2), we approached the same respondents (both groups) to assess their knowledge sharing, trust, positive affect, and self-efficacy. In the same fashion, the third interval (T3) was initiated after a one-month gap from (T2), and the respondents were asked to tell about their mentoring skills development (mentors) and technological skills development (learners). In T1, we received 426 responses from mentors and 530 responses from learners. In T2, we received 374 responses from mentors and 393 responses from learners. Finally, in T3, we received 310 responses from mentors and 345 responses from learners with a response rate of 51.6% and 43.1%, respectively. Their average age was 31.2 years (SD= 6.8) and 57.5 years (SD=7.5), respectively. Most of the respondents were males, i.e., 68%, and the remaining were their female counterparts. The average experience of mentors was 3.4 years (SD=7.2). Most of the learners were belong to the private sector, i.e., 62% having extensive work experience.

3.2. Measurements

3.2.1. Intrinsic and Extrinsic Motivation

We used adapted instruments measured on a five-point Likert scale indicating 1= strongly disagree, and 5=strongly agree. Two different scales were used for measuring mentors' and learners' IM and EM. A scale of Ryan and Connell (1992) was used to address mentors' intrinsic and extrinsic motivations. The sample item is "I enjoy mentoring others." To assess the learners' intrinsic and extrinsic motivations, we adapt a scale of Black and Deci (2000). A sample item is "it is charming to learn about new technologies." Past studies also used these scales to measure mentors' and learners' intrinsic and extrinsic motivations (Kase et al., 2018).

3.2.2. Self-Efficacy

Mentor's self-efficacy was measured through a teaching self-efficacy scale developed by (Schwarzer and Hallum, 2008), and learners' self-efficacy was measured through a computer self-efficacy scale developed by Compeau and Higgins, (1995). Sample items are "I am confident that, even in case of an unexpected situation, I would find a way to bring the mentoring session to a close" and "When there was no one around to tell me what to do," respectively.

3.2.3. Knowledge Sharing

Knowledge sharing was measured for both groups using the scale of Lankau and Scandura's (2002). A sample item is "I have gained new skills."

3.2.4. Trust

Trust was measured through a scale developed by Schoorman and Ballinger (2006). The sample item is "If my mentor asked why a problem occurred, I would speak freely even if I were partly to blame."

3.2.5. Skill Development

Kirkpatrick and Kirkpatrick (2006) scale was used to assess the skill development of mentors and learners. The sample item for mentors is "after taking part in the initiative, and I am more confident in my mentoring skills." The sample item for learners is "after taking part in the initiative, and I am more confident in my digital skills." The same scale was used for both groups to assess the positive affect.

3.2.6. Positive Affect

We adopt a three items scale of Watson et al. (1988). The scale items were related to participants' positive feelings during the mentoring sessions, such as feeling enthusiastic and excited.

4. Results

To assess discriminant validity and reliability of the scales, we apply simple and paired confirmatory factor analysis (CFA). The results in both samples indicate an excellent fit with the data. A high standardized factor loading for mentors ranged from 0.638 to 0.863 and from learners 0.592 to 0.878. Tables 1 and 2 reports CFA

statistics for both groups. The values of fit indicators, i.e., CFI, RMR, GFI, AGFI, and RMSEA, were found in an acceptable range, indicating an excellent fit with the data.

Table 1: Confirmatory factor analysis of the variables

Var	CMIN	DF	χ^2/df	RMR	GFI	CFI	RMSEA
YMI	50.402	25	2.016	.050	.961	.973	.060
YME	54.510	20	2.725	.049	.909	.921	.070
OMI	115.531	60	1.925	.051	.905	.945	.060
OME	119.420	63	1.895	.039	.907	.951	.070
EF	190.104	80	2.376	.051	.920	.958	.059
PE	120.810	65	1.858	.049	.907	.975	.063
SD	157.749	58	2.719	.039	.943	.977	.053
T	169.983	64	2.655	.047	.930	.959	.064
KS	180.389	74	2.437	.042	.943	.958	.054

Table 2: Paired Confirmatory factor analysis of the variables

Name of Variable	CMIN	DF	χ^2/df	CFI	NFI	GFI	AGFI	RMR	RMSEA
6 Factor (YMI+YME+OMI+OME+EF+PA)	201.32	90	2.23	.96	.91	.90	.90	.05	.06
1 Factor (YMI+YME+OMI+OME+EF+PA)	601.83	70	8.59	.53	.50	.59	.61	.31	.20
7 Factor (IV1+IV2+Mod+Med+DV)	378.93	260	1.45	.94	.91	.90	.90	.05	.07
1 Factor (IV1+IV2+Mod1+Med1+DV)	1299.99	213	6.10	.36	.30	.55	.50	.24	.19
6 Factor (YMI+YME+OMI+OME+T+KS)	836.84	649	1.28	.95	.92	.93	.91	.05	.05
1 Factor (YMI+YME+OMI+OME+EF+PA)	2623.41	267	9.82	.50	.47	.59	.60	.19	.20
7 Factor (IV1+IV2+Mod2+Med2+DV)	439.36	355	1.24	.92	.90	.90	.91	.05	.08
1 Factor (IV1+IV2+Mod2+Med2+DV)	2981.53	239	12.47	.60	.58	.61	.60	.21	.25
9 Factor (IV1+IV2+Mod1+Med1+Mod2+Med2+DV)	439.36	355	1.24	.92	.90	.90	.91	.05	.08
1 Factor (IV1+IV2+Mod1+Med1+Mod2+Med2+DV)	2981.53	239	12.47	.61	.58	.61	.60	.21	.25

YMI= Young mentor intrinsic motivation, YME= Young mentor extrinsic motivation, OMI= Older mentee intrinsic motivation, OME= Older mentee extrinsic motivation, EF= Self-efficacy, SD= Skill development, T= Trust, PA= positive Affect and KS= Knowledge sharing

The table shows Harman's single-factor analysis. Podsakoff et al. (2012) argued that paired confirmatory factor analysis is the best method for findings common method variance. In this method, all variables' items were loaded on a single factor, and its model fit was checked and then compared it with their six factors, seven factors, and nine factors. First, Harman's test was done for independent variables i.e., young mentor intrinsic motivation, young mentor extrinsic motivation, older mentee intrinsic motivation, older mentee extrinsic motivation, efficacy and positive effect, and lastly, 9-factor analysis containing all variables of the study. As depicted, six factors, seven factors, and nine factors have good model fit compared to their 1 factor. The bold values in the table show a good model fit.

Table 3: Reliabilities, Correlations and Descriptive Statistics

Var (Group)	M	SD	1	2	3	4	5	6	7	
Younger Mentors										
1. IM			4.32	.57	(.78)					
2. EM			2.83	1.04	.033	(.74)				
3. Self-Efficacy			4.25	.62	.297**	.029	(.81)			
4. Positive Affect			4.28	.68	.448**	.107*	.316**	(.74)		
5. Knowledge Sharing			4.24	.60	.442**	.103*	.364**	.312**	(.71)	
6. Trust			4.23	.58	.278**	.117*	.352**	.323**	.343**	(.76)
7. Skill Development			3.64	.83	.205**	.412**	.025	.265**	.272**	.310**
			(.82)							

Older Learners

1. IM	4.54	.39	(.65)					
2. EM	2.84	1.01	.172**	(.80)				
3. Self-Efficacy	2.56	.93	-.004	-.094	(.76)			
4. Positive Affect	4.12	.70	.426**	.070	.084	(.81)		
5. Knowledge Sharing	4.56	.65	.356**	.267*	.363**	.309**	(.72)	
6. Trust	4.14	.54	.286**	.143*	.332**	.311**	.303**	(.77)
7. Skill Development	3.88	.73	.321**	.199**	.163**	.283**	.247**	.283** (.69)

Note: * $p < .05$; ** $p < .01$; reliabilities are in parentheses; Mentors ($n = 310$), Learners ($n = 345$)

Table 3 highlighted the descriptive statistics, reliabilities, and bivariate correlations for both mentors and learners. In a case where there is a chance of measurement error availability, the best approach to be used is structural equation models (SEMs) relative to other approaches, and we do so. Notably, we used the most current procedures and approaches for investigating the interactions of latent variables, i.e., LMS method (Kase et al., 2018; Cheung and Lau, 2017).

Table 4 depicted a positive and significant relationship of both IM and EM with a mentor's skill development. Thus, our H1 is supported. We also found that IM and EM of learners are significantly related to learner's digital skills development; thus, H2 is supported. Extrinsic motivations have more effect on younger mentors' skill development relative to IM; thus, our H3 is supported. Similarly, IM have a substantial impact on skill development of older learners relative to EM; thus, H4 is supported. As depicted in Table 4, a significant relation was existing between IM and positive affect. In the same way, a significant association was observed between positive affect and skill development with IM controlled for. We found that the indirect effect of IM on skill development via positive effect is significant; thus, provide support for H5. However, after introducing the mediator, for both groups, the relationship of IM and skill development is still significant confirming a partial mediation. We found a support for our H6 stated that the relationship between IM and positive affect is moderated by self-efficacy (see Table 5). We apply model 6 to test this moderated mediated framework of PROCESS macro following the suggestions of Hayes (2018) and Sardeshmukh and Vandenberg (2017). We also found support for our H7, confirming that knowledge sharing partially mediates the relationship between both groups' IM and skill development. Finally, we test whether trust moderate the relationship between IM and knowledge sharing (H8) (see Table 5). We found that, for both groups, trust moderates the relationship between IM and knowledge sharing. In sum, all our hypotheses are fully and, in some cases, partially accepted.

Table 4: Latent coefficients

Antecedent	Positive Affect (M)			Skill Development (Y)			
	Coeff.	se	p	Coeff.	se	p	
Younger Mentors							
Intrinsic M	a.462	.018	.038	c`	.198	.011	.055
Extrinsic M	-	-	-	-	.513	.028	.054
Positive Affect	-	-	-	b	.134	.007	.052
R² = .255R² = .409							
Older Learners							
Intrinsic Ma	.486	.026	.053c`	.452	.019	.042	
Extrinsic M	-	-	-	-		.154	.009
Positive Affect	-	-	-	-	b	.167	.010
R² = .251R² = .378							
Knowledge Sharing (M)							
Younger Mentors							
Intrinsic M	a .256	.015	.058	c`	.182	.012	.055
Extrinsic M	-	-	-	-		.423	.023
Knowledge Sharing	-	-	-	-	b	.164	.009
R² = .224R² = .357							
Older Learners							
Intrinsic M	a.274	.013	.047	c`	.210	.004	.019

Extrinsic M .044	-	-	-		.156	.007
Knowledge Sharing .052	-	-	-	b	.173	.009
R² = .212R² = .318						

Table 5: Conditional Process Model

Antecedent		Positive Affect		Skill Development		
Coeff. 95% CI	pCoeff. 95% CI	p				
Intrinsic M	a ₁	.411 (.278, .580)	.000	c	.370 (.095, .665)	.004
Extrinsic M		-	-		.450 (.300, .611)	.000
Positive Affect		-	-	b	.210 (.007, .413)	.043
Self-efficacy	a ₂	.255 (.143, .359)	.000			
Intrinsic M*Self-efficacy	a ₃	.322 (.633, .039)	.029			
Knowledge Sharing						
Intrinsic M	a ₁	.310 (.172, .464)	.000	c	.342 (.083, .532)	.002
Extrinsic M		-	-		.440 (.310, .624)	.000
Knowledge Sharing		-	-	b	.238 (.083, .392)	.003
Trust	a ₂	.330 (.156, .328)	.000			
Intrinsic M*Trust	a ₃	.374 (.586, .032)	.000			

5. Discussion

In today's highly competitive and technologically oriented market, effective management of a demographically diverse workforce makes organizations reap the benefits of sustainable competitive advantage. Organizations are in a continuous search to explore the ways how to better utilize integrational collaboration that help to enhance technological skills among older workers, while concurrently improving career-related skills of the more tech-savvy younger workforce (Kase et al., 2018; Chen, 2013). In this study, we inspected a newly emerging concept called reverse mentoring, where the junior members act as a mentor and guide their senior colleagues as a mentee. We empirically examined the relationship between younger mentors and older learners' motivations and their skills development directly and indirectly via positive affect and knowledge sharing. The results suggested that motivations (intrinsic and extrinsic) increased the perceptions of skill development in both mentors and learners. Our findings suggest that EM is the best driver of skill development for younger mentors compared to IM. Furthermore, we found that the relationship between IM (mentors and learners) and skill development is mediated by both mediators, i.e., knowledge sharing and positive affect. Besides, we also found that trust moderates the relationship between IM and knowledge sharing. The relationship between IM and positive affect is moderated by self-efficacy for both mentors and learners. Our results are consistent with Kase et al. (2018) and Plamer and Schoorman (2011).

We provide a unique model that highlights processes that drive skill development in RM. Knowingly, we examined how EM can be used to explain changes in the learners' and mentors' skill development. This effect is much evident and robust in the younger group. It is often noticed that younger people are striving hard to develop their skills. They are arduous in seeking opportunities for enhancing social skills. In the RM phenomenon, initiatives on the part of younger people may boost the career prospects of the younger. Extrinsic outcome plays a significant role at this life stage as it is indicated by the positive approach, which controls mainly external situations (Kooij et al., 2011; Heckhausen et al., 2010). Our findings are in line with prior research studies that indicate increased perceptions towards status and money in younger people (Twenge et al., 2010).

On the other hand, in older learners, nominal support was found for the critical role of EM for developing research related software skills. However, some external motivators, like upgrading professional skills and lifelong learning, also have a significant role in older learners' digital skills (Gangeand Deci, 2005). Learners' perceptions of these external factors may exert tempered pressure in developing digital skills. It is noted that older individuals are prone to pursue such a course of action, which is intrinsically attainable and rewarding (Kooij et al., 2011; Heckhausen et al., 2010).

In RM, the psychological mechanism is that IM has a positive effect on skill development as IM works as is the fulcrum around which older learners' skill development revolves. Our findings of this mediating effect confirm the prior studies, which indicated a positive impact of cognitive functioning on quality learning outcomes and positive work mood (Nadler et al., 2010).

It was noted that older learners were engaged, but it was not found whether their engagement in learning was a pleasant experience or not. The main reason may be the age factor that results in a difference in attitude towards learning and work. It was observed that older learners were prone to hard work compared to younger learners and always strived hard for the centrality of work (Lyons and Kuron, 2014; Cogin, 2012). Our findings are in line with Fredrickson, (2001) broaden-and-build theory of positive emotions. It shows that mentors (younger) rely on positive affects as a personal resource to manage self-doubt and low confidence in novel situations effectively.

5.1. Practical Implications

Based on the emerging literature and the findings of the current research on intergenerational learning, we encourage universities administration to place reverse mentoring programs in their respective organizations to support their older employees in developing their technological skills. We suggested that formal reverse mentoring programs be organized in the universities for the following reasons. First, to fully engage their senior faculty, the mentoring program should be structured and interactive, and give frequent feedback, such activities provide senior faculty with a favorable learning environment. Second, formal reverse mentoring help to attract younger employees, and organizations should develop a system that tracks and rewards their contribution (e.g., promotion opportunities, mentoring certificate, etc.). Further, organizations should provide opportunities for younger employees to polish their mentoring skills (Wolfson et al., 2014). Also, we offer suggestions to universities administration that this type of initiative must be voluntary. Such programs are more beneficial for senior professors as they are intrinsically interested to learn data analysis software. Also, to protect their self-concept, it is noted that senior colleagues tend to avoid those initiatives involving a high risk of failure. Learning new technological skills makes the situation critical for senior learners. However, voluntary participation in learning new technical skills is less risky for senior learners' self-concept. These senior learners play the role of intergenerational learning ambassadors and enhance the motivation of those colleagues who may refuse such programs due to fear of failure or who are less intrinsically motivated. On the other hand, voluntary participation is also beneficial for younger mentors. Such initiatives are more likely to arouse positive and pleasant effective practices and help boost their confidence as a mentor. Moreover, voluntary programs are beneficial for university management to find highly ambitious, intergenerational sensibility, and talented younger employees for future leadership roles. These proactive younger mentors promote the reverse mentoring program in their universities by playing intergenerational learning representatives' roles.

5.2. Limitations and Future Directions

Our study has a few potential limitations that must be considered in future research. First, we did not control certain variables like age, gender, education, and experience that may affect mentors' and mentees' intrinsic and extrinsic motivations. Future studies must use this mechanism to better measure the effect of these variables on skills development. Second, our model only explains motivations (both groups) while explaining reverse mentoring; however, exploring reverse mentoring from other aspects like positive contagion and group effect is vital. Thus, it would be better to examine how group experiences impact reverse mentoring. Lastly, we conducted this research in Pakistan. In the future, researchers may select the same model in other settings.

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