The Cross-level Moderating Effect of Team Task Support on the Nonlinear Relationship Between Proactive Personality and Employee Reflective Learning

Abstract

Reflective learning is a fundamental part of human learning and development and has attracted attention from management scholars as well as practitioners. In this study, we build on trait activation theory and investigate how proactive personality and team task support jointly influence employee reflective learning. Using a questionnaire survey, we collected data at two-time points from 154 participants nested in 37 teams in five organizations in the UK. The results from multilevel analyses showed that proactive personality had a positive effect on reflective learning up to a certain point. Over and above this inflection point, this positive effect ceased to further increase. In addition, the nonlinear effect of proactive personality on reflective learning was much stronger when team task support was weak than when it was strong. The finding regarding the nonlinear relationship extends our understanding of the effect of proactive personality. The cross-level moderating effect of team task support suggests a complementary perspective to appreciate the interactions between proactive personality and its relevant situational characteristics. Practitioners can use these findings to design effective intervention plans and facilitate employee reflective learning in specific settings and in workplace learning in general.

Keywords: Proactive personality, team task support, employee reflective learning, nonlinear relationship, cross-level analysis

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"Self-reflection is the school of wisdom."

— Baltasar Gracián *(1647).*

Reflective learning is central to theories of learning and is considered to be an important element of studying and learning for human beings (Higgins, 2011; Kolb & Kolb, 2005). In a working setting, reflective learning has been shown to have a profound influence on employee, team, and organizational outcomes. For example, reflective learning helps employees make sense of successful and failed task experiences and understand their strengths and weaknesses at work, which further improves future performance (Li, et al., 2020). At the team level, through reflecting on goals, methods, and mental models, team members are able to analyze former results and current processes and adapt to changes (Rolfsen, et al., 2014). At the organizational level, reflective learning helps organizations question assumptions and challenge accepted best practices. As a result, it enables adaptation and fuels innovation (Høyrup, 2010). Krogstie, Prilla, and Pammer (2013) thus described reflective learning as a "key to bottom-up organizational learning". In addition to these conventional benefits, reflective learning has become even more relevant to employee adaptation and management decision-making in this era of uncertainty. Through reflective learning, employees can revisit their past experience and better adapt to novel situations, and managers can reexamine the current actions and further adjust policies and regulations towards better decision-making.

Given the important implications of reflective learning for the benefit of employees and beyond, researchers have been interested in exploring the factors that influence

employees to engage in reflective learning at work. Studies have been conducted from either a dispositional perspective (e.g., Kember et al., 2000; Li et al., 2020) or a situational perspective (Høyrup & Elkjær, 2006). However, either perspective may only depict part of the whole picture because reflective learning involves both cognitive and social elements (Krogstie et al., 2013). To better understand the dynamics between the factors which influence employee reflective learning, we apply an interactionist perspective. This allows us to unpack the joint effects of dispositional and situational factors on reflective learning.

Dewey (1933) defined reflective learning as "active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends" (p. 9). Consistent with Dewey's view but referencing professional practice, Boyd and Fales (1983) specified reflective learning to be "the process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self, and which results in a changed conceptual perspective" (p. 100). Kolb (1984) further adopted this view in his experiential learning theory, considering reflective learning to be a core element of experiential learning. Following this tradition, Krogstie et al. (2013) proposed a straightforward and cogent definition in which they described reflective learning as "the conscious re-evaluation of experience for the purpose of guiding future behavior" (p. 152). As an extension of the previous definitions, Krogstie et al. (2013) explicitly pointed out that reflective learning has a strong social element and is often accomplished collectively by a team or work unit. In this study, we conceptualize reflective learning by using Krogstie et al.'s (2013) definition. We consider reflective learning to be a conscious rather than an unconscious learning activity, recognizing both cognitive and social elements in shaping employees' reflective learning, and emphasizing looking back rather than moving forward in the process of learning. As such, we understand reflective learning as employee cognitive

activity which is evoked by employees' current environments and entails them looking back to plan for a better future.

Reflective learning is a complex cognitive activity, involving such activities as actively seeking and processing information, questioning existing knowledge, examining and reappraising past experience, and further proposing alternative explanations (e.g., Kember et al., 2000; Krogstie et al., 2013). In line with this view, we suggest that employees' proactive personality, a stable personality trait which refers to someone who is relatively unconstrained by situational forces and who effects environmental change (Bateman & Crant, 1993), is a dispositional antecedent of reflective learning. This is because those who are higher in proactive personality tend to be active in monitoring and scrutinizing work situations. A study done by Li et al. (2020) empirically supported the positive association between proactive personality and reflective learning. Nevertheless, we argue that proactive personality can facilitate reflective learning only up to a certain point. Beyond this point, the positive effect of proactive personality on reflective learning may fade away, because for those with high-level proactive personality, their motives for making changes will continue growing but the motives for seeking and processing information may stand still. We thus propose a nonlinear relationship between proactive personality and reflective learning.

In addition, following the interactionist perspective and drawing on trait activation theory (Tett & Burnett, 2003), we propose that team task support will moderate the nonlinear relationship between proactive personality and reflective learning. Team task support describes the informational and cognitive aspects of help which are provided by team members. It refers to the availability of task-relevant information from the work environment, especially within the team, and involves informational, instrumental, and appraisal support (Drach-Zahavy & Somech, 2002; West, 1995). In line with trait activation theory (Tett & Burnett, 2003), we argue that when team task support is not sufficient, it triggers a

challenging situation, which relies on team members themselves to seek and process task-related information. This will pave the way to activate proactive personality. In contrast, when there is sufficient team task support, this “institutional-like” arrangement creates an “easy” situation for members because the members do not have to take the initiative to seek and process information on their own: There is always enough information available. High-level team task support thus creates a situation which actually deactivates proactive personality. On this point, we argue that low-level team task support activates proactive personality to a larger extent than high-level team task support, and we thus expect that the nonlinear relationship between proactive personality and reflective learning will be more salient under low-level team task support than under high-level team task support.

Our study brings three contributions to the literature. First, much of the literature in the field of reflective learning has either examined how this type of learning is developed and practiced, mostly by using qualitative methods, (e.g., Maclean et al., 2012) or has investigated its consequences (e.g., Runhaar et al., 2010). Despite its proven benefits, research suggests that individuals differ substantially regarding reflective learning (Frederick, 2005; Kember et al., 2000). In this study, we turn the spotlight on the antecedents of reflective learning and identify key dispositional factors which can explain such differences. Further, we investigate how the work context in terms of team task support might compensate for dispositional limitations in facilitating reflective learning. Theoretically, such understanding suggests that reflective learning may have motivational drivers situated in individual differences as well as contextual cues. Practically, HR professionals and team leaders can use these findings to design better programs to facilitate employee reflective learning.

Second, by proposing and examining a nonlinear relationship between proactive personality and reflective learning, our research broadens understanding of proactive

personality. Most studies have adopted a future-oriented approach to examine the effect of proactive personality on employee outcomes, such as creativity (Fuller & Marler, 2009), information sharing (Gong et al., 2012) and performance (Crant, 1995). To the best of our knowledge, only one empirical study, conducted by Li et al. (2020) has so far paid attention to the effect of proactive personality on employee creativity via the cognitive process of reflection. Our study reinforces this line of research and suggests that proactive personality can influence both forward- and backward-oriented activities. Moreover, by examining a nonlinear relationship, our study extends Li et al.'s (2020) work and indicates that the effect of proactive personality on the backward- and cognitive-oriented activities may be more complicated than expected, based on prior research.

Third, by investigating a cross-level moderation effect, that is, examining the effect of team task support (at the team level) on the relationship between proactive personality and reflective learning (at the employee level), we add a nuance to the complex issue of how proactive personality and situational cues jointly shape reflective learning in the workplace. Our study presents a complementary perspective and offers a multilevel approach to the study of workplace reflective learning.

Figure 1 presents the overall research model of this study.

Insert Figure 1 about here

Hypothesis Development

The nonlinear relationship between proactive personality and reflective learning.

We first acknowledge a positive relationship between proactive personality and reflective learning, as both involve scanning information to identify opportunities. In defining reflective learning, we have pointed out that seeking and processing information is one of the

crucial activities of reflective learning. Meanwhile, in the measurement of proactive personality, Bateman and Crant (1993) used four potential facets to indicate proactive personality (opportunity scanning, initiative, persistence, and a desire to make a difference). The facet of opportunity scanning is closely connected with scanning information. Thus, it is not surprising that proactive personality is positively associated with reflective learning. Li et al.'s (2019) empirical study further confirmed this theoretical assumption.

In addition, we propose that the positive relationship between proactive personality and reflective learning may only hold for employees with a low or a medium level of proactive personality. This positive relationship may cease to increase for employees with a high level or above of proactive personality. In other words, we suggest a nonlinear relationship between proactive personality and reflective learning. We make this proposition based on the definition of proactive personality. Bateman and Crant (1993) defined proactive personality as a "relatively stable behavioral tendency to initiate change in the environment" (p. 105). Consistently, Crant et al. (2017) defined proactive personality as a dispositional construct that "differentiates the extent to which people tend to take actions to influence their environment" (p. 194). These two definitions demonstrate that the construct of proactive personality is future-oriented, focusing more on taking actions to affect the environment than scanning information from the past. In line with these two definitions, in the above-mentioned measurement of proactive personality developed by Bateman and Crant (1993), three out of the four facets tap into taking future actions, and only one facet is related to scanning information from the past.

Based on this understanding, we argue that in the construct of proactive personality, scanning information is one of the means to achieve the ultimate goal of making a difference for the future. In other words, seeking and processing information is a necessary but not sufficient condition for proactive personality. Employees with a low or a medium level of

proactive personality first need to fulfill the task of scanning information to enable them to be proactive. This means that there is enough variance to differentiate between those employees with a low or a medium level of proactive personality based on the extent to which they engage in scanning information. These differences covary with reflective learning, thus forming a positive association between proactive personality and reflective learning.

But for employees with a high level or above of proactive personality, the case is quite different. They may well have succeeded in scanning information. Thus, we cannot detect a substantial difference on the facet of scanning information. As a result, the positive association between proactive personality and reflective learning may cease to further increase. Employees with a high level or above of proactive personality may differ substantially in terms of striving for taking actions for change but not in terms of scanning information for reflective learning. We expect proactive personality to be positively related to reflective learning only at the low or medium level. At the high level or above of proactive personality, the positive association between proactive personality and reflective learning may cease to further increase.

Hypothesis 1: Proactive personality has a nonlinear relationship with reflective learning. In particular, proactive personality is positively related to reflective learning up to a certain level; over and above the inflection point, this positive effect will cease to further increase.

The cross-level moderating effect of team task support.

We follow trait activation theory (Judge & Zapata, 2015; Tett & Burnett, 2003) to explain how team task support may further adjust the relationship between proactive personality and reflective learning. Trait activation theory (Tett & Burnett, 2003) favors situational specificity in understanding the person-situation interaction approach to behavior. It suggests that the impact of a personality trait on behavior depends on trait-relevant

situational cues. Tett and Burnett (2003) further highlighted two situational characteristics, i.e., relevance and strength, in the activation process of trait expression. In other words, situational factors need to be relevant and also need to create sufficient room for the personality trait to manifest itself. When meeting these two conditions, personality traits will be activated and have an effect on behaviors.

Team task support enables members to share unique information and to engage in complex information processing (Van Knippenberg et al., 2004). Drach-Zahavy (2004) proposed three types of team task support (i.e., informational, appraisal, and instrumental support) and suggested that they play a crucial role in information elaboration among team members. Informational support refers to the extent to which team members share and exchange information for their functioning. It brings different ideas and opinions to a discussion, which helps individual members with information searching and enlarges the pool of information (Van Ginkel & Van Knippenberg, 2009). Appraisal support helps individual members examine information and understand the problem at hand from different perspectives. By critically appraising the information, the breadth and depth of reflective learning will be enhanced (Rousseau & McCarthy, 2007). Instrumental support focuses on practical and tangible assistance and provides team members with a solution to deal with a difficult problem, which may trigger them to rethink the alternative way of working. We consider team task support to be one of the relevant situational cues to activate proactive personality for reflective learning.

In relation to the strength of activating proactive personality, we argue that a low level of team task support actually conveys stronger situational cues to activate proactive personality. When team task support is low, information is not easy to access or available, which sets a challenge for team members and motivates those proactive employees to show initiative and actively search for information. In a sense, this creates an opportunity for

proactive personality to express its effect, and the influence of proactive personality on reflective learning will become salient and recognizable. In contrast, when team task support is high, information is available to all team members and easy to access. The situation becomes less challenging for employees to take the initiative and to actively seek and process task-related information on their own. As such, the influence of proactive personality on reflective learning will become less salient.

Empirical studies on the interaction effect between situational factors and members' proactive personality provide some support for the above argument (Crant, et al., 2011; McCormick, et al., 2019; Yang, et al., 2020). For instance, McCormick et al. (2019) found that the positive effect of members' proactive personality on their proactive behavior was lessened by either transformational leadership or team climate. For instance, when transformational leadership was weak, it triggered a challenging situation for proactive members, under which they were motivated to show initiative and take charge. As a result, the association between proactive personality and proactive behavior became stronger. In contrast, when transformational leadership was strong, it led to a less demanding situation for proactive members, as things were often well arranged by transformational leaders and proactive members did not need to take initiative and make things happen. However, the non-proactive members might have been motivated by transformational leaders to show more proactive behavior. As a result, the association between proactive personality and proactive behavior became less salient.

A team can provide not only task but also emotional support to its members (Drach-Zahavy & Somech, 2002, 2010; West, 1995). Team emotional support captures the sentimental side of help, referring to "the notion of a shoulder to cry on, an encouraging word, and sympathetic understanding of another's emotional pain" (Drach-Zahavy, 2004, p. 236). Based on the feature of relevance in trait activation theory (Tett & Burnett, 2003), we

argue that team task support, but not team emotional support, will be the key moderator for the relationship between proactive personality and reflective learning, as task support is more relevant to seeking and processing information. In line with the above-mentioned theoretical arguments and empirical findings, we propose the following:

Hypothesis 2: Team task support moderates the nonlinear relationship between proactive personality and reflective learning in such a way that the nonlinear relationship is more pronounced when team task support is low than when it is high.

Methods

Research Context

Five participating organizations, located in the UK, voluntarily took part in this study. Learning and development has been highlighted as one of the key challenges in all five organizations by their HR managers. In each organization, a work unit (department or team) was set up to deal with the challenges related to learning and development, which covered activities such as employee learning and training, team learning, and organizational learning. We can, to some extent, say that learning has been institutionalized and supported by all five organizations. The core business of these five organizations were health care, investment, engineering, and outsourcing services. Although the organizations operated in different sectors, teams were the basic unit in all organizations, and work activities were organized around teams rather than individuals. The team functions in our sample ranged from covering the frontline core business (e.g., field project teams, engineering teams, and consultancy teams) to back office support (e.g., HR, training and development, and ICT support teams). Each team had one team leader who was responsible for the team's functions and who reported directly to a departmental manager.

Respondents

Our final sample consisted of 154 employees from 37 teams in the five participating organizations. The average size of the teams was 4.78 (*SD* = 2.01), ranging from three to 20 members. Regarding team longevity, 51.4% of the teams had existed between 1 and 5 years; 35.1% of the teams between 5 and 10 years; and 13.5% of the teams more than 10 years. At the individual level, 50.3% of the respondents were female. The mean age of the participants was 35.5 (*SD* = 11.80), ranging from 18 to 64 years. Regarding their highest level of education, 20.8% had finished general secondary education (GCSE), 18.8% had an advanced level of secondary education (A level), 18.9% had completed technical or vocational training, and 41.5% had received higher education. In terms of their positions, 40.7% of the employees reported their job role as operational/administrative/clerical support, 26.0% were professional/technical workers, and 33.3% mentioned that their work involved managerial tasks. As regards tenure, 19.5% of the participants had worked for less than a year in their current organization, 55.8% had worked between one and five years, 9.7% had worked between five and 10 years, and 14.9% had worked more than 10 years.

Procedure

Data were collected by using questionnaire surveys at two points in time. We first contacted the senior management team of all five participating organizations. After we were granted permission, the HR department of each organization assisted with the data collection. One staff member in the HR department helped us sort out a list, providing the email contacts of the team members who were willing to participate in this research project. In total, the participant pool consisted of 270 employees from 50 teams. All teams had at least three members. A cover letter accompanying the questionnaires explained the purpose of this study (on workplace learning). We assured the participants that responses would be kept confidential and that no individual or institutional information would be disclosed under any

circumstances. Participants voluntarily completed the questionnaires in either work or their leisure time.

We sent out the first questionnaire package (or questionnaire link) to those 270 participants and received 199 questionnaires back from 38 teams (response rate at the individual level was 73.7%). The second wave of data collection started, on average, three weeks after the first wave was completed (ranging from two weeks minimum to seven weeks maximum). We sent the second questionnaire package to those 199 participants (who completed the first questionnaire) and received 155 questionnaires from 38 teams (response rate at the individual level was 77.9%). On average, three reminders were sent out for each wave of the data collection. When preparing the final data set for analysis, we only included those teams who had at least three valid individual responses from both waves. This cut-off criterion left us with a final sample comprising 154 participants from 37 teams (one team from the second survey only had one response, and we removed this individual response and this team from the final analysis).

Measures

Our research design involved time-lagged data collection and multilevel data analyses (team and individual levels). The measures of proactive personality and team task support (explanatory variables) as well as team emotional support (control variable) were included in the first wave of the survey. The measures of reflective learning and self-reported performance were included in the second wave. All items were measured using a 7-point Likert scale (ranging from 1 = “strongly disagree” to 7 = “strongly agree”).

Reflective learning was measured with four items adapted from the scale developed by Kember et al. (2000). The original scale captured the whole process of reflection upon practice and included 16 items from four subscales: habitual action (four items), understanding (four items), reflection (four items), and critical reflection (four items). The

subscale of reflection was developed based on Dewey (1933) and Boyd and Fales (1983), who, like us, view reflection as an integral part of learning and education. It is in line with the definition of reflective learning in our study. Two examples from this scale are “When learning new things, I sometimes question the way others do things and try to think of a better way” and “I often reflect on my actions to see whether I could have improved on what I did”. Cronbach’s alpha for this scale was .86.

We included a self-rated performance measure in the second survey to provide criterion-related validity for the scale of reflective learning. The measure was adopted from the in-role performance scale developed by Williams and Anderson (1991) and consisted of five items. Two examples of this scale are “I usually perform tasks that are expected of me” and “I fail to perform essential duties” (reversed scoring) (Cronbach’s alpha = .87). The correlation between reflective learning and self-reported performance was .24 ($p < .01$). This finding is in line with other studies where different employee outcomes were used (Li et al., 2020; Monks et al., 2016). It provides support for criterion-related validity for the measure of reflective learning. However, we decided not to include the self-reported performance measure as the final outcome of reflective learning in this study for two reasons. First, self-rated performance only has a small overlap with other-rated performance (< 16%) and has been heavily criticized as an outcome variable in the management literature (Bommer, et al., 1995). Second, we changed the item reference from other rating to self-rating, which may have resulted in some measurement errors when assessing performance. Given these limitations, we used the self-related performance measure for the purpose of evidencing criterion-related validity.

Proactive personality was measured with ten items from Seibert, Kraimer, and Crant (2001). Examples of these items are “I am constantly on the lookout for new ways to improve my life” and “I excel at identifying opportunities”. Cronbach’s alpha for this scale was .91.

Team task support was measured with six items adopted from the scale developed by Drach-Zahavy and Somech (2002). The original scale measured four aspects of team support: informational support (four items), appraisal support (two items), instrumental support (four items), and emotional support (four items). In this study, we conceptualized team support in terms of task and emotional support. In line with this conceptualization, we reduced the number of items for team task support from 10 to six. The six items for team task support came from the three subscales of information support, appraisal support, and instrumental support. We chose two items for each subscale and combined them to form the measure for team task support. We followed this strategy as we felt that the original scale may have over weighted information support (with four items) and instrumental support (with four items) against appraisal support (with two items). This six-item measure for team task support also balances the weight of the four-item measure for team emotional support. The two items for informational support were "We share information generally in the team, rather than keeping it to ourselves" and "In my team, everyone's view is listened to even if it is in a minority". The two items of instrumental support were "Members of my team provide and share resources to help each other" and "Members in my team provide practical support". We chose these four items as they were a better fit given our research context. The two items for appraisal support were "My team critically appraises potential weakness in what it is doing in order to achieve its outcomes" and "My team members provide each other new perspectives and ideas". Cronbach's alpha for this six-item scale was .89.

Control measures. Some studies have suggested that emotions play a role in the process of reflection (Krogstie et al., 2013). Moreover, the study by Drach-Zahavy and Somech (2002) showed that team emotional support was moderately or highly correlated with different types of team task support (from .54 to .85). We therefore controlled for team emotional support in the analyses. It was measured with four items from the team support

scale developed by Drach-Zahavy and Somech (2002). These four items were “In my team, we have a ‘we are in this together’ attitude”, “People feel understood and accepted by each other”, “There are consistently harmonious relationships among people in the team”, and “Members in the team never feel tense with one another”. Cronbach’s alpha for this scale was .84.

In addition, previous studies (Adkins, 2004; Kember et al., 2000; Rigolizzo & Zhu, 2020) have indicated that reflective learning may differ across age, gender, and education level. For example, Kember et al. (2000) found that postgraduate students engage in more reflective learning than undergraduate students. Adkins (2004) posited that men and women differ in relation to reflection habits. In line with this scholarly literature, we controlled for the demographic variables of age, gender, and education level at the individual level. Besides, we also controlled for team size at the team level and organization (coded as dummy variables and included as fixed effects at the team level to represent between-organization differences) in the multilevel analyses.

Data Analyses

Data screening. We first checked careless responding (e.g., completing the survey too fast or indicating the same response to all questions). We did not find any respondents who had massive missing data or answered all the items with the same response in the survey; thus, careless responding was not a serious concern in this survey study. Next, 44 individual responses were missing across the two waves of data collection (attrition rate of 22.11%). We conducted *t*-tests on proactive personality and perceived team task support (at the individual level) among the 44 respondents who only answered the first questionnaire and the 155 respondents who provided responses to both questionnaires. The results did not show any significant difference on either proactive personality (t = 1.81, p = .08) or perceived team task

support (t = .84, *ns*). To some extent, this ruled out the concern of self-selection bias in our survey study and provided some evidence that data are not missing systematically.

Measurement model. We conducted confirmatory factor analyses using LISREL 8.8 to test the three-factor structure (proactive personality, team task support, and reflective learning) of the hypothesized model. The formulation of the items and the item loadings of the measurement model are presented in Table 1. To test the fit between the model and the data, the chi-square value (χ^2), the goodness-of-fit index (GFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) were calculated. As a rule of thumb, a GFI > .90, a RMSEA < .05 and a SRMR < .08 indicate a reasonable fit between the model and the data (Hu & Bentler, 1999). The results showed that the hypothesized model yielded satisfying fit statistics: χ^2 (df = 160) = 187.00, *ns*, GFI = .91, RMSEA = .03, SRMR = .07. In addition, we tested two alternative models to compare for possible model improvement. First, we tested a two-factor model in which all the items of proactive personality and team task support loaded onto one factor and all the items of reflective learning loaded onto another. This produced a poor model fit, χ^2 (df = 162) = 464.52, p < .001, GFI = .76, RMSEA = .11, SRMR = .15. Second, we tested a single-factor model that encompassed all items. This model again yielded a poor fit: χ^2 (df = 163) = 696.47, p < .01, GFI = .68, RMSEA = .15, SRMR = .17. Based on these comparisons, we decided to retain the hypothesized measurement model and used it in all subsequent analyses.

Insert Table 1 about here.

Data aggregation. Team task support and team emotional support were measured at the individual level but conceptualized at the team level in this study. We aggregated the

individual members' responses for these two measures to the team level (to index team properties). The median r_{wg} value was .84 for team task support and .73 for team emotional support. They appeared to be higher than the cut-off value of .70 (LeBreton & Senter, 2008), suggesting that the participants' responses within a team were highly consistent with each other. The ICC_1 value was .18 for team task support and .10 for team emotional support, which was above or equal to the cut-off value of .10 (Bliese, 2000), suggesting that there was enough variance that could be explained by team membership. The ICC_2 value was .48 for team task support and .32 for team emotional support, which is below the cut-off value of .70 (Bliese, 2000), suggesting that the average scores on the aggregated variables may not be reliable. However, as ICC_2 is highly influenced by team size (Gong, et al., 2009), the small average team size of 4.2 in our case was the most likely explanation for these two low values. Multiple studies have suggested that ICC_2 values greater than .25 are still acceptable in cases where high r_{wg} and ICC_1 values are observed (e.g., Dietz, et al., 2015; Dong, et al., 2015). These criteria justified the data aggregation for team task support and team emotional support.

Multilevel analyses. Our theoretical model concerns a nonlinear relationship between proactive personality and reflective learning at the individual level and a cross-level moderating effect of team task support on this nonlinear relationship. Following the examples set by Aguinis, et al., 2013), we used SPSS 24 Mixed Models for the multilevel analyses. We started with an empty model (Null model, see Step 1) in which none of the control variables and predictors were included. In Step 2, we tested the random intercept and fixed slope model by including the three predictors (the linear and quadratic components of proactive personality, labeled as PP and PP^2, and team task support, labeled as TTS) and the control

variables[1] (at the individual level: age, gender and educational level; at the team level: team size, organization as dummy variable, and team emotional support). In Step 3, we tested the random intercept and random slope with the same parameters as in Step 2. Finally, we added the interaction term (PP * TTS) into the model and tested the cross-level effect in Step 4 (see Table 3). We only included the first-order interaction term of proactive personality and team task support, as we assumed that the shape of the curve for proactive personality would be similar rather than opposite under different conditions of team task support. Proactive personality was group-centered, and team task support and team emotional support were centered on the grand mean (Aguinis et al., 2013).

Results

Descriptive Statistics

Table 2 presents the means, standard deviations, and correlations among all model variables at the individual level. Gender was negatively related to proactive personality (r = -.17; p < .05), indicating that male employees had a stronger proactive personality in comparison with their female counterparts. Education level was positively related to reflective learning (r = .26; p < .01), suggesting that the higher the education level employees have, the more reflective learning they are engaged in. Proactive personality was positively related to reflective learning (r = .36; p < .01) as was team task support as perceived by team members (i.e., measured at the individual level) (r = .17; p < .05). In addition, team task support and team emotional support at the individual level were positively correlated (r = .70; p < .01).

Insert Tables 2 and 3 about here.

[1] Due to the small sample size, we added one demographic control variable each time in the series of analyses. Only education level appeared to be significantly related to reflective learning (see the results in Table 3). We also ran the model without the control variables, and the results were essentially identical. In case anyone is interested in the effect of other control variables, please contact the first author for detailed information.

Hypothesis Testing

Table 3 presents the results of different models for hypothesis testing. Hypothesis 1 states a nonlinear relationship between proactive personality and reflective learning. The results showed a model fit improvement ($\delta\chi^2$ = 424.14 - 416.57 = 7.57; *df* = 2; $p < .05$) from the random intercept and fixed slope model (Step 2) to the random intercept and random slope model (Step 3). We then decided to use the coefficients in Step 3 to intercept the effects of proactive personality. In Step 3, both the first-order component of proactive personality (PP) (γ_{20} = .35, $p < .05$) and the second-order component of proactive personality (PP^2) (γ_{20} = -.13, $p < .05$) showed a significant effect on reflective learning. As noted, the first-order component (PP) had a positive value, and the second-order component (PP^2) had a negative value, indicating "a predominantly positive and concave downward curve" (Aiken, et al., 1991, p68) and suggesting that reflective learning will first grow stronger as proactive personality approaches a higher level until it reaches the maximum at the point where the value of proactive personality is about 6.25, which is about one standard deviation above the mean for proactive personality (mean = 5.20; *SD* = .90). After this point, even if the levels of proactive personality continue to rise, reflective learning ceases to further grow. In other words, any increase in proactive personality above the value of 6.25 does not lead to a further increase in reflective learning.

Hypothesis 2 proposes a cross-level effect of team task support on the nonlinear relationship between proactive personality and reflective learning. In Step 4, when the interaction term was included in the model, the model fit showed an improvement ($\delta\chi^2$ = 416.57- 412.33 = 4.24; *df* = 1; $p < .05$). The first-order interaction term of proactive personality and team task support had a significant effect on reflective learning (γ_{22} = -.14, $p < .05$), suggesting that team task support did not influence the shape of the curves—both are

"predominantly positive and mildly concave downward curves" (Aiken, et al., 1991, p68), but it had an influence on the overall trend of the curves at different levels of team task support.

We followed the procedure outlined by Aiken et al. (1991) to depict the interaction effect (Figure 2) and tested simple slopes of the regression curves for low (one standard deviation below the mean), medium (mean), and high (one standard deviation above the mean) levels of proactive personality under the conditions of weak (-1 *SD*) and strong (+1 *SD*) team task support. Under the condition of weak team task support (-1 *SD*), the simple slope of the regression curve showed a substantial positive value at the low level of proactive personality for reflective learning ($b = .76$, $p < .01$). At a medium level of proactive personality, this substantial positive value of the simple slope showed a decrease, yet it still remained positive and significant ($b = .52$, $p < .01$). At a high level of proactive personality, the value of the simple slope decreased again and still remained positive, but it no longer significantly differed from zero in statistics ($b = .27$, $p = .12$). All in all, when team task support was low, the simple slopes decreased from .76 to .52, then to .27 and a significant change occurred from medium to high levels of proactive personality.

In the condition of a high level of team task support, the simple slope of the regression curve had a positive value at a low level of proactive personality for reflective learning ($b = .34$, $p < .05$). At a medium level of proactive personality, the simple slope decreased and still remained positive, but it was nonsignificant (it did not significantly differ from zero) ($b = .19$, $p = .08$). At a high level of proactive personality, the simple slope decreased again and became negative and nonsignificant (not significantly differing from zero) ($b = -.05$, $p = .80$). These results mean that when team task support was high, the simple slopes indicating the relationships between proactive personality and reflective learning changed in the same direction as when team task support was low (the values dropped from .34 to .19 and then to -

.05). However, a significant change occurred from low to medium levels of proactive personality.

Altogether, in line with Hypothesis 2, the simple slope tests show that the curves were similar in shape when team task support was high as when it was low. However, the effect of proactive personality on reflective learning changed significantly from medium to high levels of proactive personality when team task support was low; in comparison, the effect of proactive personality on reflective learning changed significantly from low to medium levels of proactive personality when team task support was high.

Additional Analysis

We also explored the second-order interaction terms (PP^2 * TTS) on reflective learning as an extra analysis using an additional step. The results showed a nonsignificant effect of this second-order interaction term (γ_{22} = .05, *ns*). There was no significant improvement regarding the model fit ($\delta\chi^2$ = 412.33 - 415.27 = -2.94; *df* = 1; *ns*). This additional analysis confirms that the nonlinear effect of proactive personality cannot be explained as an inverted U-shape.

Insert Figures 2 about here

Discussion

As the nature of work is changing and becoming more complicated at an ever-increasing rate, professionals have to deal continuously with issues at the workplace that are indeterminate and ill-defined. To be reflective and become a reflective practitioner is recognized as an important aim in training and education across many professions (Kember et al., 2000). Aligned with this trend, reflective learning is considered to be one of the most effective ways of learning for employees' workplace development and education (Reynolds,

2011), and it has become a hot research topic in management education and learning literature (Higgins, 2011). In this study, we first examined a nonlinear relationship between proactive personality and reflective learning and then investigated the moderating effect of team task support on this nonlinear relationship. The findings showed a nonlinear relationship between proactive personality and reflective learning, which indicates that proactive personality up to a high level (about one *SD* above the mean) can facilitate reflective learning. Over and above this level, the positive effect of proactive personality on incremental reflective learning fades away, or in other words, proactive personality ceases to facilitate further reflective learning. In addition, our findings confirmed the moderating effect of team task support. It seems that the nonlinear relationship becomes less salient when team task support is strong than when it is weak. Below we will first discuss the theoretical and practical implications of these findings and then point out some limitations of our study and provide recommendations for future scholarly work in this field.

Theoretical Implications

For the last two decades, research on reflective learning has adopted a phenomenography approach and used qualitative "asking" methodologies to study what and how learners reflect (e.g., Brockbank, et al., 2002; Mortari, 2012). It seems that the quantitative "testing" approach, which once dominated the research field of learning, has faded away. The move from testing to asking approaches has highlighted the meaning-giving process by learners (Van Manen, 2016) who "play" a central role in the system of reflexivity and learning. However, in our opinion, by using the asking approach, the nuances of individual differences and social contexts in learning may have lost their accuracy and exactness. By readopting the testing approach with a more refined research design and analyses, we were able to shed light on the complex interplay between individual differences and contextual cues in shaping reflective learning. The nonlinear relationship between

proactive personality and reflective learning and the cross-level effect of team task support substantiate that reflective learning has its interactive roots in individual differences and situational contexts and that the quantitative testing approach deserves more attention in studying employee reflexivity and workplace learning.

More specifically, the nonlinear relationship shown in our findings adds new perspectives to our understanding of the relationship between proactive personality and employee outcomes related to backward looking. Previously, these relationships have often been depicted via a linear model (e.g., Hetzner et al., 2012; Li et al., 2020), which suggests that the more pronounced a learner's proactive personality is, the more reflective learning they will take part in. The nonlinear relationship portrayed in our study suggests that past studies may have only detected part of the truth; thus, we may have to interpret the previous findings from a new perspective. According to our findings, the relationship between proactive personality and reflective learning is subject not only to situational contexts but also to employees' levels of proactive personality. One of the striking findings from our study is that as proactive personality reaches a high level, its association with reflective learning ceases to increase, and reflective learning reaches a plateau. A question therefore arises whether it is worthwhile to continue "pushing" employees with a high-level of proactive personality to further improve their reflective learning, given that they have already done quite well in reflective learning and the margin for a further increase is small? Our study cannot provide a clear answer to this question, but the reflective learning plateau for high level of proactive employees shown in our study deserves more attention in future studies.

In addition, the cross-level moderating effect of team task support adds to knowledge about the way in which team task support interacts with proactive personality in influencing employee outcomes. First, the cross-level moderating effect shows that at low or medium levels of proactive personality, the effect of proactive personality on reflective learning is

more positive when team task support is weak than when it is strong. This suggests that team task support complements the effect of proactive personality on reflective learning. This complementary view has been found in several empirical studies (Hirschfeld et al., 2011; McCormick et al., 2019; Yang et al., 2020). Together, it supports the theoretical arguments of Parker et al. (2018) that more autonomous and less institutionalized situations, for example, low levels of team climate (McCormick et al., 2019) or weak team task support in our study are more likely to activate proactive personality. It is worth noting that past research has depicted the complementarity between situational cues and proactive personality from a social interaction perspective (Grant et al., 2011; McCormick et al., 2019; Yang et al., 2020). For example, transformational leadership styles compensate for the effect of employees' proactive personality influencing their proactive behavior (McCormick et al., 2020). Our findings extend the view of complementarity from an information elaboration perspective (Drach-Zahavy, 2004). Future research may consider integrating the social interaction perspective with the information elaboration perspective to examine how proactive personality and situational cues complement each other to influence employee outcomes.

Second, at high levels of proactive personality, our results reveal that the positive effect of proactive personality on incremental reflective learning cease to increase, regardless of whether team task support is weak or strong. When interpreting this finding, we need to acknowledge the fact that reflective learning at the high level of proactive personality is already substantial (above 5.5 on the 7-point Likert scale as shown in Figure 1). To make a further increase in reflective learning would be very demanding. In addition, high-level proactive employees who are keen on taking in charge and making things happened are more likely to be future-oriented (Li et al., 2020). Thus, it might be that more time spent on reflective learning would take time away from engaging in those future-oriented cognitive and behavioral activities. Although our study cannot confirm these explanations, we strongly

encourage future research to carefully study reflective learning plateaus at high levels of proactive personality.

Practical Implications

Reflective learning has always been considered to be one of the most important styles of informal workplace learning (Runhaar et al., 2010). Our findings offer several suggestions for how to design an effective intervention plan for HR professionals, team leaders, and managers alike to facilitate employee reflective learning. First, the nonlinear relationship we reveal suggests that high levels of reflective learning are not always congruent with high levels of proactive personality. With this knowledge, organizations can have confidence in setting lower cut-off scores in selection/placement decision-making if they their focus is to increase reflective learning.

Second, the cross-level interaction effect suggests that at low or medium levels of proactive personality, team task support can somewhat complement the effect of proactive personality on reflective learning. This finding implies that an appropriate cut-off level for proactive personality may depend on whether a job incumbent has high or, alternatively, low levels of team task support. With high levels of team task support, the cut-off score for proactive personality can be set lower. By contrast, with low levels of team task support, the cut-off score for proactive personality needs to be set higher. For future research, greater attention should be given to analysis that determines appropriate cut-off scores for proactive personality.

Third, our findings suggest a reflective learning plateau for those with a high level of proactive personality. It seems that there is no substantial amount of additional reflective learning “left on the table” for proactive personality or team task support to show its impact. The implications for HR professionals and managers alike are whether it is worthwhile to continue “pushing” employees with a high-level of proactive personality to further improve

their reflective learning which has already reached a significantly high level. Alternatively, HR professionals may encourage those employees to engage in collective or group oriented reflective learning, which may stimulate them to share their reflections with other members and make a better use of their experiences and talents.

Limitations and Recommendations

Our study has several limitations. First, we conceptualized and measured reflection as a way of learning and did not touch upon the deeper level of critical reflection (Dyer & Hurd, 2016). More and more studies suggest that critical reflection may even have a more profound influence on employee outcomes. Future research should consider including such measures into research designs and check its association with individual differences and situational cues. Second, searching and processing information is used as one of the key arguments in building and developing our hypotheses. Although this is a novel perspective to understand the effect of proactive personality, we do not single out information searching and processing explicitly in our research design. We strongly encourage future scholarly work to include this element as a mediator at the research design stage, perhaps by using an experimental or longitudinal design, in order to empirically verify this novel perspective regarding information elaboration.

Third, we focused on the antecedents of employee reflective learning and paid less attention to the outcomes of employee reflective learning. Although we included employee self-report performance as a variable in our survey, we did not intend to use it as an outcome variable but rather as a measure to provide criterion-related validity for the scale of reflective learning. Future longitudinal work (e.g., autoregressive or using a cross-lagged model) where a wider range of employee outcomes, such as employee discretionary behaviors and employee well-being, are included could also be meaningful. This will not only provide more

tangible outcomes for reflective learning but also demonstrate the stability of the joint effect of proactive personality together with team task support.

Finally, we notice that all the items in Seibert et al.'s (2001) scale are positively worded and self-reported, which may have influenced participants' response style or bias. We checked the mean and the *SD* of proactive personality reported in Seibert et al.'s (2001) study (mean = 5.19; *SD* = .72) and confirmed that our findings (mean = 5.20; *SD* = .95) were not substantially different from theirs. Although this shows that Seibert et al.'s (2001) scale is quite reliable across studies, it will still be worthwhile for future research to use other scales to measure proactive personality to consolidate our findings.

Conclusion

Reflective learning allows employees to review routine practices, to criticize taken-for-granted assumptions, to think over the meaning of what has happened and its impact, and to come up with alternative solutions for the issues at hand. Using a questionnaire study, we examined the cross-level effects of team task support on the nonlinear relationship between proactive personality and employee reflective learning. Our findings showed that proactive personality had a positive effect on reflective learning at the low and the medium levels of proactive personality. At high-levels of proactive personality, this positive effect ceases to further increase and a reflective learning plateau becomes apparent. In addition, this nonlinear effect of proactive personality on reflective learning was stronger when team task support was weak than when it was strong. Overall, our study refines and updates the relationships between proactive personality, team task support, and employee reflective learning and opens a new debate about the joint effects of proactive personality and situational cues on reflective learning.

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Table 1.

Standardized Factor Loadings for the Measurement Model.

Factors and Associated Items	Loadings
Proactive Personality (Cronbach α = .91)	
1. I excel at identifying opportunities.	.83***
2. I am always looking for better ways to do things.	.82***
3. If I believe in an idea, no obstacle will prevent me from making it happen.	.77***
4. Wherever I have been, I have been a powerful force for constructive change.	.77***
5. I can spot a good opportunity long before others can.	.74***
6. I am constantly on the lookout for new ways to improve my life.	.73***
7. I love being a champion for my ideas, even against others' opposition.	.68***
8. If I see something I don't like, I fix it.	.67***
9. No matter what the odds, if I believe in something I will make it.	.66***
10. Nothing is more exciting than seeing my ideas turn into reality.	.64***
Team Task Support (Cronbach α = .89)	
1. My team members provide each other new perspectives and ideas.	.88***
2. My team members provide practical help to enable each other to do the job to the best of our ability.	.83***
3. Members in my team provide practical support.	.80***
4. We share information generally in the team, rather than keeping it to ourselves.	.72***

5.	In my team, everyone's view is listened to even if it is in a minority.	.68***
6.	My team critically appraises potential weaknesses in what it is doing in order to achieve its outcomes.	.50***
Reflective learning (Cronbach α = .86)		
When learning new things,		
1.	I often reflect on my actions to see whether I could have improved on what I did.	.92***
2.	I re-appraise my experience so I can learn from it and improve for my next performance.	.88***
3.	I like to think over what I have been doing and consider alternative ways of doing it.	.77***
4.	I sometimes question the way others do things and try to think of a better way.	.48***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. We included design-driven residual co-variances among some of the indicators to account for systematic influences which were not captured by the factor model (Cole, Ciesla, & Steiger, 2007). These included item facets related to proactive personality (4 and 5; 5 and 9; 1 and 6), team task support (1 and 2; 3 and 4) and reflective learning (1 and 2).

Table 2.

Means, Standard Deviations and Correlations of the Measured Variables at the Individual Level (n = 154)

	M	SD	1	2	3	4	5	6	7
1. Age	35.45	11.80							
2. Gender (female %)	50.50%		-.10						
3. Education	2.92	1.33	.19*	-.17*					
4. Tenure	2.20	.92	.44**	.04	.10				
5. Team Emotional Support	5.21	1.24	-.02	.02	-.06	.03			
6. Proactive Personality	5.20	.95	-.05	-.17*	.08	-.06	.04		
7. Team Task Support	5.53	1.05	.02	.11	.03	.04	.70**	.05	
8. Reflective Learning	5.34	1.01	-.08	-.10	.26**	.02	.06	.36**	.17*

Note. * $p < .05$; ** $p < .01$. Gender: 0 = Male; 1 = Female. Education level: 1 = General Certificate Secondary Education; 2 = A level; 3 = Technical or Vocational Training; 3 = Undergraduate; 4 = Postgraduate. Tenure: 1= less than 1 year; 2 = 1-5 years; 3 = 6-10 years; 4 = more than 10 year.

Table 3.

Cross-level Effect of Team Task Support on the Nonlinear Relationship between Proactive Personality and Reflective Learning

	Model			
Level and Variables	Null (Step 1)	Random Intercept and Fixed Slope (Step 2)	Random Intercept and Random Slope (Step 3)	Cross-level Interaction (Step 4)
Level 1				
Intercept (γ_{00})	5.34** (.09)	4.93** (.46)	4.92** (.44)	4.91** (.20)
Education (γ_{10})		.19** (.05)	.19** (.06)	.17** (.07)
Proactive Personality (PP) (γ_{20})		.34** (.08)	.35** (.08)	.40** (.09)
PP^2 (γ_{30})		-.11† (.06)	-.13* (.06)	-.15* (.06)
Level 2				
Team Emotional Support (TES) (γ_{01})		-.01 (.07)	-.01 (.07)	-.01 (.07)
Team Task Support (TTS) (γ_{02})		.13 (.11)	.12 (.10)	.13 (.09)
Cross-level interaction				
PP × TTS (γ_{22})				-.14* (.07)
Variance components				

Within-team (L1) variance (δ^2)	.89	.75	.73	.72
Intercept (L2) variance (τ_{00})	.12	.09	.08	.07
Slope (L2) variance (τ_{11})			.04	.02
Intercept-slope (L2) covariance (τ_{01})			-.03	-.02
Additional information				
ICC	0.12			
-2 Log Likelihood (FIML)	441.81	424.14**	416. 57*	412.33*
Number of estimated parameters	3	8	10	11
Pseudo R^2	0	.05	.03	.03

Note. Values in brackets refer to standardized errors. † $p < .10$. * $p < .05$. ** $p < .01$.

In addition to education, we also controlled for gender and age at the individual level and for team size and organization (coded as dummy variable) at the team level in the analyses. Due to the small sample size, the controls were added to the model one by one, but none of them showed a statistically significant effect. If anyone is interested in these results, please contact the first author of the study for detailed information.

Figures

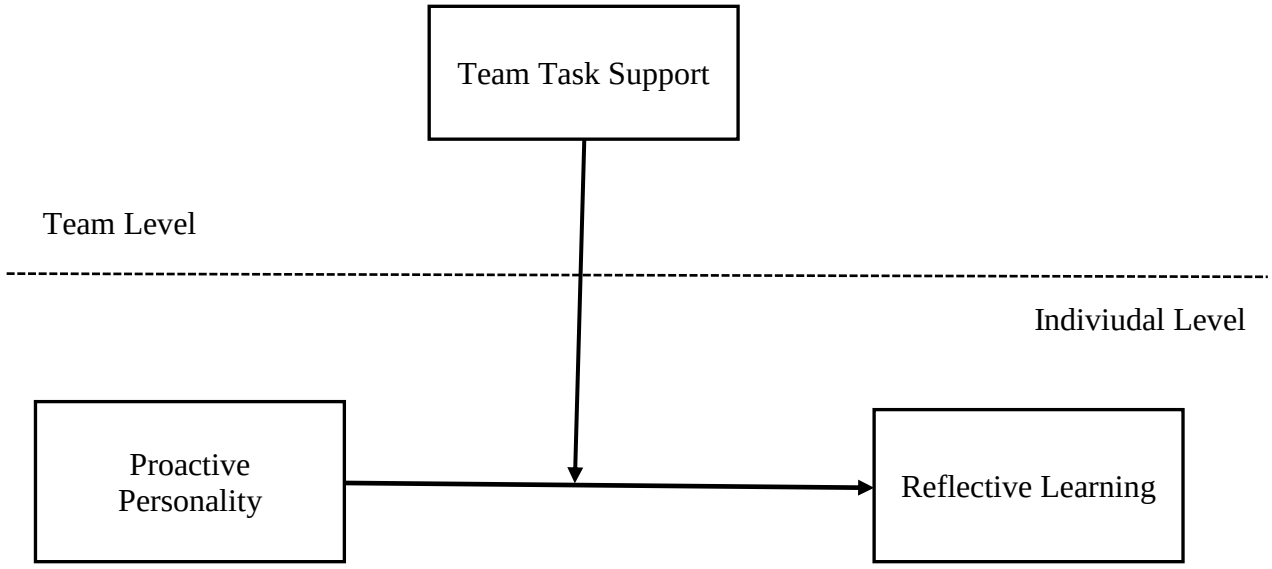

Figure 1: An Overview of the Theoretical Framework.

Figures

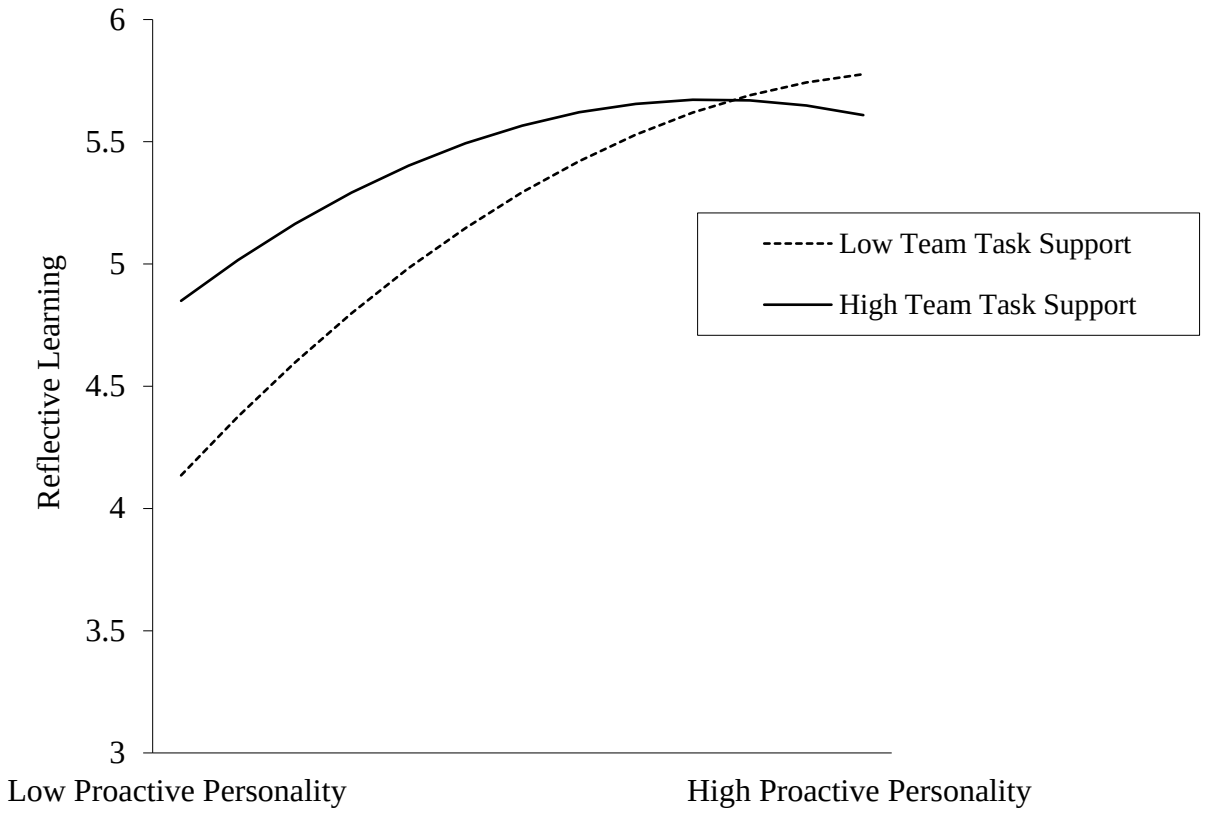

Figure 2: The Nonlinear Relationship between Proactive Personality and Reflective Learning under the Condition of Low versus High Team Task Support.