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The influence of physical education teachers' perceived organization support on innovation behavior: The mediating role of learning goal orientation

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Physical education teachers are the practitioners of physical education curriculum reform who work at the front line of teaching, and their innovation behavior play a crucial role in promoting the smooth implementation of physical education curriculum reform. This study uses goal orientation theory as a theoretical basis to explore the mediation effect of learning goal orientation in the influence of perceived organizational support on physical education teachers' innovation behavior. A total of 402 valid questionnaires were collected from physical education teachers in 40 schools at the basic education level in China, and the relationship between the variables was tested using structural equation modeling. The findings showed that physical education teachers' perceived organizational support had a positive effect on learning goal orientation and innovation behavior. Physical education teachers' learning goal orientation significantly influenced their innovation behavior. Additionally, learning goal orientation partially mediated the relationship between perceived organizational support and innovation behavior.

Key words: Physical education teachers, perceived organization support, learning goal orientation, innovation behavior.

INTRODUCTION

Physical education in schools is an important part of teaching and learning in basic education, and quality classroom teaching and learning are key to the overall development of quality education and core literacy for young people (Xiong et al., 2020). In the face of the frequent occurrence of mental health problems and the decline in physical fitness levels among Chinese adolescents, it is important to focus on the development of physical education in schools in order to effectively address this challenge (Hasanovna, 2023). Only by paying sufficient attention to the teaching of physical education in schools will it be possible to play a better nurturing role and fundamentally reverse the overall poor physical health of students (Kholmirzaevich, 2022). Physical education teacher are the implementer of physical education activities in schools, and their...
Qualifications, teaching behavior and innovation abilities are direct factors affecting the quality of school education (Behzad et al., 2018). Physical education teachers should make up for the shortcomings of students' physical health, through innovation teaching behavior, break with the existing way of teaching physical education in the physical education curriculum, and redesign the way physical education activities are carried out in schools with reference to the new requirements of "teaching, practicing and competing" (Expert Group, 2021). As the main subject of teaching activities, physical education teachers can only continue to meet the needs of teaching by changing their educational philosophy, improving their creative abilities and stimulating innovation behavior, thus stimulating students' interest in physical education, cultivating good exercise habits and promoting their healthy and harmonious physical and psychological development (Huang et al., 2019).

Teachers' innovation behavior is influenced by both personal and organizational factors, and the perceived organization support is an important environmental factor influencing teachers' innovation behavior (Abid et al., 2015; Nazir et al., 2019). Perceived organization support refers to teachers' perceived support for their work, interest in the school as an organisation, and agreement with their values, and has a positive impact on the development of teachers' innovation behaviour (Abid et al., 2015). When teachers feel supported in their work by the organisation, they will reciprocate by giving back to the organisation what they can do and what they have achieved, based on the principle of reciprocity (Bogler and Nir, 2012). Hosseini and Haghighi (2021) confirm that a perceived organization support has a direct impact on teachers' innovation behaviour, and that the stronger the perceived perceived organization support, the more committed teachers are to their work goals and the more likely they are to be motivated to innovate.

Innovation often arises from goal-directed behavioural processes and organisational factors can only be translated into positive behavioural outputs if teachers are motivated to learn by setting personal goals (Stephanie et al., 2007).

Goal orientation theory mainly explains the relationship between behaviour and goals, where teachers' innovation behaviour is influenced by personal goals and learning goal orientation plays an important role in influencing individual innovation behaviour (Kwon and Kim, 2020). Teachers with a learning goal orientation, who wish to acquire knowledge and skills that will inspire new behaviour to change outcomes, are more motivated to learn when faced with difficulties and see the problem to be solved as a challenge with the ultimate goal of solving it and promoting innovation behaviour (Chai et al., 2021). Therefore, teachers with a higher orientation towards learning goals are more likely to develop innovation behaviour (Runhaar et al., 2016).

Chen et al. (2018) linked the generation of innovation behaviour to goal-oriented theory, suggesting that the understanding of organizational environment and goal setting may be related to individuals' innovation behaviour.

Thurlings et al. (2015) noted that the supportive organisational environment helps teachers to develop learning goals, and that learning goal orientation helps teachers to be motivated, take risks and continuously gaining work experience to promote innovation behaviour. Chen et al. (2018) also confirmed that the emergence of learning goal orientation is influenced by the organisational environment, and that learning goal orientation mediates between the perceived organization support and innovation behaviour. Therefore, learning goal orientation can enhance teachers' innovation behavior through the perceived organization support.

Innovation behavior is an essential skill that contemporary teachers should possess, and not enough attention has been paid to the innovation behavior surrounding physical education teachers and the mechanisms of innovation within the innovation process (Hasanovna, 2023). This study explores the impact of physical education teachers' perceived organization support on innovation behavior based on goal-oriented theory, with a focus on learning goal orientation as a mediator. The aim of this study is to explore suggestions and measures to enhance PE teachers' innovation behavior, so as to further explore how to promote the production of PE teachers' innovation behavior through effective organizational management practices and provide suggestions for organizational innovation management.

**LITERATURE REVIEW AND RESEARCH HYPOTHESES**

**Perceived organization support and innovation behavior**

In a review of the literature on perceptions of organisational support and innovation behavior, it was found that as perceptions of organisational support increased, individuals performed better overall in terms of innovation (Amabile et al., 2004). Although many variables in the organization may have an impact on individual creativity and innovative behavior, the creative support, technical support and interpersonal support provided by the organization will increase the motivation of individuals to produce creative activities, and individuals with a high sense of organizational support are more likely to stimulate creativity (Mumford et al., 2002).

A perceived organization support is one of the most important factors in fostering good school-teacher relationships and plays an important role in increasing individual teachers' effectiveness and developing positive...
organisational behaviour (Nazir et al., 2019). Qi et al. (2019) found that individuals with a high level of organisational support showed high levels of higher levels of ownership and responsibility and high levels of self-worth. Supervisory support can stimulate innovative and transformative behaviour through intrinsic motivation. When organisations value the contributions of staff and meet their needs, it will increase the perceived organization support and organisations must increase their support for staff to enhance their perception of support and increase their potential for creative work (Akgunduz et al., 2018). Balkar (2015) through a study of teachers concluded that the stronger the organisational support felt by teachers is stronger, the more likely it is to stimulate teachers’ decision-making participation and performance and promote innovation behavior. It was inferred that the generation of innovation behavior is influenced by organisational factors and that the perception of organisational support positively influences teachers' innovation behavior. Thus, this study proposed Hypothesis 1 (H1) as follows:

H1: perceived organization support has a significant positive effect on physical education teachers' academic innovation behavior.

Perceived organization support and learning goal orientation

Learning goal orientation is a stable trait of individuals and the organisational environment has a direct effect on individual motivation (Wang and Takeuchi, 2007). The motivational structure within the organisation and the support for work can influence individual learning goal-directed behaviour, and a perceived organization support can have a positive effect on reinforcing learning goal orientation (Nederveen et al., 2013).

In a supportive environment, individuals' perceived organization support can positively influence individual learning goal orientation, which in turn promotes positive behavioural outcomes (Chen et al., 2018). Clement and Kamau (2018) stated that the satisfaction of individual needs is the core driver of intrinsic motivation of individuals, while organisational support is a prerequisite for the satisfaction of teachers' needs, and only when needs are satisfied will individual goal-orientation be motivated to emerge. Thus, this study proposed Hypothesis 2 (H2) as follows:

H2: There is a significant positive effect of perceived organization support on PE teachers' learning goal orientation.

Learning goal orientation and innovation behavior

Learning goal orientation influences knowledge acquisition and skill acquisition, innovation involves development and change within existing knowledge systems, and in order to be able to generate effective innovative ideas, individuals must continuously engage in learning processes to expand their knowledge to facilitate innovative ideas (Alexander and Knippenberg, 2014). Learning goal orientation, in which the goal is to acquire knowledge and skills and to improve one's ability to motivate new behavioural changes as a result of effort, plays an important role in influencing individuals' innovation behavior and performance (Cerasoli and Ford, 2014). When faced with difficulties, goal-oriented individuals are more motivated to learn and see the problem to be solved as a challenge, with the ultimate goal of solving it and promoting the target behaviour (Chai et al., 2021).

Innovation behavior is most likely to occur when individuals are motivated by all three internal factors of both process, skill and motivation. Runhaar et al. (2016) conducted a study on the effect of goal orientation on innovation behavior among 342 teachers at the Institute of Vocational Education and Training and suggested that learning goal orientation significantly influences teachers' innovation behavior and the stronger the motivation to learn, the more likely it is to motivate teachers' innovation behavior. Thus, this study proposed Hypothesis 3 (H3) as follows:

H3: Learning goal orientation has a significant positive effect on physical education teachers' innovation behavior.

Perceived organization support, learning goal orientation and innovation behavior

Goal orientation theory explains the relationship between perceived organization support, learning goal orientation and innovation behavior (Chen et al., 2018). In the process of goal orientation, individuals always want to receive valuable support from the organisational context in order to respond effectively to problems at work (Abid et al., 2015). According to Halbesleben et al. (2014), when individuals have more resources to support them, they are more inclined to engage in work in order to be more motivated to behave, and a higher perceived organization support means that individuals receive more support from the organization. This leads individuals to set challenging goals and to aspire to improve their abilities through learning in the process of challenging the unknown, which promotes motivation (Cerasoli and Ford, 2014). Therefore, a perceived organization support can positively contribute to an individual's orientation towards learning goals.

According to Stephanie et al. (2007), human behaviour is a continuous process of working towards a predicted goal; when we foresee the possibility of something, we desire to see it realized and act in a way that is consistent
with my desire to direct the course of events. According to Mesut (2012), teachers with a high goal orientation for learning usually set high goals, enjoy acquiring new knowledge, experience and skills in challenging tasks, are willing to experiment and make mistakes, and are able to think deeply and consistently, which promotes innovation behavior in individuals. Thus learning goal orientation is significantly and positively related to innovation behavior.

Based on the above discussion, this study proposes that learning goal orientation mediates the relationship between perceived organization support and innovation behavior, an idea that is not only consistent with the process of goal behaviour generation, but also with the logic of innovation behavior generation (Thurlings et al., 2015). The study by Chen et al. (2018) also confirmed that learning goal orientation partially mediates the effect between perceived organization support and innovation behavior. Thus, this study proposed Hypothesis 4 (H4) as follows:

H4: Physical education teachers’ learning goal orientation produces a mediation effect in the effect of perceived organization support on innovation behavior.

**MATERIALS AND METHODS**

**Research framework**

Based on goal orientation theory, this study aims to explore the impact of perceived organization support on physical education teachers’ innovation behavior and the mediation effect of learning goal orientation between perceived organization support and innovation behavior. The framework is shown in Figure 1.

**Participants**

The study was conducted with physical education teachers at the basic education level in China. The physical education teachers were selected from primary and secondary schools. In the pre-test stage, 200 questionnaires were distributed and 151 valid questionnaires were returned. The scale used in this study was tested to have good reliability and validity.

During the formal administration, a sample of 40 schools from Beijing, Shenyang, Shanghai, and Zhengzhou was selected for questionnaire distribution. In total, 440 teachers were surveyed, and 402 questionnaires were retrieved, resulting in a valid return rate of 91.36%. Among them, 183 were male teachers and 219 were female teachers; 147 were teachers with postgraduate degrees and 255 were teachers with undergraduate degrees or below.

**Instruments**

The current study adopted the perceived organization support scale developed by Tang and Hu (2017). The scale comprises of 27 items distributed across three dimensions, namely value identification, interest concern, and job support, using a 5-point Likert scale. In terms of the reliability analysis of the pre-testing scale, the Cronbach’s alpha was 0.974, which showed good reliability. Moreover, confirmatory factor analysis (CFA) was conducted to test the returned questionnaires. The factor loading for all questions in the survey recorded between 0.676 and 0.913. The construct reliability (CR) value of the scale between 0.870 and 0.937, exceeding the evaluative criteria of 0.60. The average variance extracted (AVE) value of the scale was 0.627, exceeding the evaluative criteria of 0.50. This indicates that the scale had a high level of construct validity and discrimination. As for the scale’s goodness of fit test, the results were as follows: χ²/df = 2.280, RMSEA = 0.043, SRMR = 0.034, GFI = 0.932, AGFI = 0.930, NNFI = 0.958, IFI = 0.962, NFI = 0.934, CFI = 0.962, which shows that the scale had a satisfactory goodness of fit (Watkins, 2018).

The learning goal orientation scale, comprising of 5 items, proposed by Leugn et al. (2012), was adopted for estimating learning goal orientation, using a 6-point Likert scale. The reliability analysis shows that Cronbach’s alpha was 0.878. In terms of CFA, the factor loadings of all questions were recorded between 0.704 and 0.835, with a CR of 0.876 and an AVE of 0.587. This indicates that the scale had a high level of construct validity and discrimination. The results were as follows: χ²/df = 4.295, RMSEA = 0.069, SRMR = 0.019, GFI = 0.988, AGFI = 0.964, NNI = 0.980, IFI = 0.990, NFI = 0.987, CFI = 0.990, which shows that the scale had a satisfactory goodness of fit.

This study adopted the innovation behavior scale developed by Scott and Bruce (1994), which comprises 6 items and uses a 5-point Likert scale. The reliability analysis shows that Cronbach’s alpha was 0.990, which shows that the scale had a satisfactory goodness of fit.
Table 1. The AVE and correlation coefficients of all variables (N = 402).

<table>
<thead>
<tr>
<th>Path</th>
<th>M</th>
<th>SD</th>
<th>POS</th>
<th>LGO</th>
<th>IB</th>
</tr>
</thead>
<tbody>
<tr>
<td>POS</td>
<td>3.711</td>
<td>0.748</td>
<td>0.792</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LGO</td>
<td>4.831</td>
<td>0.948</td>
<td>0.502***</td>
<td>0.766***</td>
<td></td>
</tr>
<tr>
<td>IB</td>
<td>3.934</td>
<td>0.726</td>
<td>0.547***</td>
<td>0.491***</td>
<td>0.766***</td>
</tr>
</tbody>
</table>

POS=perceived organization support; LGO=learning goal orientation; IB=innovation behavior.

Square root of AVE (average variance extracted).

***p < 0.001.

Source: Authors

Table 2. Path coefficients for structural equation models.

<table>
<thead>
<tr>
<th>Path</th>
<th>β</th>
<th>SE</th>
<th>C.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>POS→IB</td>
<td>0.506***</td>
<td>0.068</td>
<td>6.599</td>
</tr>
<tr>
<td>POS→LGO</td>
<td>0.603***</td>
<td>0.081</td>
<td>9.280</td>
</tr>
<tr>
<td>LGO→IB</td>
<td>0.261***</td>
<td>0.047</td>
<td>3.967</td>
</tr>
</tbody>
</table>

POS=perceived organization support; LGO=learning goal orientation; IB=innovation behavior.

***p < 0.001.

Source: Authors

RESULTS

In terms of study results, the data were first tested for severe common method variance (CMV), followed by differential validity and correlation analysis, and finally an overall path model analysis.

Common method variance

This study used Harman’s single-factor test to examine the CMV. In this study, an unrotated principal component analysis of the data for all variable measure items yielded five factors with eigenvalues greater than one in the unrotated case, explaining a total of 58.855% of the variance; and the first factor explained 35.751% of the total variance, which did not exceed the 50% threshold, so it is presumed that the sample data did not have a serious CMV problem (Aulakh and Geneturk, 2000).

Relevant analysis and discriminant validity

In this study, correlation analysis and differential validity tests were conducted on the variables, and Pearson correlation coefficients were used to indicate the correlations between a total of three items: perceived organization support and learning goal orientation and innovation behavior, and the results are shown in Table 1. The correlation coefficients were 0.491 to 0.547, reaching a significance level of p < 0.001. The variables were moderately correlated and there was no co-linearity. The diagonal line is the square root of each factor AVE, whose values are all greater than the standardised correlation coefficients outside the diagonal line, so this study has good differential validity and is suitable for the next step of structural equation model testing and analysis.

Path analysis of the overall model

Firstly, a goodness-of-fit test of the overall model was performed, followed by a path analysis of the overall model for perceived organizational support, learning goal orientation, and innovation behavior. In terms of measures of absolute fit, the results are as follows: χ2/df = 1.514, RMSEA = 0.036, SRMR = 0.032, GFI = 0.961, AGFI = 0.945, NNFI = 0.982, IFI = 0.986, NFI = 0.959, CFI = 0.985. These results indicate that the model had a satisfactory goodness of fit (Watkins, 2018). As shown in Table 2 and Figure 2, physical education teachers perceived organization support can significantly and positively influence their innovation behavior (β=0.506, p<0.001), indicating that the stronger the physical education teachers perceived organization support, the
higher innovation behavior will be. Thus, H1 was supported.

Physical education teachers perceived organization support can significantly and positively influence their learning goal orientation ($\beta=0.603, p<0.001$), indicating that the stronger the physical education teachers perceived organization support, the higher learning goal orientation will be. Thus, H2 was supported.

Physical education teachers learning goal orientation can significantly and positively influence their innovation behavior ($\beta=0.261, p<0.001$), indicating that the stronger the physical education teachers learning goal orientation, the higher innovation behavior will be. Thus, H3 was supported.

**Mediating effect**

Based on Shrout and Bolger (2002) recommendations, a Bootstrap sampling method with 5,000 replications was used to test the impact of learning goal orientation in the perceived organization support on innovation behaviour. The procedure involves resampling which results in the mean value and the 95% confidence interval of the mediation effect. If the 95% confidence interval of the mediation effect does not include 0, it indicates that the mediation effect reaches the significance level of $p < 0.05$.

As shown in Table 3, Among the indirect effects, the indirect effect of learning goal orientation between perceived organization support and innovation behavior was 0.158, while the confidence interval, with the 95% confidence interval (0.085, 0.252) did not include 0, indicating a significant indirect effect ($p < 0.05$). In other words, physical education teachers’ perceived organization support can promote innovation behaviour by enhancing learning goal orientation, validating the partial mediation effect of learning goal orientation.

**Table 3.** Bootstrap SEM analysis of total, direct, and indirect effects.

<table>
<thead>
<tr>
<th>Effect</th>
<th>Estimate</th>
<th>Bootstrap 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LLCI</td>
</tr>
<tr>
<td><strong>Direct effects</strong> POS→IB</td>
<td>0.506***</td>
<td>0.378</td>
</tr>
<tr>
<td><strong>Indirect effects</strong> POS→LGO→IB</td>
<td>0.158***</td>
<td>0.085</td>
</tr>
<tr>
<td><strong>Total effects</strong></td>
<td>0.664***</td>
<td>0.583</td>
</tr>
</tbody>
</table>

POS=perceived organization support; LGO=learning goal orientation; IB=innovation behavior. **$p < 0.001$.**

Source: Authors
between perceived organization support and innovation behaviour. Therefore, H4 was supported.

DISCUSSION

The results of this study found that perceived organization support has a significant positive effect on creative behaviour, which is consistent with the findings of previous studies by Nazir et al. (2019) and Choi et al. (2021). It suggests that when organizations provide more job support and need satisfaction to staff, it increases individuals' perceptions of organisational support, and based on the organisational exchange principle, the perceived job support increases the motivation to generate creative activities, thus stimulating innovation behavior through support (Qi et al., 2019). In their study on the mechanism of the role of innovation behavior of sports coaches, Qiu and Liu (2018) pointed out that the stronger the organisational support felt by coaches, the more likely they are to stimulate a sense of individual ownership and enhance their learning ability, thus promoting innovation behavior.

A perceived organization support has a significant positive effect on learning goal orientation, in line with previous research (Nederveen et al., 2013; Cai and Wen, 2018). Clement and Kamau (2018) state that the organisation's satisfaction of individual needs at work is a core driver of intrinsic motivation for individuals, and that organisational support is a prerequisite for meeting teachers' needs. Only when needs are met will individuals be motivated to be goal-oriented. Learning goal orientation is a stable trait for individuals to develop their abilities, and a perceived organization support has a positive effect on strengthening learning goal orientation (Halbesleben et al., 2014). It suggests that individuals with a strong perceived organization support tend to have a higher learning goal orientation, and that the support of these material and social resources can stimulate intrinsic motivation to learn and improve their abilities in the process of constantly challenging the unknown (Chen et al., 2018).

Learning goal orientation has a significant positive effect on innovation behavior, in line with previous research (Shabbir and Malik, 2021). Individuals with a learning goal orientation aim at self-development, and when faced with difficulties, individuals with a higher learning goal orientation are more motivated to learn, see the problem to be solved as a challenge, and ultimately aim to promote the target behaviour (Chai et al., 2021). In the process of innovation, individuals who hold a higher learning goal orientation are more motivated to learn and want to improve their abilities in order to promote innovation behavior (Zhou, 2021). The findings illustrate that an individual's orientation towards learning goals, a process that integrates individual affective behaviour and individual cognition, is an important factor influencing individual creative behaviour (Shabbir and Malik, 2021).

The results of this study found that learning goal orientation partially mediation effect between perceived organization support and innovative behavior, similar to the results of previous studies (Thurlings et al., 2015; Chen et al., 2018). Research findings confirm that individuals with a high learning goal orientation like to make bold breakthroughs, usually set high goals, enjoy the constant acquisition of new knowledge, experience and skills in challenging tasks, they are willing to try and make mistakes, and are able to think deeply and consistently, and these traits promote innovation behavior (Thurlings et al., 2015). The emergence of innovative outcomes for teachers is necessarily influenced by autonomous cognitive processes, and positive behavioural outputs can only be obtained if the environmental support provided by the organisation is translated into personal goals (Qi et al., 2019). Cai and Wen (2018) confirmed that when teachers who hold a learning goal orientation receive effective feedback, value affirmation and job support from the organisation, they are clearly motivated to achieve their goals and thus put more effort into achieving their task goals and promote innovation behavior. Therefore, organisational factors can be used to meet the autonomy needs of physical education teachers and stimulate intrinsic motivation to improve their abilities through learning, which in turn translates into innovation behavior (Kholmirzaeivich, 2022), the mediation effect of learning goal orientation between perceived organization support and innovation behavior.

Conclusion

This study developed a mediation model to explore the effect of physical education teachers' sense of organizational support on their innovation behavior. The results showed that PE teachers' perceived organization support had a significant positive effect on their innovation behavior, and that learning goal orientation partially mediated the relationship between PE teachers' perceived organization support and their innovation behavior. Specifically, PE teachers' perceived organization support had a positive influence on their learning goal orientation and innovation behavior, learning goal orientation could indirectly influence their innovation behavior through their perceived organization support, and the partial mediation effect of PE teachers' learning goal orientation between their perceived organization support and innovation behavior was confirmed.

In order to stimulate the innovation behavior of PE teachers, schools should actively explore the organizational support needs of PE teachers, build a working environment of innovation support, clarify the development goals and core culture of the school, improve the spiritual motivation of teachers and mobilise
innovation. In the management process, leaders are not only concerned with the performance of PE teachers, but also need to help teachers in their lives and emotionally, giving them a good working environment so that they can experience that the organisation is always concerned with their emotional needs and the realization of their personal values, thus creating a sense of belonging to the organisation and a sense of identity with their profession, which in turn stimulates learning goal orientation, promotes innovation behavior.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES


