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Unpacking the link between principals' Transformational Leadership and Social Science teachers' Constructivist Instructional Practices in High School

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ABSTRACT

Purpose of the study: This study examined the direct relationship between principals' transformational leadership on social science teachers' constructivist instructional practices among high school teachers in Cambodia. It aims to determine how the four dimensions of transformational leadership predict specific social science constructivist instructional practices such as teachers' autonomy support, teachers' support and feedback, and cooperative learning which addressing critical literature gap on leadership and social science education.

Methodology: The research employed a quntative design via adapted questionnaires administered to 615 social science teachers across 39 Cambodian high schools in 10 provinces. To ensure robust results, the study utilized a series of statistical techniques which included comfirmatory factor analysis for validity, reliability analysis, birvariate correlations, and multiple regression analysis to examine how transformational leadership dimensions predict various subscales of constructivist instructional practices.

Main Findings: The analysis revealed that all four transformational leadership dimensions significantly and positively predicted social science teachers' constructivist instructional practces, explaining 27% to 38% of the variance. Notably idealized influenceemerged as the strongest predictor, (highlighting the principals'role as an ethical role model). Ultimately, transformational leadership fostered a collaborative environment that encouraged social science teachers to embrace student centered strategies in term of teachers' autonomy support, teachers' support and feedback, and cooperative learning techniques in their classrooms.

Novelty/Originality of this study: This study provides rare empirical evidence directly linking transformational leadership to social science teachers' constructivist instructional practices within the specific context of secondary education in Cambodia. By identifying idealized influence as a primary driver for student-centered teaching. It offers unique cultural insights and practical implications for school leadership development aimed at modernizing spcial study instruction and strengthening critical thinking and civic teaching readiness.

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1. INTRODUCTION

Secondary and upper secondary education stands at the forefront of preparing adolescents for higher education, careers, and active citizenship in an increasingly complex and rapidly changing world [1], [2]. Within this context, social science education plays a uniquely vital role. As a multidisciplinary field encompassing history, geography, economics, civics, sport education and home education, social science aims to develop students' critical thinking, civic competence, and ability to analyze complex social phenomena [3], [4] . However, many education systems face challenges in fostering innovative teaching and deep student engagement in social science classrooms. Traditional methods often dominate, limiting deeper engagement and 21st-century skill development [5] despite evidence that more student-centered approaches yield better outcomes in critical thinking, problem-solving, and long-term retention [6]-[8]. In social science specifically, constructivist approaches have proven particularly effective because they enable students to interrogate multiple perspectives, analyze primary sources, debate social issues, and co-construct knowledge about societal structures [9], [10].

To make improvements, teachers need principals who support them directly and indirectly because principals serve as pivotal instructional leaders, shaping school culture and teacher practices through their approaches [11], [12]. Transformational leadership, which focuses on inspiring a shared vision, stimulating intellectual curiosity, providing individualized support, and modeling excellence, has proven powerful in boosting teacher motivation, commitment, innovation, and overall school improvement [13] . This leadership style naturally aligns with social science constructivist instructional practices, where teachers facilitate active learning, student inquiry, collaboration, and knowledge construction based on prior experience rather than merely transmitting information [14]. In social science classrooms, such methods enhance student engagement, critical analysis of social issues, perspective-taking, and real-world civic readiness [15], [16].

Despite clear potential links, few studies directly explore how principals' transformational leadership drives the adoption of constructivist instructional practices among high school social science teachers. While research has highlighted transformational leadership's benefits for teacher efficacy, satisfaction, and innovative behaviors [17], [18], and separate work underscores constructivism's advantages for learning outcomes in social studies [19], [20], integrated examinations in secondary social science settings remain scarce. Existing studies often treat these elements in isolation or outside high school contexts. Moreover, specific instructional strategies essential to social science education—such as facilitating discussions of controversial social issues, guiding analysis of social phenomena, and implementing problem-based learning about community problems—have rarely been linked to leadership behaviors.

This study bridges the gap by examining the relationship between principals' transformational leadership and social science constructivist instructional practices among high school social science teachers. By revealing how transformational leadership fosters innovative, student-centered teaching in social science classrooms, the findings promise to equip school leaders with strategies to cultivate dynamic social studies instruction, empower teachers, and build more effective, future-ready high schools that prepare students for democratic citizenship and critical engagement with society.

Transformational leadership (TL) which first introduced by Burns [21] as a process in which leaders and followers raise one another to higher levels of motivation and morality, was refined by Bass [22] into a measurable framework that enables followers to achieve extraordinary outcomes while developing their own leadership capacity. In school context, principals practicing transformational leadership act as inspirational change agents who move beyond transactional exchanges (reward and compliance) to create a compelling shared vision, build trust, and empower teachers to innovate and grow [23], [24]. Core characteristics of principals' transformational leadership serving as ethical role models, articulating optimism and purpose, challenging the status quo, and offering personalized mentoring [25], [26]. It refers to behavior that foster commitment, reduce burnout ,and spark professional enthusiasm [27].

Transformational Leadership did more than just make agreements or exchange with their followers. TL worked in way that create results by using one or more of the four main components of TL [27]. Over time, these components have been refined as scholar improve both the theoretical understanding and the measurement of transformational leadership [27], [28]. Conceptually, transformational leadership is often described as charismatic in nature. Followers identified strongly with the leader and attempt to emulate him or her. Such leaders motivated followers through inspiration and persuasive communication that provided both meaning and direction to their work [29]-[31]. They also intellectually stimulated followers by encouraging them to expand their abilities and apply their skills more effectively. *Idealized Influence:* Transformational leadership displayed behaviors that make them role models for their followers. They were admired, respected and trusted [32], [33]. Followers identified with these leaders and aspire to emulate them. Leaders were perceived as having exceptional abilities, strong commitment, and determination [34]. Idealized influence included two dimensions (the leader's actual behaviors and qualities attributed to the leaders by followers and others. These two subscales of idealized influence were measured separately in the multifactor leadership questionnaires (MQL) which reflected the interactive nature of idealized influence [35], [36]. Followers evaluated both what the leaders did and the quality they believed the leaders possessed. As we showed in MLQ, its items reflected idealized influence behavior was "the leader

emphasized the importance of having a shared sense of mission and the representing attributed of instills confidence that obstacles could be overcome" [22]. *Inspiration Motivation:*According to Bass and Avolio [29], transformational leadership behaved that inspired and energized those around them by providing meaning and challenge to followers' work. Leaders fostered team spirit, demonstrated enthusiasm and optimism, and involved followers in creating an appeal vision of the future. These leaders clearly communicated expectations and expressed commitment to shared goals and vision [37]. In practice, idealized influence and inspirational motivation were often combined into a single charismatic factor [38]. This combined factor aligned closely with behaviors described in charismatic leadership theory. *Intellectual Stimulation:* Transformational leadership encouraged innovation and creativity by challenge assumptions, reframing problem, and approaching old situations from new perspectives. Leaders stimulated followers to think independently and critically [39], [40]. Rather than criticized mistakes publicly, they encouraged creative problem solving and invited new ideas. Followers were actively involved in identifying problems and generating solutions [36]. Leaders were supported in exploring new approaches, even when their ideas differed from those of the leaders. It was reflected that leaders with intellectual stimulation encouraged others to look at problems from many different angles. *Individualized Consideration:* Transformational leadership provided personalized attention to each follower's needs for growth and achievement. They often acted as mentors or coaches. Leaders helped followers developed their potential and reach higher levels of performance [35]. Individualized consideration was demonstrated by creating supportive environments and recognizing individual differences [35], [41]. So, some followers may require more encouragement, others greater autonomy, stricter standards, or more structure tasks [42], [43].

These leaders promoted two-way communication and practice close engagement with followers, often through direct interaction in the workplace [44], [45]. Leaders remembered past discussions, remained aware of personal concerns, and treated followers as individuals rather than merely as employees [46], [47]. Attentive listening was a key behavior. Leaders assigned tasks strategically to support development and monitor progress to determine whether additional guidance or support was needed. However, leaders ensured followers did not feel excessively supervised.

Applying transformational leadership to high school, principals required acknowledging the unique complexity of the secondary education environment. High school are characterized by larger student bodies, departmentalized structures, and heightened academic and social pressure associated with adolescence. Consequently, the managerial approach often sufficed for routine operations but failed to drive school improvement. Research suggested that transformational leadership was particularly effective in high schools because it addressed the need for cultural cohesion amidst departmental silos [48]. A transformational leadership leadership for high school principals did not merely enforce policy but cultivated a professional learning community where teachers felt empowered to innovate pedagogical strategies [49], [50]. This contextual application shifts the principal's role from a bureaucratic supervisor to an instructional leader who aligns the school 's mission with the developmental needs if young adults.

The most significant body of literature regarding transformational leadership in education focuses on empirical evidence linking principal leadership to critical organization and student outcomes. Extensive quantitative and qualitative research has established that does not directly impact student achievement but rather exerts a strong indirect effect through mediating variables. A seminal meta-analysis by Leithwood and Jantzi [51] reviewed 50 studies and concluded that transformational leadership explained a significant variation in student engagement and achievement, primarily by influencing school conditions. Specifically, empirical studies had consistently correlated transformational leadership with teacher efficacy and job satisfaction. Griffith [52] found that principals exhibiting transformational leadership behaviors significantly predicted higher levels of teacher commitment and lower rates of burnout. This finding also suggested that transformational leadership acted as a buffer against the stresses of the teaching profession. Furthermore, research by Keravnos, et al. [53] highlighted the relation between transformational leadership and school trust. Principals who demonstrated individualized consideration fostered higher level of faculty trust which in turn facilitated collaborative work culture. Whereas the longitudinal studies such as those by Day, et al. [54] reinforced these findings by demonstrating that successful school overtime were led by principal who sustained transformational leadership practices that improved the quality of teaching and learning.

Constructivist instructional practices (CIP) which also referred to as constructivist pedagogy or constructivist teaching, represent a learner-centered approach to education grounded in premise that knowledge was actively constructed by learners rather than passively received from external sources [19], [20], [55], [56]. This epistemological perspective marked a fundamental shift from traditional transmission models of teaching that positioned students as active agents in their learning process who build understanding through experiences, reflection, and social interaction [57], [58].

The theoretical foundations of constructivist instructional practics were characterized by several interrelated principles. First, learning was viewed as an active process wherein students engaged with content through problem-solving, inquiry, and discovery rather than rote memorization [59]. Second, Knowledge construction was inherently social; collaborative learning, dialogue, and peer interaction were essential mechanism

through which understanding was negotiated and refined [60]. Third, learning was situated in authentic contexts; task should reflect real-world complexity and relevance to promote meaningful learning and transfer [61]. Fourth, the teachers functioned as a facilitator or guide rather than a sole authority, scaffolding student learning through strategic questioning, modeling, and support that was gradually withdrew as competence increases [62]. Fifth, multiple perspectives and representations of content were presented to acknowledge the subjective nature of knowledge construction and to help students develop flexible understanding [63].

Although constructivist instructional practics encompassed a broad range of instructional strategies, this study focuses on three interrelated components: teacher autonomy support, teacher support and feedback, and cooperative learning. These components were selected because they represented essential operationalizations of constructivist principles in classroom practice (e.g., learner agency, scaffolded guidance, and social interaction). Teacher autonomy support referred to instructional behaviors that nurture students' sense of volition and ownership over learning. Rooted in self-determination theory which developed by Edward L. Deci and Richard M. Ryan, autonomy support satisfied students' basic psychological need for autonomy, thereby enhancing intrinsic motivation [64]. Recent empirical studies (2015-2024) continue to demonstrate the robust effects of autonomy support teaching. Reeve and HyeonCheon [65] found that teachers trained in autonomy support practices significantly improved students' engagement and perceived competence. A longitudinal study by Cheon, et al. [66] further demonstrated that autonomy support interventions led to sustained increases in behavioral engagement and decreases in classroom disengagement. Meta-analysis research by Slemp, et al. [67] confirmed positive associations between autonomy supportive teaching and academic achievement, well-being, and self-regulated learning across educational contexts. These findings reinforced the compatibility between autonomy support and constructivist principles emphasizing learner agency. Teacher support and feedback constituted the second essential component of constructivist instructional practics. Teacher support and feedback consistent with Vygotskian scaffolding, teacher support involved in adaptive guidance tailored to students' developmental needs. Feedback, particularly formative feedback, was widely recognized as a powerful instructional influence. Building on earlier synthesis by Hattie [68] validated the importance of feedback quality. Wisniewski, et al. [69] in a large-scale meta-analysis, reported a substantial overall effect size for feedback on student achievement, particularly when feedback was task-specific and process-oriented. Additionally, Kleij, et al. [70] found that feedback interventions were most effective when they provided elaborated information rather than simple correctness judgement. Recent classroom-based studies Fong, et al. [71] showed that dialogic and reflective feedback enhanced metacognitive awareness and conceptual understanding, aligned with constructivist emphases on reflective thinking and cognitive restructuring. These contemporary findings confirmed that supportive and formative teacher feedback remained a central mechanism for promoting deep learning. The third component, cooperative learning, reflected the social constructivist dimension of constructivist instructional practics. Cooperative learning structured students' interactions to promote positive independence and collaborative problem-solving. Building upon fundamental work by Johnson and Johnson [72], recent research continued to document cooperative learning's effectiveness. A comprehensive meta-analysis by Alacapınar and Uysal [73] found that cooperative learning significantly improve academic achievement across disciplines and educational levels. Gillies [74] demonstrated that structured cooperative dialogue fostered high-order reasoning and exploratory talk among students.

Therefore, constructivist instructional practics represented a theoretically grounded and empirically supported framework for contemporary education. Drawing from the fundamental contributions of Piaget [75], Vygotsky and Cole [76], and Ryan and Deci [77] and supported by recent researches in motivation, feedback, and collaborative learning, constructivist instructional practics offers a comprehensive model for promoting meaningful, student-centered learning. The integration of teacher autonomy support, teacher support and feedback, and cooperative learning reflects core mechanisms through which constructivist principles translate into measurable education outcomes.

Transformational leadership was a widely studied leadership approach in educational research, conceptualized by Bass [22] as comprising four core dimensions (idealized influence, inspirational motivation, intellectual stimulation, and individual consideration) [78]. In school setting, principals' transformational leadership has been found to significantly shape school culture, teacher attitudes, and instructional practices [79], [80]. Research increasingly suggested that transformational leadership can promote constructivist instructional practics (teacher autonomy support, teacher support and feedback, and cooperative learning) by fostering climates of trust, innovation, and collaborative agency [67], [79].

When principals model behaviors aligned with constructivist values (such as respect for teacher initiative and openness to innovation), they cultivated trust and shared purpose among teachers. Research showed that transformational leaders who exhibited idealized influence enhanced teachers' intrinsic motivation and collective commitment that laid the psychological groundwork for teachers to embrace autonomy in professional practices [67], [81]. By foregrounding trust and shared mission, idealized influence enabled teachers to feel secure in taking pedagogical risks (such as implementing inquiry-based lessons or learner-centered assessments) without fear of reprisal. This sense of psychological safety was crucial for teacher autonomy support. As teachers with high trust

in leadership were more likely to independently design and adapt learning environments that aligned with constructivist principles [82].

School principal who effectively communicated a vision of student centered, inquiry-oriented education energized teachers and aligned instructional priorities with constructivist goals. A positive school vision that champions innovation encouraged teachers to take ownership of their instructional decision, thus directly supporting teacher autonomy [67], [81], [83]. Research in organizational and school contexts suggested that when transformational leaders fostered a shared sense of purpose, teachers were more willing to engage in self-directed professional development and to implement classroom practices that promoted student agency and choice [83]. Because autonomy was linked to intrinsic motivation [77], principals' inspirational motivation worked in tandem with constructivist goals by affirming teachers' professional judgement and encouraging the creative adaptation of instructional strategies to meet diverse student needs.

Intellectual stimulation aligned strongly with constructivist instructional practics, particularly in promoting reflective teaching, experimentation, and responsive feedback. Principals who challenged teachers to examine their instructional beliefs fostered a professional culture of continuous improvement where reflective feedback became normalized [81]. Scholars have argued that transformational leaders used intellectual stimulation to cultivate environments where teachers sought innovative solutions and engage in professional dialogue [67], [84]. In such environments, teachers were more likely to adopt constructivist practices such as formative feedback that nurtured students' thinking, and teacher support that scaffolded learning. By encouraging teachers to revisit assumptions and incorporate evident-based strategies, intellectual stimulation enhanced the quality of teacher support and feedback which made more responsive to student needs. Moreover, intellectual stimulation can foster a professional learning culture whereby teachers shared observation and co-construct instructional response.

On the other hand, in schools, principals who practiced individualized consideration recognized teachers as unique professionals with distinct strengths and challenges. This personalized attention can encourage collaboration and mutual support among teachers by modeling supportive interpersonal relationships and enhancing teachers' confidence in collaborative practices [81]. By providing tailors professional development and listening to teachers' instructional concerns, principals strengthen teachers' self-efficacy and interpersonal trust that are essential for effective cooperative learning among teachers within classrooms. Researches indicated that transformational leaders who value individual growth contributed to school cultures that prioritized shared learning, collegial reflection, and participative decision-making [83], [85], [86]. In environment of teaching, teachers were more likely to performance professional learning community and cooperative structure for planning and implementing constructivist instruction [87].

Empirical evidence supported the premise that transformation leadership can advance constructivist instructional practices. Studies indicated that transformational leadership positively influenced teacher autonomy by encouraging initiative and responsibility in teaching [88]. Meanwhile, Beverborg [89] suggested that transformational leadership enhanced information sharing and collective agency (both of which were aligned with cooperative learning). Additionally, studies on leadership and innovation, Heenan, et al. [81] demonstrated that principals who intellectually challenge and support teachers promoted environment in which teachers adopted reflective instructional strategies, including formative feedback and adaptive support practices.

Although previous research has demonstrated the role of school leadership in improving teaching and learning, few studies have focused on the relationship between principals' transformational leadership and social science teachers' constructivist instructional practices. Existing research on transformational leadership in education has focused on teacher outcomes such as job commitment, self-efficacy, organizational culture, and professional development rather than on teachers' specific instructional practices in social science. These studies rarely investigate how such leadership behaviors directly influence teachers' classroom teaching approaches, particularly constructivist instructional practices that emphasize student-centered learning, critical thinking about social issues, and active knowledge construction about societal phenomena. Like other educational processes, instructional practices are influenced by both organizational and individual factors. Leadership behaviors of school principals represent a key contextual factor that can shape teachers' beliefs, motivation, and instructional approaches. Transformational leadership, by fostering professional growth and encouraging innovation, may create a supportive environment that motivates teachers to adopt more student-centered and constructivist teaching strategies in social science. Examining the role of transformational leadership in relationship to social science teachers' constructivist instructional practices would provide a broader understanding of how principals' leadership contributes to instructional transformation in social studies education.

Furthermore, although the positive influence of transformational leadership on various teacher outcomes has been well documented, empirical studies directly linking principals' transformational leadership with social science teachers' constructivist instructional practices remain relatively limited. In many cases, instructional practices have been examined through general teaching effectiveness or traditional pedagogical frameworks rather than through a constructivist perspective specific to social science. As a result, the specific mechanisms through which transformational leadership may encourage the use of constructivist practices in social science classrooms (such as discussing social issues, analyzing social phenomena, and problem-based learning) have not been

sufficiently investigated. Additionally, research focusing on these variables within the high school social science context remains scarce in many educational systems, including Cambodia. High school social science teachers operate in environments characterized by curriculum demands, examination pressures, and diverse student needs, which may influence how instructional practices are implemented.

Accordingly, the present study examines the relationship between principals' transformational leadership and constructivist instructional practices among high school social science teachers. Specifically, it investigates whether principals' transformational leadership significantly predicts teachers' implementation of constructivist practices in social science classrooms. Based on theoretical assumptions and previous findings, the study proposes the following hypotheses:

- Idealized influence would have positively associated with teachers' autonomy support (H11), teachers' support and feedback (H12), cooperative learning (H13);
- Inspirational motivation would have positively associated with teachers' autonomy support (H21), teachers' support and feedback (H22), cooperative learning (H23);
- Intellectual stimulation would have positively associated with teachers' autonomy support (H31), teachers' support and feedback (H32), cooperative learning (H33);
- Individual consideration would have positively associated with teachers' autonomy support (H41), teachers' support and feedback (H42), cooperative learning (H43).

2. RESEARCH METHOD

2.1 Sample and data collection

The data for this study were collected from public high schools where were located in various provinces in Cambodia. A total 39 high schools participated. Convenience sampling was used in order to obtain a sample as large as possible within the participating high schools. Ethical data collection was prioritized in this research. Data were collected after permission was approved from Ministry of Education, Youth, and Sport (MoEYS), recognized by Provincial Department of Education, Youth, and Sport. The next step for gathering data was school contact. Schools were contacted through their principals. After receiving an approval, teachers were invited to participate voluntarily. In some schools, questionnaires were distributed during staff meetings, while in others an online link was shared via official communication channels or both means. Participation was voluntary and confidentiality of responses was emphasized in line with common ethical standards in education research [90]. Teachers were informed that the data would be used solely for research purposes.

The questionnaires were administered during the first semester of the academic year through hard copy and Google Form. In total, the sample consisted of 615 social scieence teachers. The teachers participated in this study: 51% were female and 49% were male. The average age was 42.21 year (SD = 8.22), with ages ranging from 23 to 60 years. Most teachers (68.35% had more than 10 years of teaching experience, while 17.75% had between 5 and 10 years of experience, and 7.45% had less than 5 years of experience. The majority were high school teachers (42.20%), and 57.80% were secondary school teachers. The social science teacher who participated in this study: teacher of Geography (18.90%), History (28.60%), Hoe Education (11.90%), Sport Education (13.80%), Morality and Civics (20.20%), Economics (6.7%).

2.2 Measures of the model variables

For this study, the constructs were measured using established and validated scales. Before that the translation and back-translation procedure recommended by Behling and Law [91] was employed to adapted all measurement scales into the Khmer language. This process was carried out collaboratively by the researchers and two bilingual Khmer lecturers. It began with the selection of the original English items for each subscale. These items were then carefully revised to ensure alignment with the conceptual definitions of the constructs, the linguistic proficiency of high school teachers, and the contextual realities of the Khmer educational environment. Following this initial adaptation, the revised English items were translated into Khmer by two bilingual lecturers. The Khmer versions were subsequently back-translated into English to evaluate their equivalence with the modifies original items. A comparison was conducted to determine whether the back-translation items preserved the intended meaning of each construct. Any discrepancies were discussed until consensus was reached regarding the final adapted version. Afte completing the adaptation process, the Khmer versions of the scales were piloted test with 33 secondary school teachers to examine clarity, relevance, and contextual appropriateness. The study employed a self-report survey method to measure high school teachers' perceptions of their principals' transformational leadership and the implementation of constructivist instructional practices.

2.2.1 Transformational leadership (TL)

Principals' transformational leadership was measured by using adapted version of the TL scale developed by previous researchers. Principals' transformational leadership was assessed through idealized influence,

inspirational motivation, intellectual stimulation, and individualized consideration. The scale consisted of four subscales: Idealized influence had five items. Four items were borrowed from Avolio and Bass [92] (e.g., "My principal respects and values me as a teacher.") and one item was borrowed from Ohunakin, et al. [93] (e.g., " My principal shows their recognition by supporting my teaching style."). Inspirational motivation had 5 items which were borrowed from Avolio and Bass [92] (e.g., "My principal encourage me to try new teaching methods to help improve student learning achievement."). Intellectual stimulation had five items which three items were taken from Leithwood and Jantzi [94] (e.g., "My principal provides ideas that help me improve my lessons to better adapt to students' learning needs.""), on item was taken from Wang and Howell [95] (e.g., "My principal encourages me to use creative teaching methods in the classes that I teach."), and another was adapted from Beveren, et al. [96] (e.g., " My principal supports me in experimenting and adapting with new teaching methods"). Individual consideration had five items which three items was a taken from [94] (e.g., " My principal works with me to set goals that improve my teaching and students' learning")., two items were borrowed from [92] (e.g., "My principal encourages me to set goals to learn new teaching skills"). Teachers rated their extent to which their principals demonstrated these behaviors on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

2.2.2 Constructivist Instructional Practices

Teachers' constructivist instructional practices were measured by using a validated instrument reflecting three dimensions: teacher autonomy support, teacher support and feedback, and cooperative learning. Teacher autonomy support had five items which were borrowed from Cabrera, et al. [97], Chan, et al. [98] (e.g., "I assign different types of research tasks so that students can choose any of them"). Teacher support and feedback had five items which were taken from Cabrera, et al. [97], Chan, et al. [98] (e.g., "I provides feedback that helps students understand the lesson better"). Cooperative learning had five items that were borrowed from Cabrera, et al. [97], Chan, et al. [98] (e.g., "I create opportunities for students to discuss ideas with one another in groups").These items were rated via a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

2.3 Analysis Procedure

To examine the relationships between principals' transformational leadership and teachers' constructivist instructional practices. Four types of statistical analysis were applied in this study: (i) confirmatory factor analysis (CFA) was performed to assess the construct validity of the adapted measurement scales within the study sample; (ii) the reliability of the scales using Cronbach's alpha coefficients; (iii) bivariate correlation analysis was carried out to examine the relationships among the study variables; (iv) assumption of regression analysis were assessed. Construct validity was assessed through both convergent validity and discriminant validity. Convergent validity was considered satisfactory when factor loadings were greater than 0.05, construct reliability (CR) was at least 0.70. and the average variance extracted (AVE) reached or exceeded 0.50 [99]. Discriminant validity was established when the correlations between constructs were lower than the square root values of their respective AVE [99], [100]. Discriminant validity was also supported when the AVE of each construct exceeded both the maximum shared variance (MSV) and the average shared variance (ASV) [99]. Model fit was evaluated using several commonly recommended indices. These includes the ratio of chi-square to degree of freedom (X^2/df), which was considered acceptable when it did not exceed 3; the comparative fit index (CFI) and Tucker-Lewis Index (TLI),which indicated good fit when values were greater than 0.92; the standardized root mean square residual (SRMR) which was acceptable when values were below 0.08, and the root mean square error of approximation (RMSEA) which indicated acceptable fit when values were below 0.07 [99], [101]. All CFA and regression analyses were conducted using Mplus version 7.11. Normality, linearity, homoscedasticity, and independence of errors were examined through residual plots and statistic tests. Multicollinearity was evaluated by using variance inflation factor (VFI) value, following guidelines that proposed by Cohen, et al. [102]. All values were below the recommended threshold of 5, which indicated serous multicollinearity concerns. In regression models, teachers' demographic variables (gender, age, and years of experiences) were entered in the first step as control variables, however, in this study there was not significantly difference between these variables. In second step, principals' transformational leadership was entered as predictor variable. This stepwise approach allowed the examination of the additional variance explained by transformational leadership beyond demographic characteristics [103]. Separate regression analyses were conducted for overall CIP and for each of its three components (i.e., teacher autonomy support, teacher support and feedback, and cooperative learning). Regression coefficients (β), standard error, R^2 values, and Adjusted R^2 were reported to assess the explanatory power of transformational leadership. Statistical significance was determined at the 0.05 level.

3. RESULTS AND DISCUSSION

3.1. Results

Confirmatory Factor Analysis

The aim of this study was to examine the relationship between principals' transformational leadership and teachers' constructivist instructional practics. Table 1 presented goodness-of- indices for the individual measures in the model. Confirmatory factor analysis (CFA) results showed that all measures demonstrated acceptable to good fit. Specially, principals' transformational leadership yielded root mean square error approximation (RMSEA) = 0.054, standardized root mean square residual (SRMR) = 0.050, comparative fit index (CFI) = 0.96, and Tucker-Lewis index (TLI) = 0.95. Constructivist instructional practics also showed string fit with root mean square error approximation (RMSEA) = 0.052, standardized root mean square residual (SRMR) = 0.024, comparative fit index (CFI) = 0.98, and Tucker-Lewis index (TLI) = 0.98. These indices collectively indicated that the latent constructs were valid and well-represented by their respective indicators.

Table 1. Goodness-of-fit Indices for the Research Instrument

Measure	RMSEA	SRMR	CFI	TLI
Principals' Transformational Leadership	0.054	0.050	0.96	0.95
Constructivist Instructional Practices	0.052	0.024	0.98	0.98

Before proceeding to multiple regression, the full measurement model comprising all seven latent constructs was tested. Table 2 presented the factor loadings, composite reliabilities (CRs), average variance extracted (AVEs), square rooted of AVEs, maximum shared variance (MSVs) and average shared variance (ASVs). The standardized factor loadings ranged from 0.67 to 0.93 across the constructs, all exceeding the recommended threshold of 0.60 and indicating strong item-construct relationships. Composite reliabilities were high, ranging from 0.86 to 0.96. Specially, the CRs for the four dimensions of TL (Idealized Influence, Inspirational Motivation, Intellectual Stimulation, Individual Consideration) were 0.88, 0.86, 0.87, and 0.88, respectively. The CRs for Teacher Autonomy Support, Teacher Support and Feedback, and Cooperative Learning were 0.93, 0.96, 0.93, respectively. AVEs ranged from 0.57 to 0.83, with the square root of AVEs between 0.75 and 0.92. These values exceed the conventional cutoffs of 0.70 for Cr and 0.50 for AVE, supporting acceptable convergent validity [99]. Discriminant validity was also established. The MSVs ranged from 0.06 to 0.33, and the ASVs ranged from 0.03 to 0.20; all were substantially lower than the corresponding AVEs. Furthermore, the square root of AVE for each latent construct was greater than its correlations with over the constructs (shown in Table 3), These provided further evidence of discriminant validity [99].

Table 2. Factor Loadings, CRs, AVEs & Square Roots, MSV, and ASVs

Variables	Factor Loading	CR	AVE/Square Root	MSV	ASV
Idealized influence	0.74-0.85	0.88	0.63/0.80	0.31	0.20
Inspirational motivation	0.67-0.82	0.86	0.60/0.75	0.22	0.13
Intellectual stimulation	0.69-0.80	0.87	0.57/0.76	0.06	0.03
Individual consideration	0.70-0.82	0.88	0.59/0.77	0.23	0.19
Teachers' autonomy support	0.80-0.89	0.93	0.72/0.85	0.26	0.14
Teachers' support and feedback	0.90-0.93	0.96	0.83/0.92	0.31	0.16
Cooperative learning	0.82-0.88	0.93	0.74/086	0.33	0.15

Table 3 reported the descriptive statistics and bivariate correlations among the latent variables (N = 2872). Means ranged from 1.81 (Inspirational motivation) to 3.50 (Cooperative learning), with standard deviations between 0.55 and 1.03. Skewness and Kurtosis values were generally modest (between -1.38 and 0.47), suggesting that no severe departures from normality. All correlations were positive and statistically significant ($P < 0.01$), ranging from 0.028 (Intellectual stimulation and Cooperative learning) to 0.576 (Teachers' support and feedback and Cooperative learning). These patterns were consistent with theoretical expectations and indicated no issued with multicollinearity that would preclude subsequent structure model. Therefore, the CFA results confirmed that the measurement model fits data well and that the adapted scales possess strong psychometric properties which were suitable for the present context.

Table 3. Descriptive Statistics and Bivariate Correlations between Latent Variables (N = 2872)

Variables	II	IM	IS	IC	TAS	TSF	CL
II	-						
IM	0.387**	-					
IS	0.153**	0.381**	-				
IC	0.493**	0.470**	0.254**	-			
TAS	0.514**	0.360**	0.176**	0.391**	-		
TSF	0.558**	0.304**	0.028	0.481**	0.376**	-	
CL	0.454**	0.294**	.072**	0.438**	0.307**	0.576**	-
Mean	3.33	1.81	1.99	2.38	3.45	3.49	3.50
SD	0.60	0.55	0.63	0.66	0.80	1.03	0.67
Skewness	-0.13	0.09	0.47	-0.20	-0.18	-0.22	0.08
Kurtosis	-0.42	-0.77	-0.36	-0.70	-0.55	-1.38	-0.83

**$P < 0.01$.

Note: II = Idealized Influence, IM = Inspirational Motivation, IS = Intellectual Stimulation, IC = Individual Consideration, TAS = Teacher Autonomy Support, TSF = Teacher Support and Feedback, CL = Cooperative Learning

Regression Analysis Predicting Constructivist Instructional Practices

Multiple regression analyses were conducted to examine the extent to which the four dimensions of principal transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, individual consideration) predicted teachers' perceptions of constructivist instructional practices, especially teachers' autonomy support, teachers' support and feedback, and cooperative learning.

Table 4. The result of the path analysis

Hypothesis	Path	Path coefficient	Result
H11	Idealized influence → Teachers' autonomy support	0.22	Support
H12	Idealized influence → Teachers' support and feedback	0.33	Support
H13	Idealized influence → Cooperative learning	0.18	Support
H21	Inspirational motivation → Teachers' autonomy support	0.16	Support
H22	Inspirational motivation → Teachers' support and feedback	0.24	Support
H23	Inspirational motivation → Cooperative learning	0.13	Support
H31	Intellectual stimulation→ Teachers' autonomy support	0.07	Support
H32	Intellectual stimulation → Teachers' support and feedback	0.11	Support
H33	Intellectual stimulation → Cooperative learning	0.06	Support
H41	Individual consideration→ Teachers' autonomy support	0.22	Support
H42	Individual consideration → Teachers' support and feedback	0.34	Support
H43	Individual consideration → Cooperative learning	0.18	Support

Table 5. The results of multiple Regression

Predicting	Model		*B*	*β*	*t*	*df*	*F*	*P*	R^2	*Adjust* R^2
TAS	3	(Constant)	0.93		12.72	3(2868)	421.06	<.001[a]	.31	.30
		II	0.53	0.39	21.74					
		IM	0.22	0.15	8.22					
		IC	0.16	0.28	6.70					
TSF	4	(Constant)	0.27		2.90	4 (2867)	442.84	<.001 [b]	.38	.38
		II	0.72	0.42	24.15					
		IM	0.44	0.28	15.50					
		IS	0.21	0.13	8.13					
		IC	0.12	0.06	3.41					
CL	4	(Constant)	1.70		25.96	4(2867)	269.69	<.001[c]	.27	.27
		II	0.34	0.30	16.16					
		IM	0.28	0.27	13.82					
		IS	0.08	0.07	4.16					
		IC	0.09	0.08	3.99					

a. Predictors: (Constant), Idealized Influence (II), Inspirational Motivation (IM), Individual Consideration (IC)

b. Predictors: (Constant), Idealized Influence (II), Inspirational Motivation (IM), Intellectual Stimulation (IS), Individual Consideration (IC)

c. Dependent Variable:) Idealized Influence (II), Inspirational Motivation (IM), Intellectual Stimulation (IS), Individual Consideration (IC)

For teacher autonomy support, the model with Idealized Influence, Inspirational Motivation, Individual Consideration as predictors was significant, $F(3,2868) = 421.06$, $p < 0.001$, accounting for 31% of the variance ($R^2 = 0.31$, adjust $R^2 = 0.30$). All three predictors made significant positive contributions: Idealized influence ($\beta = 0.39$, $t = 21.74$, $p < 0.001$; inspirational motivation ($\beta = 0.15$, $t = 8.22$, $P < 0.001$); individual consideration ($\beta = 0.28$, $t = 6.70$, $P < 0.001$).

For teachers' support and feedback, the model including idealized influence, inspirational motivation, intellectual stimulation, individual consideration was significant, $F(4,2867) = 442.84$, $p < 0.001$, explaining 38% of the variance ($R^2 = 0.38$, adjust $R^2 = 0.38$). Significant positive predictors were: Idealized influence ($\beta = 0.42$, $t = 24.15$, $p < 0.001$; inspirational motivation ($\beta = 0.28$, $t = 15.50$, $P < 0.001$); individual consideration ($\beta = 0.06$, $t = 3.41$, $P < 0.001$).

For cooperative learning, the same four-predictor model was significant, $F(4,2867) = 269.69$, $p < 0.001$, explaining 38% of the variance ($R^2 = 0.27$, adjust $R^2 = 0.27$). Positive contributions came from: Idealized influence ($\beta = 0.30$, $t = 16.16$, $p < 0.001$; inspirational motivation ($\beta = 0.27$, $t = 13.82$, $P < 0.001$); individual consideration ($\beta = 0.08$, $t = 3.99$, $P < 0.001$). This study showed that principals' transformational leadership dimensions explained substantial variance in teachers' constructivist instructional practices positive predictor across all three outcomes (i.e., teacher autonomy support, teachers' support and feedback, and cooperative learning).

3.2 Discussion

The present study demonstrated that principals' transformational leadership subconstructs are significant positive predictors of social science teachers' constructivist instructional practices. The regression models explained between 27% and 38% of the variance in social science teachers' autonomy support, support and feedback, and cooperative learning. Idealized influence emerged as the strongest predictor ($\beta = 0.38–0.41$), highlighting its central role in shaping social science teachers' constructivist practices. This finding aligns with Bass and Riggio's [27] conceptualization of idealized influence as charismatic role modeling. Principals who serve as strong ethical and visionary role models encourage social science teachers to adopt empowering, autonomy-support practices that prioritize student agency, collaborative knowledge construction about society, and critical examination of social issues [104], [105].

In practical terms, when principals demonstrate idealized influence, social science teachers feel more confident to facilitate discussions of controversial social issues, guide students in analyzing multiple perspectives on historical events, and implement problem-based learning about community challenges. Teachers in such environments are more likely to move away from rote memorization of dates and facts toward inquiry-based instruction that develops civic competence and critical thinking [106], [107]. The strong effect of inspirational motivation ($\beta = 0.14–0.27$) suggests that principals who articulate an optimistic vision and challenge teachers to achieve shared goals foster social science classrooms where students actively engage with social phenomena, receive constructive feedback, and collaborate on inquiries about societal structures.

These findings extend previous research. [94] reported that transformational leadership exerts significant effects on teachers' instructional behaviors and classroom practices during large-scale educational reform. The positive relationship with social science teachers' autonomy support is also consistent with self-determination theory [77], as transformational leaders promote teachers' autonomous motivation by providing meaningful choices, clear rationales, and support for competence [88]. Recent studies in Ethiopian [108], [109] and Chinese [110], [111] contexts similarly support the strong role of idealized influence in affecting teachers' commitment, innovative behavior, and organizational citizenship.

Impact on social science learning. The results have direct implications for social science education. Transformational leadership fosters environments where social science teachers are more likely to: (a) facilitate structured discussions of social issues, enabling students to develop perspective-taking and deliberative skills essential for democratic citizenship; (b) guide analysis of social phenomena using multiple sources, enhancing students' critical thinking and media literacy; and (c) implement problem-based learning around real community problems, bridging classroom knowledge with civic action. These practices directly address the goals of social studies education: preparing informed, engaged, and critically reflective citizens [112], [113].

Comparison with prior research. The findings corroborate a robust body of evidence linking transformational leadership to improved classroom practices. Heenan et al. [81] found that intellectual stimulation enhances innovative and adaptive teaching behaviors, which aligns with the positive association between intellectual stimulation and social science teachers' use of feedback and cooperative learning ($\beta = 0.12$). Similarly, Wang et al. [30] demonstrated that transformational leadership positively influences teacher autonomy by encouraging initiative and responsibility in teaching—a finding reflected in the 30% variance explained for autonomy support in this study. The effect on cooperative learning (27% variance) aligns with Beverborg's [89] finding that transformational leadership enhances information sharing and collective agency among teachers.

3.3 Limitations, Impact, and Suggestions for Future Research

Despite providing valuable insights, this study has several limitations. First, data were collected solely from teachers' self-reports, which may introduce subjective bias and social desirability effects. Future research should incorporate multiple data sources such as principals' self-assessment, classroom observation (particularly of social science discussions and inquiry activities), or peer evaluations. Second, the sample was limited to Cambodian high schools, which may restrict generalizability to other educational levels or cultural settings. Future studies should include primary, higher education, and vocational contexts, as well as diverse geographical regions. Third, the cross-sectional design limits causal inferences. Future research should adopt longitudinal designs to examine how transformational leadership influences the development of constructivist practices in social science over time. Fourth, this study focused primarily on direct relationships; future research should explore mediating or moderating factors such as school culture, teacher self-efficacy, or curriculum policy.

Despite these limitations, this study makes several important contributions. It provides rare empirical evidence directly linking transformational leadership to constructivist instructional practices in high school social science education in Cambodia. By identifying idealized influence as the strongest predictor, it offers actionable guidance for principal preparation programs: training should emphasize ethical role modeling, vision articulation, and authentic demonstration of constructivist values. For social science teachers, the findings suggest that supportive leadership encourages them to implement student-centered practices such as social issue discussions, analysis of social phenomena, and problem-based learning. For curriculum developers and policymakers, the results underscore the importance of investing in leadership development as a lever for improving social studies instruction and, ultimately, fostering students' critical thinking and civic readiness.

4. CONCLUSION

This study provides important empirical evidence on the relationship between principals' transformational leadership and social science teachers' constructivist instructional practices in secondary schools. The findings demonstrate that transformational leadership, particularly its four dimensions (idealized influence, inspirational motivation, intellectual stimulation, and individual consideration), plays a significant role in shaping social science teachers' instructional approaches. Among these subconstructs, idealized influence and inspirational motivation emerged as the strongest predictors, highlighting the importance of visionary and role-modeling behavior in promoting student-centered social science teaching. The results further confirm that transformational leadership contributes positively to key components of constructivist practices in social science classrooms, including teacher autonomy support (e.g., allowing students to choose social issues to investigate), teacher support and feedback (e.g., guiding analysis of social phenomena), and cooperative learning (e.g., structuring discussions of controversial issues). Principals who inspire, support, and intellectually challenge social science teachers create school environments that encourage innovation, collaboration, and reflective practice. These conditions enable social science teachers to move beyond traditional teacher-centered methods (such as lecturing from textbooks) and adopt more meaningful, interactive, and learner-centered approaches that develop students' critical thinking, civic competence, and ability to analyze complex social phenomena. From a theoretical perspective, this study extends the application of transformational leadership theory to the domain of social science instructional practices, demonstrating its relevance in fostering constructivist pedagogy. The findings also strengthen the link between transformational leadership and self-determination theory by showing how this leadership behavior can enhance teachers' autonomy and motivation. Practically, the study offers actionable insights for principal preparation programs, school leadership development, and social science curriculum reform in Cambodia and similar contexts.

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