Self-Leadership Change Project: An Ongoing Experiential Program

Jim Phillips, Northeastern State University David Kern, Northeastern State University Jitendra Tewari, Northeastern State University Kenneth Jones, Northeastern State University-Broken Arrow Nicole Carden, Northeastern State University-Tahlequah

Self-leadership Change Project (SLCP) is an ongoing program for senior level students at a regional university designed to provide hands-on experience in building self-management skills, which is considered a pre-requisite by many leaders and scholars (e.g., Drucker, 1996; Schaetti, Ramsey and Watanabe, 2008). A majority of students participating in the projects reported achieving change in targeted behavior, with intentions to continue to utilize the SLCP approach for future "projects". Additionally, students who successfully completed a self-leadership change project reported that observers noted change in others as a result of the project. Students who received positive feedback from observers reported that they were likely to engage in a self-leadership project in the future. This is relevant to the current business environment, in that shared leadership, empowerment, and participative management require business graduates to attain some level of leadership ability to function effectively in organizations. Self-leadership is a beginning step in that process.

"He that would govern others, first should be the master of himself" - Philip Massinger

The initial impetus for the Self-Leadership Change Project was to help students, in a classroom setting, develop self-leadership skills, and prepare them for leadership roles in their careers. Although Massinger's quote is from a play, its message resonates with recent scholars and leaders who consider self-mastery a prerequisite for a broad range of team and leadership roles that are critical to success in the modern organization (e.g., Lawrence and Lorsch, 1967; Whetten and Cameron, 2011). As importantly, the self-leadership literature suggests an external benefit of self-leadership change in its positive influence on others. This article documents the initial results from the SLCP "experiment", which provide encouragement for continuing and improving the experiment.

The modern business environment requires autonomy, initiative, and self-management from employees in many organizations. Managers and executives are expected to enact an empowered, participative style of leadership to develop and support the self-managed worker (DeGraff and Lawrence, 2002; Drucker, 1988; Lawrence and Lorsch, 1967; Quinn and Spreitzer, 1997; Whetten and Cameron, 2011). Leadership skills are required at virtually all levels of organizations, beginning with individuals managing themselves, and ultimately, acting as models for others. Dwight Eisenhower (Lyon, 1974), heavily influenced by George Marshal, recognized that effective leaders must themselves develop leaders and delegate responsibilities. Peter Drucker (1996) emphasized that executives must learn to manage themselves before they can successfully expect to manage others. John Kotter, in "A Force for Change: How Leadership Differs from Management" notes the need for recognizing and rewarding those who develop leaders in their businesses. Empowered leaders are required at all levels of the organization (Manz & Sims, 1991; Manz, 1992). "Being responsible for ourselves ... is where formal leadership begins; it is the first step in being able to effectively lead others" (Schaetti, Ramsey and Watanabe, 2008, p. 4).

The foundation of the SLCP is anchored in the self-leadership theory introduced by Charles Manz (1983, 1986), and supported by stream of research supporting the positive relationship between self-leadership behaviors/strategies and positive outcomes (Stewart, Courtright and Manz, 2011). Self-leadership has been defined as "a self-influence process through which people achieve the self-direction and self-motivation necessary to perform ... consist(ing) of specific behavioral and cognitive strategies designed to positively influence personal effectiveness" (Neck and Houghton, 2006). The emphasis on personal responsibility inherent in self-leadership theory and strategies is particularly important to the SLCP experiment. Participants who take ownership of their personal project can be expected to realize stronger commitment to their goals, with the potential to realize lifelong learning and change skills. Individuals self-select objectives designed to capitalize on the advantages of intrinsic motivation.

The SLCP structure also encouraged peer interaction between participants and those who observed (observers) the changes realized by participants. Peer interaction provided the opportunity for participants to influence others (i.e., exerting external influence consistent with the managerial modeling role). According to Manz and Sims (1980), "if a leader reinforces self-management in one subordinate, a self-management model is available for other subordinates. … the leader's own self-management behavior inevitably serves as a model to subordinates." The

SLCP experiment extends the concept of internal (self) leadership to incorporate influence with observers of the change. The SLCP thus encourages two integrated concepts of leadership, both internal (self-leadership), and external (influence with others).

Additionally, this project provides the opportunity to explore the effect of peer influence on the participant through their observers. Lock, Latham and Erez (1988), identified peer influence as a major component of goal commitment. Early studies (Mathewson, 1931; Roethlisberger and Dickson, 1939) focused on the negative aspects of peer pressure (e.g., restriction of output); however, there is also evidence in early studies of higher performance related to group commitment and peer influence (e.g., Seashore 1954; Zander & Uhlberg, 1971). The importance of peer effects are also supported in organizational research on social influence, whereas individuals are influenced by "relational others, that is, people with whom an individual has direct interactions, and enjoys close social proximity" (Ho and Levesque, 2005). Behavior is affected by input from friends and those important to the individual, as explored in network literature (e.g., Kilduff, 1990). Recently, peer intrinsic and extrinsic motivations were found to exert positive influence on players in an Online Game (Kong, Kwok and Fang, 2012), and peer based control was found to contribute to group cohesion and affect performance by both individuals and teams (Stewart, Courtright and Barrick, 2012).

The SLCP experiment contributes to the application and study of leadership concepts, and specifically, self-leadership in three ways. First, the theory is applied in a learning environment, providing hands-on experience for students in making structured changes in their behavior and lives. A number of self-leadership behavioral and cognitive strategies are incorporated into the structure of the project, focusing on autonomous decision-making, self-observation, and intrinsic motivation. Second, the study extends the measurement of self-leadership outcomes to levels of influence exerted by "self-managed" individuals on those who observed behavioral changes. This is an important test of the external leadership potential that resides in self-leadership outcomes. Although external influence is suggested in the literature, it has received relatively little empirical attention. Third, the study tests the effect of peer influence exerted by observers on participants in terms of participant's intentions to start another self-leadership project in the near future. This is relevant to the two-way benefits associated with positive peer interaction.

As importantly, the SLCP is substantially driven, managed and monitored by participants, supplemented by feedback from peers. Very little external leadership is exerted over participants other than that they are required to attempt a change project, keep a journal, and interact with peers. What they do and how they do it are fully self-managed. In this way, the SLCP experiment relies primarily on self-motivation. This could have important, practical implications for employing self-leadership change processes in a wide variety of circumstances and with a variety of populations.

Relevant Literature: Self-Leadership and Influence with Observers

The critical importance of autonomy and self-actualization for individuals in organizations was recognized in the humanistic perspective of leadership advanced by Argyris (1957) and McGregor (1960). Self-leadership theory further finds its roots in social cognitive theory and intrinsic motivation theory, while drawing heavily on the related research streams of self-regulation, self-management and self-control (Manz, 1983; Neck and Houghton, 2006).

Social cognitive theory (Bandura, 1986) places importance on the capacity of a person to manage or control oneself - particularly when faced with difficult yet important tasks. Social cognitive theory also recognizes the human ability to learn and experience tasks or events through vicarious and symbolic mechanisms (Neck and Manz, 2010). As such, it provides the theoretical foundation for all forms of self-direction, including self-leadership, and suggests the benefits of many of the strategies associated with self-leadership.

Intrinsic motivation theory (e.g., Deci and Ryan, 1980; Steers, Porter and Bigley, 1996) emphasizes the importance of the 'natural' rewards emphasizing "the potential to harness motivational forces available in doing things that we can really enjoy" (Neck and Manz, 2010, p. 5), which is expected to have a positive effect on an individual as he or she observes the positive effect of change on another. Intrinsic motivation theory is the reference point for a number of reward strategies integral to effective self-leadership.

Drawing on multiple self-regulation concepts developed prior to 1983 (e.g., Manz and Sims, 1980; Neck and Houghton, 2006), self-leadership theory provides a more comprehensive framework for the enactment and application of self-development (e.g., Manz, 1983; Neck and Houghton, 2006; Stewart, Courtwright and Manz, 2011), prescribing specific behavioral and cognitive strategies that contribute to successful self-leadership. These strategies, designed to positively enhance personal effectiveness, can be grouped into three primary categories – behavior-focused, natural reward and constructive thought pattern (Manz and Neck, 2004; Manz and Sims, 2001; Prussia, Anderson and Manz, 1998). Behavior-focused strategies include self-observation, self-goal setting, self-

reward, self-punishment and self-cueing; natural reward strategies involve designing the task itself to be naturally rewarding and enjoyable, and reducing focus on the unpleasant aspects of the task; constructive thought pattern strategies address mental imagery, positive self-talk, and dealing with dysfunctional beliefs (Neck and Houghton, 2006). Of these categories, behavior-focused and reward strategies are most relevant in application of the SLCP experiment. A comprehensive review of self-leadership research and theory can be found in a Journal of Managerial Psychology article by Neck and Houghton (2006).

Building on the self-regulation orientation of self-leadership theory and research, social cognitive theory identifies the benefit of modeling (Bandura, 1986) as a way in which individuals influence others to successfully engage in personal change. "If knowledge and skills could be acquired only through direct experience, the process of human development would be greatly retarded, not to mention exceedingly tedious, costly and hazardous. Fortunately, people can expand their knowledge and skills on the basis of information conveyed by modeling influences (Wood and Bandura, 1989). Consequently, social cognitive theory addresses both self-mastery and influence in terms of the individual who is involved in learning (Bandura, 1986). The observer of the "model" (the individual engaging in self-leadership behavior) employs this knowledge gained through observation in practicing the observer's own behavior, which ultimately contributes to the recipient's self-mastery.

Although a great deal has been researched and studied relative to the negative aspects of peer pressure (e.g., Janis, 1972), and the benefits of group pressure in a structured business setting or in formal teams (e.g., Castilla, 2005; Jones and Kavanough, 1996; Mas and Moretti, 2008; Pierce & Snyder, 2008), few studies have addressed the positive effects of peer influence on behavior in an autonomous setting such as the SLCP experiment. Locke and Latham, and Erez' (1988) work on goal commitment found support for a positive relationship between peer influence on goal commitment, which is encouraging considering the structure of the SLCP (self-chosen and directed). Work in network theory (e.g., Kilduff, 1990) and peer motivation in online gaming (Kong, Kwok and Fang, 2012) reinforce a general acceptance of the positive benefit of peer influence. Yet, research of this type provides evidence of only a general effect of peer influence, while the SLCP experiment specifically addresses the positive effect of peer influence on self-directed change outside of an organizational setting.

Self-Leadership Change Project Design

The structure of the Self-Leadership Change Project (SLCP) capitalizes on the participants' self-direction. Although students are exposed to the essentials of the self-leadership strategies described in this section, there is no formal study involved in the project preparation. Accordingly, the SLCP is substantially under the control of the participant, and relies in their self-motivation and self-direction. The only requirements for participation in the project are that participants choose a project that they really want to tackle, investigate external information that will help them in their project, keep a journal recording their actions and progress, and engage 3-5 observers. The structure itself incorporates four specific self-leadership strategies (self-goal setting, natural rewards, self-observation, and self-cueing). The project is also structured to provide the opportunity for participants influencing observers and others, and to receive reinforcement from their peer observers.

The first and most critical step in the SLCP is to set a personal goal without direction from instructors. Students are given ideas that other students have considered in the past as thought starters, and are asked to freely choose their project. Students are encouraged to discuss ideas among themselves and with friends or family, but are strongly encouraged to embrace a project that they really want to do. In that the project is self-determined, it provides personal involvement and commitment. The research on goal setting (Locke, Latham, & Erez, 1988; Locke and Latham, 1990) provides strong support for this as a critical element of effective self-leadership (Boss and Sims, 2008). This selection process also contributes to incorporating natural rewards by encouraging students to select a project that can be made to be inherently enjoyable and rewarding, that is well within their control, and that avoids difficult or negative elements. By making the project desirable and clearly achievable, actually performing the project tasks and making progress act as natural reward.

Self-observation is built into the journaling process. Students are required to keep a journal of their activities associated with their change project, recording personal observations periodically. They record their actions on the project frequently (daily is recommended), and are encouraged to periodically evaluate their project structure and process. This not only contributes to self-observation, but acts as a self-cueing strategy, acting as a reminder to take action and follow-through. An additional feature of the SLCP design, feedback from observers, may reinforce the participants' self-observation and self-cueing. Feedback encourages self-evaluation and acts as a reminder to stay on task. Some students even involve their observers in the tasks, such as working out with the participant to improve their healthy living project.

Although not a requirement of the project, participants are encouraged to develop self-rewards. If the natural reward of the project design is sufficiently strong, the participant may find the task in itself rewarding. Students are also coached to select and structure projects that provide early successes, following Weick's (1984) notion of a "small wins" strategy. Success becomes a reward in itself. Participants are also encouraged to reward themselves with simple ideas - a special treat or a time to do something that they enjoy, and are cautioned to avoid negative feedback and penalties. Periodically, students are asked to reassess their progress and their project in a class discussion with peers, and encouraged to restructure projects to take advantage of natural and external rewards.

External Feedback: Although not addressed specifically in self-leadership literature, feedback is integral to authors approach to learning and implementing this self-leadership project. Observers provide feedback and encouragement that reinforces self-observation, self-evaluation, self-cueing combined with intrinsic rewards. Students generally ask for periodic feedback from observers, who not only give them a sense of progress, but are often very positive about students' changes and progress.

SLCP, in its current structure, does not include an emphasis on cognitive focused strategies (e.g., mental imagery, mental rehearsal, self-talk, and managing beliefs and assumptions). The circumstances involved do not permit sufficient time allocation to train and rehearse in these strategies; however, this is a potential opportunity for improving the effectiveness of self-leadership projects in the future.

The incorporation of observers in the process acts as a vehicle for participants to influence others, while acting as positive feedback that encourages the participant in working on their SLCP tasks. This allows for an evaluation of external influence as a by-product of an individual's self-leadership behavior and results. It also provides a way to evaluate the impact that observer peers have on participants.

Hypotheses

As noted in the introduction, the primary objectives of SLCP are to provide students an experiential understanding of the self-leadership process and to develop capabilities in implementing those processes. Students are encouraged to enlist observers who provide feedback during the life of the projects. This external interaction has multiple implications. The act of engaging observers has the potential to increase personal commitment, and self-awareness of the participant.

Hypothesis 1: Changes in behavior associated with successful self-leadership change projects will be apparent to others who have observed the change project.

An important contribution of this study is to gauge the level of influence self-leadership change has on others in order to test the proposition that self-leadership is a starting point for developing broader leadership capabilities. By developing skills in influencing others, individuals are building their own capacity for external leadership. Individuals who exhibit self-leadership act as models for others and influence others (Bandura, 1986).

Hypothesis 2: Successful completion of self-leadership change projects will influence the actions and behavior of those observing the change process.

Hypotheses three addresses the learning value and motivation potential for SLCP participants. Students who successfully complete a SLCP project develop a level of knowledge and discipline in the practice of self-leadership. Two benefits can be realized. The first is learning and practicing effective techniques. The second reflects internal reinforcement generated by achieving the goal that the participant set, and gaining a sense of accomplishment.

Hypothesis 3: Successful completion of self-leadership change projects will affect student intentions to employ the SLCP approach in the future: a) continue existing project; b) start a new project.

Hypothesis 4 addresses the value of external feedback and reinforcement of positive responses by others during the SLCP. The existing stream of self-leadership research emphasizes personal strategies and techniques that help keep a self-leader focused on the objective and actions necessary to achieve the objectives. Our approach is to add external feedback as an important tool to reinforce the personal effort of the participant. In effect, we view the power of external influence as complementary. The self-leader influences the behavior and actions of observers, while the input and positive reinforcement of observers becomes a reciprocal benefit of the interactions.

Hypothesis 4: The level of positive feedback from observers will relate positively to student intentions to employ the SLCP approach in the future.

Methodology and Results

Participants had from 10 to 16 weeks to complete their SLCP project. This survey was provided as a voluntary option to participants who wished to report their SLCP project results. A total of 141 participants used this survey in six different classes instructed by two different professors. This survey was first used in the fall of 2010. Not all questions were completely answered throughout each survey by each participant. Reported were 76 female students and 62 male students. Their ages ranged from 19 years to 51 years with full-time work experience ranging from none to thirty years. It should be noted that classes had a mixture of traditional and non-traditional students.

An underlying objective of the SLCP project is to foster self-leadership skills and intentions in college students. In this study, the authors employed a survey that is completed by students at the end of the semester in which they participate in the project. The time period in which students participate varies from 10-15 weeks, which is adequate time to complete a self-leadership project that is self-selected and appropriate for the time frame.

The survey includes two types of questions. A series of questions addressed the degree to which an outcome was realized or observed, using a Likert scale: 1-None, 2-Little, 3-Somewhat, 4-Much, 5-A Great Deal (Hinkin, 1998). Only one question had a yes or no answer and was coded as a categorical variable. This section of the paper provides an overview of the basic results for the questions of primary interest.

Regression was employed for the analysis of hypotheses 1 and 2. For hypotheses 3 and 4 a t-test of two samples assuming unequal variances, was used. The means of the variables were compared for those who are planning to start a new SLCP project with the means of the students who do not plan a new SLCP.

Table 1 summarizes hypotheses 1 and 2, the variables and methods involved, as well as the results for the test of these hypotheses.

Short Statement of Hypothesis	Method and Basis of Hypothesis Test	Summary Results
Hypothesis 1	Method: Regression	- Observations: 139
		- R Sq : 0.20
Changes in behavior associated with	Dependent Variable: Change in the	- Adj. R Sq : 0.19
SLCP projects will be apparent to others	Respondent as a result of the respondent's	- P value (I.V.): 3.1E-08
who have observed the project	SLCP	 Result: I.V. Significant at 95% level
		- Intercept: 2.4
	Independent Variable: Degree of goal	 Coefficient of I.V. 0.39
	achievement in the SLCP	- Directionality of coefficient: positive, as
		predicted
Hypothesis 2	Test 1: Method: Regression	- Observations: 131
		- R Sq : 0.11
Successful completion of SLCP projects	Dependent Variable: Change observed in	- Adj. R Sq : 0.10
influences the behavior of those observing	others 'by Respondent' who has adopted	- P value (I.V.): 9.54 E-05
the change process	SLCP	 I.V. Significant at 95% level
		- Intercept: 1.05
	Independent Variable: Extent of goal	 Coefficient of I.V. 0.43
	achievement in SLCP	 Directionality of coefficient: positive as predicted
	Test 2: Method: Regression	- Observations: 131
	1000 21 monitour regression	- R Sq: 0.20
	Dependent Variable: Change observed	- Adj. R Sq: 0.20
	in others 'by Observers'	- P value (I.V.): 3.8 E-08
		- I.V. Significant at 95% level
	Independent Variable: Extent of goal	- Intercept: 0.67
	achievement in SLCP	- Coefficient of I.V. 0.59
		- Directionality of coefficient: positive as
		predicted

Table 1: Summary of Methods and Results: Hypotheses 1 and 2

NOTE: D.V. is dependent variable; I.V. is independent variable

Analysis of Hypotheses 1 and 2

Hypothesis 1 is supported at the 95% significance level. The greater the degree of success in the SLCP the greater the changes in behavior reported (in the respondent who has undertaken the SLCP) associated with the project. The importance of this finding is that it indicates that the change is apparent to those who are observing the student as they engage in self-change, and the greater the goal accomplishment the greater the change observed. This is critical in supporting the theory that self-leadership impacts more than just the participant.

Hypothesis 2 postulates that successful completion of a SLCP influences the actions and behavior of those observing the change process. This was tested through two independent regressions. The first treated the dependent variable as the change observed by the Respondent in others, and the independent variable as the degree of goal achievement in the SLCP. The second regression used the same independent variable, but for the dependent variable used the response to the question: 'Did your observers notice any change in others around you as a result of the SLCP?' The two dependent variables are highly correlated, and in fact measure the same concept and therefore the use of two regressions is confirmatory or a form of triangulation. The results confirm this and both regressions indicate the independent variable to be significant, acceptable at the 95% level. Results show that influence is extended to observers of the change process as well as others not specifically selected as observers by the participant. This suggests that self-leadership plays an important role in the development of individuals' "external leadership capabilities."

In the case of both hypotheses 1 and 2 regression is used not to postulate a 'complete and causative model' of all variables. Therefore, it is not the values of R Square or Adjusted R Square that are so relevant - it is really an examination of the p value or significance of the explanatory variable that is critical. This in both cases indicates significance acceptable at the 95% level.

Table 2 summarizes hypotheses 3 and 4, the variables and methods involved, as well as the results for the test of these hypotheses.

Short Statement of Hypothesis	Method and Basis of Hypothesis Test	Summary Results
Hypothesis 3	Method: t test	 Observations: Numbers in Group A and Group B are 80 and 58
Successful completion of SLCP projects	Comparing means of the 'degree of goal	- Means: 3.88 and 3.77
affects the student intention to employ	achievement' for those intending to employ	- $P(T < or = t)$ one-tail 0.107
SLCP approach in the future (positively)	SLCP approach in future versus those not	- t=1.24
	planning to use SLCP approach in future.	- t critical (one tail) =1.65
	The postulate is that those intending to employ	- Result: Not Significant at the 95%
	SLCP approach will have a higher degree of	level
	goal achievement in SLCP project undertaken.	
Hypothesis 4	Method: t test	- Observations: Numbers in Group A
		and Group B are 80 and 58
Positive feedback from observers relates	Comparing the means for the 'degree to which	- Means: 3.7 and 3.13
positively to student intentions to employ	observers see change in the respondent carrying	- $P(T < or = t)$ one-tail 0.00043
SLCP approach in the future	out SLCP' for the two groups (a) those who	- t = 3.41
	intend to use SLCP in the future (b) those no	 t critical (one tail) =1.65
	planning to use the SLCP in the future .	 Result: Significant at the 95% level
	The postulate is that the group that intends to	
	use SLCP approach in the future will have a	
	higher mean.	

Table 2: Summary of Methods and Results: Hypotheses 3 and 4

Analysis of Hypotheses 3 and 4

For the analysis of hypotheses 3 and 4 the categorical classification of the two groups (A) students who were planning to start on a new change project, and, (B) students who were not planning to start on a new change project was used. One tailed t tests, assuming unequal variances, comparing means were carried out.

In the case of hypothesis 3 it was found that the mean degree of goal accomplishment for Group A was greater than the mean degree of goal accomplishment for Group B, hence the directionality of the results was consistent with the hypothesis. However the t test was not significant at the 95% level. The relevant p value was 0.107, which indicated that the hypothesis was acceptable (nearly) at the 90% level. The fact that the p value was just over the 0.10 level potentially indicates the need for an improvement in the survey/measurement process, and an additional exploration of this relationship.

Using a similar t test, Hypothesis 4 is supported. Here we compare the mean 'degree to which observers see change in the respondent carrying out the SLCP' for Group A and Group B. In keeping with the hypothesis the mean for Group A was 3.7 versus 3.13 for Group B, confirming as postulated, that students of the Group that experienced greater observer positivity would be more inclined to adopt a new SLCP. One of the expected outcomes of the project was that participants would increase their knowledge of self-leadership and recognize its benefits for future self-development. The relationship between future intent and the participants' reported recognition of the extent to which observers "noticed" appears to provide some level of positive feedback or monitoring mechanism. Not only do participants influence observers positively but observers influence participants positively.

It's notable in question five that a substantial majority of participants reported success in achieving their SLCP project. This observation supports the practical objective of exposing students to self-leadership change through the project. The majority of students reported that they achieved their SLCP goal (completing a change project successfully) and over 90% of the students reported some success.

Discussion

The first objective of the Self-Leadership Change Project was to encourage students to develop skills in self-leadership through an experiential exercise. Although our hypotheses did not measure this objective specifically, we found that 67% of the students reported "much" or "a great deal of" success in achieving their self-leadership goal. Additionally, 58 % indicated that they intend to start a Self-leadership Change Project in the future. These outcomes have important practical implications. First, achieving success in an early encounter with self-management may increase an individual's confidence in their own capabilities, and could be expected to increase future success in self-leadership. Second, the stated intention to continue with the SLCP approach provides some evidence of a longer term impact, in a world where continuous learning is considered crucial to adaptation and success. The fact that a number of observers noticed the change (the change was apparent to others) provides some evidence of the significance of the change

The second objective of the study was to evaluate the level of influence exerted by self-managed individuals on those who observed the behavior and the changes experienced by these individuals. The results fully supported the idea that self-leaders influence others, as represented in results associated with hypothesis two. This relationship has been suggested in the literature but there have been few studies covering this relationship. This study extends that research, providing support for the concept that external leadership begins with self-leadership. The implication of this finding is that successful self-leadership change not only prepares an individual for external leadership roles, but may also provide active external leadership by providing a model for others.

Furthermore, this study finds evidence of a two-way impact associated with self-leadership participants who engage observers in the self-change process. Current theory suggests that the self-leadership participant will influence others, as noted above. Our results show that this is not simply a one-way benefit. The self-leadership participants benefitted from positive feedback provided by their observers. This indicates an important role to be played by peer interaction during self-leadership change process. This finding was not considered in the initial stages of the SLCP. The authors observed this phenomenon in the feedback students provided in discussing their journey during the project. This aspect of the experiment will receive increased attention as we continue to develop SLCP approach.

Limitations

Due to the nature of this experiment, data used in our analysis is exclusively self-reported information. We recognize the limitations associated with self-reported data and future studies may want to explore alternative approaches to observer measurement. However, our results are compatible with the information that students provide in end of project reports, and comments provided by outside observers. To some extent this provides some support for the value of the self-reported information. For future studies, additional reporting techniques will be considered.

A second criticism is that the survey and results do not tie to previous studies that measure individuals' aptitude for self-leadership as an indicator of success and development of self-leadership capabilities. This could be a welcome addition to this research model in the near future of SLCP literature and research.

A final criticism may be that this study offers little in the way of acknowledging or determining the sustainability of changes desired. Sustainability could bear a strong relationship to some future approach to measuring effectiveness of the SLCP. For instance, does the SLCP model impact the ability to maintain changes, once made? Can goals be defined for the individual and collective SLCP research that incorporate sustained, even lifelong, success in the desired change?

These are potentially rich research avenues that should be pursued in the future. Moreover, the opportunity to introduce dynamic self-leadership strategies into the project could provide additional information and greater levels of success by participants.

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Jim Phillips is an associate professor of management at Northeastern State University. He received his Ph.D. in management from New Mexico State University. He teaches selection and evaluation, compensation management,

labor relations, strategic human resource management, and strategic management. He conducts research in personal & organizational transformation, strategic planning and self-leadership change and has been actively involved helping organizations conduct and implement strategic and tactical planning.

Dave Kern is an associate professor of management at Northeastern State University. He received his Ph.D. in management from Oklahoma State University. His research interests include strategic decision-making, leadership and organizational change. He has published in Journal of Private Equity, Journal of Higher Education Theory and Practice, and others.

Jitendra Tewari is an associate professor of marketing at Northeastern State University. He received his Ph.D. in marketing from Florida Atlantic University. His current research interests include international bidding practices, pricing, and supply chain management.

Kenneth Jones is an assistant professor of information systems and supply-chain management at Northeastern State University-Broken Arrow. He received his DBA Anderson University in Anderson, IN. His current research interests include logistic metrics for TL/LTL transportation, remote work performance, product-specific incentives, pre/post assessment in course-specific objectives, and change leadership. He has published in Advances in Business Research, Journal of the Scholarship of Teaching, and Learning for Christians in Higher Education.

Nicole Carden is a student attending Northeastern State University-Tahlequah.