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ASSOCIATIONS BETWEEN FLOW AND POWER POSE DURING UNDERGRADUATE EXPERIENCES IN A COLLEGE OF AGRICULTURE LEADERSHIP COURSE

Abstract

Colleges of agriculture throughout the United States place an emphasis on leadership courses where undergraduates develop professional skills. Students entering colleges of agriculture experience varied training in terms of leadership and associated skills. However, it is not understood how this leadership training relates to having more power and control while being happy, intrinsically motivated, and engaged in learning. Socio-Psychological measures of flow and power pose during an undergraduate leadership course were used to determine associations of undergraduates within different domains of learning. This study determined associations between: 1) flow and power pose during leadership course activities; 2) happiness, intrinsic motivation, and engagement in learning; and 3) learning experiences where flow and power pose associations existed. There were positive associations between flow and power pose experiences among students in an undergraduate leadership course. Additionally, there were positive associations between power pose and Flow Theory related to constructs of happiness, intrinsic motivation, and engagement of undergraduate leadership students. Power pose and the Experience Sampling Method (ESM) were used determine flow associations of undergraduate students in the cognitive, psychomotor, and affective domains of learning. This research provides a framework for future socio-psychological studies.

Introduction

Leadership development is a critical component of successful undergraduate education (Northouse, 2016). Furthermore, leadership and being an effective leader through a management lens includes aspects related to the construct of power or someone acting with power through control (Cuddy, Wilmuth, & Carney, 2012). According to Anderson and Berdahl (2002), power reduces stress and anxiety within the leader, which in turn creates a more confident, captivating, and enthusiastic individual. Leadership courses provide a forum for developing leadership skills and are an important component in university agricultural curricula across the United States (Everett & Raven, 2016; Velez, McKim, Moore, & Stephens, 2015).

Many students entering colleges of agriculture have prior leadership training and experience through involvement in local school or community organizations (e.g., FFA or 4-H). Many of those leadership experiences include interviewing for jobs, speaking in a public forum, or utilizing parliamentary procedure as the chair or member of an officer or executive team. Some research suggests that in these

high-stakes leadership experiences, adoption of expansive posture may create opportunities for higher levels of control over an individual's body, mind, and positive feelings (Keltner, Gruenfeld, & Anderson, 2003) while also increasing cognitive function (Smith, Jostmann, Galinsky, & van Dijk, 2008). One innovative approach to address postural considerations in undergraduate leadership classrooms is power pose, defined as a self-improvement technique where individuals stand with a posture mentally associated with being powerful and feeling as though one can be more assertive (Carney, Cuddy, & Yap, 2010). As a way to enhance student self-improvement and assertiveness in undergraduate leadership education, power posing may be a useful tool for students to develop needed skills to be successful as future leaders. Consequently, it is important that faculty recognize the mechanism of student posture (i.e., power posing) as a teaching and learning resource for student development within leadership courses. According to the National Research Council (2009), leveraging experiences that provide students with "real-world" interpretation of ideas, concepts, and skills, develops learners and leaders who are successful in their future careers. Research by Cuddy, Schultz, and Fosse (2018) indicate power posing in "real world" settings has positive evidential value for emotional, attitudinal, and affective states (i.e., challenge, skill, enjoyment, and happiness). Additionally, constructs of flow including happiness, enjoyment, challenge and skill strongly align with the affective states of power posing in the context of learning. Previous post-secondary research has demonstrated application of Flow Theory being used to define when flow experiences occur in undergraduate education (Everett & Raven, 2016). Therefore, the socio-psychological concept of flow in conjunction with power pose are two theoretical models that have the potential to empower students as leaders to be successful in future career pursuits while assisting researchers in better understanding ways to educate students to be successful in the workforce.

Flow is the perceived holistic sensation people feel when they are completely involved in an event or activity (Csikszentmihalyi, 1975; Csikszentmihalyi, 1997). Being in flow during leadership activities includes the act of being: 1) in control of the experience; 2) attentive during the experience; 3) curious about learning that is occurring; and 4) intrinsically interested in learning about leadership (Everett & Raven, 2016). Flow Theory's symbiotic relationship between perceived challenges of an activity with respect to skills learned during the activity creates a suite of flow experiences specific to an individual's behavior and intrinsic beliefs (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003).

This study draws from Flow Theory (Csikszentmihalyi, 1975; Csikszentmihalyi, 1997) and approach/inhibition theory of power (Keltner et al., 2003) to explore undergraduates' power potential in a College of Agriculture and Natural Resources leadership course. This study utilizes undergraduate leadership students' self-reported challenge, skill, interest, enjoyment, happiness, and perceived control during class sessions in an effort to better understand learning and opportunities that create flow experiences and increase power in undergraduate leadership education. The focus of this study is undergraduate students in a leadership course as previous research suggests Flow Theory (Everett & Raven, 2015, 2016) and approach/inhibition theory of power (Struyf & Smits, 2015) are applicable approaches to college educational settings. Flow Theory research has been cited in the context of general undergraduate education (Asakawa, 2010), pre-service teacher education (Everett & Raven, 2015), and undergraduate leadership education (Everett & Raven, 2016). Everett and Raven (2016) utilized a modified Experience Sampling Method instrument (Hektner et al., 2007) to determine if undergraduate students in a leadership course exhibited flow and during what learning activities these experienceselse

occurred. The authors concluded that the Experience Sample Method (ESM) was a valid and reliable method to identify optimal learning experiences for undergraduate education. Limited research exists utilizing flow in conjunction with power pose as a way to determine associations among variables while targeting specific learning activities that are student-centered and apply approaches that will assist students in meeting their career goals.

Flow Theory. Application of flow is a promising theoretical approach to determine an optimal learning environment (Heutte, Fenouillet, Kaplan, Martin-Krumm, & Bachelet, 2016). Vygotsky (1978) operationalized flow in the context of an optimal learning environment as defined by "the zone of proximal development." Vygotsky's (1978) definition was characterized by providing students with a task that challenges an individual while falling just beyond an individuals' skill level in that activity, whereas Heutte et al. (2016) defined optimal learning environments as situations where experiences of flow are framed for learners. The four-channel model of flow is generally based on the zone of proximal development while also providing an environment for learning using the following assumptions: (1) flow occurs when perceived challenge and skill are above an individual's personal average; (2) anxiety occurs when perceived challenge is greater than skill; (3) boredom occurs when perceived skills exceed challenge; and (4) apathy occurs when both perceived challenge and skill are below the personal average (Csikszentmihalyi, 1997; Csikszentmihalyi & Csikszentmihalyi, 1988; Figure 1).

Happiness, intrinsic motivation, and engagement are key constructs to a student's willingness to learn in the context of an educational environment (Csikszentmihayli, 2014). According to Csikszentmihayli (2014), happiness has been identified as the ultimate goal of life. Pursance of happiness is a subjective experience that constantly relies on changes in ones behavior, interests, and beliefs (Csikszentmihayli, 2014). Learning that is intrinsically motivating is thought to be one way to quantify happiness. Intrinsic motivation can be defined as either autotelic or exotelic (Csikszentmihalyi, 2014). Autotelic learning occurs when one completes an experience for one's own sake (Csikszentmihalyi, 2014). Conversely, exotelic learning is directed by an external goal. An exotelic example may include a learning outcome for students or a course grade at the completion of a semester. According to Csikszentmihayli (2014), intentional intrinsically motivated teaching activities lead to student learning. Csikszentmihayli (2014) further posited that learning of this nature leads to avenues for personal growth that most closely approximates a state of happiness. Senge (1990) suggested learning and engagement are strongly associated with intrinsic motivation. Engagement of learners provides the opportunity for learning to occur in a way that achieves success while providing students with an appropriate level of challenge that meets a student's skill level (Shernoff et al., 2003). Students who experienced flow on a regular basis were more likely to be fully engaged in the activity as well as have goals and expectations consistent with learning outcomes or intrinsically motivating experiences. Flow has been utilized with undergraduate students to understand perceived enjoyment, interest, and concentration levels during specific activities (Asakawa, 2010; Everett & Raven, 2018; Huette et al., 2016). The Experience Sampling Method (ESM) is the happiness, intrinsic motivation, and engagement are key constructs to a student's willingness to learn in the context of an educational environment (Csikszentmihayli, 2014). According to Csikszentmihayli (2014), happiness has been identified as the ultimate goal of life. Pursance of happiness is a subjective experience that constantly relies on changes in ones behavior, interests, and beliefs (Csikszentmihayli, 2014). Learning that is intrinsically motivating is thought to be one way to quantify happiness. Intrinsic motivation can be defined as either autotelic or exotelic (Csikszentmihalyi, 2014). Autotelic learning occurs when one completes an experience for one's own sake (Csikszentmihalyi, 2014). Conversely, exotelic learning is directed by an external goal. An exotelic example may include a learning outcome for students or a course grade at the completion of a semester. According to

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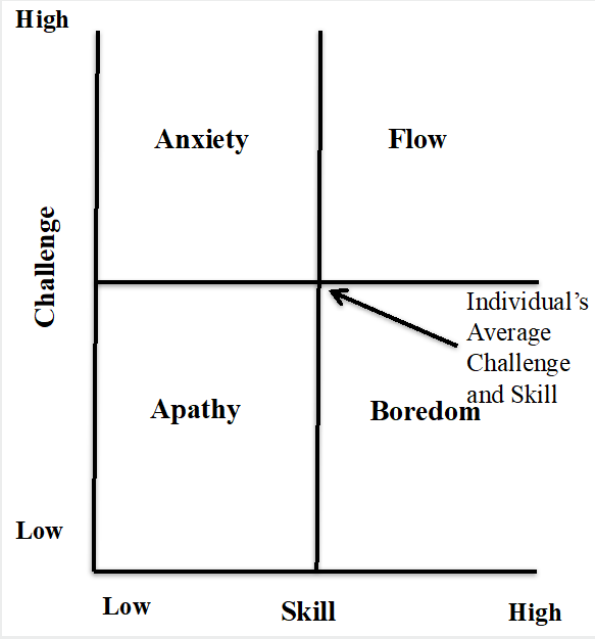

Figure 1. Figure 1. The four-channel flow model applied to Experience Sampling Method. The origin of flow is the individual average of challenge and skills. Only when an individual is above that point does flow begin (Adapted from Csikszentmihalyi & Csikszentmihalyi, 1988; Massimini & Carli, 1988).

Power Pose. Power posing is defined by Carney at al. (2010) as a human posture that reflects either high power or having an open posture and taking up more space or low power and having a closed posture and taking up less space. Research by Cuddy et al. (2012) indicates high power is associated with confidence and expression of explicit and implicit feelings of power, dominance, and risk taking with reduced

stress and anxiety. Additionally, acquisition of power causes an individual to feel more positive, in control, and optimistic toward the future (Cuddy et al., 2012). The approach/inhibition theory of power plays an important role in the context of leadership (Anderson & Berdahl, 2002). Anderson et al. (2012) defined power as the perception of an individuals' ability to influence another person or group of people. Whereas, Keltner et al. (2003) described the approach/inhibition theory of power as power that leads to a heightened approach and depressed inhibition where high power is a function of having a higher level of reward and lower level of threat in an environment. Anderson and Berdahl (2002) further suggested that having power means one can act with less interference from others and less power indicates an individual may feel subject to punishments and threats. Increasing an individual's perceived power may have the ability to increase their positive behavior, control, optimism toward future activities (Anderson et al., 2012; Anderson & Berdahl, 2002), and mood and feelings about self (Cuddy et al., 2018). Recent research by Simmons and Simonsohn (2017) suggested there is no evidential value toward postural feedback using power pose as a technique to support socio-psychological antecedents. However, Cuddy et al. (2018) indicated their findings support the role of power pose effects as having evidential value on emotional and affective states. There have been few attempts by researchers to link the effects of power pose on socio-psychological constructs such as behavior, emotion, and social perceptions in the context of an educational setting.

Purpose and Research Questions. The purpose of this study was to utilize flow and power pose constructs to determine if associations existed in how students perceived leadership compared to different domains of learning. This study was guided by the following research questions:

(1) What are the associations between flow and power pose during class experiences in the context of an undergraduate leadership course?

(2) What are the associations between power pose experiences and happiness, intrinsic motivation, and engagement for students with and without leadership experience?

(3) What are the associations between power pose experiences and domains of learning in an undergraduate course in leadership?

Methods

Data were collected at Michigan State University in the spring semester of 2016 in an upper division leadership course. There were 37 undergraduates enrolled in the course and 36 students participated in the research study. A modified Experience Sampling Form (ESF) with the addition of the power pose construct was used for this research (Table 1). The Michigan State University Institutional Review Board deemed this study exempt.

Table 1

Power pose and flow potential in undergraduate leadership students

Item #	Flow and Power Pose Potential Item Questions
1	How challenged did you feel during this activity or experience?
2	How much skill did you feel as though you had for this activity or experience?
3	Did you wish you had been doing something else?
4	How interested were you in this activity or experience?
5	Were you happy during this activity or experience?
6	Did you enjoy this activity or experience?
7	At what level did you feel as though you were concentrating during this activity or experience?
8	Did you feel you were in control when participating in this activity?

Note: Item 3 was reverse coded for data analysis.

Event-contingent sampling was utilized for this research study. This sampling technique requires respondents to take a paper-pencil survey immediately following the measured activity in a specific domain of learning (Bloom, 1956; Newcomb, McCracken, Warmbrod, & Whittington, 2004). The researcher provided participants with instructions during the first class session prior to taking the first ESF survey. Participants were provided a consent form at the first class and ESFs at each of the class sessions and asked to fill out the surveys based on a specific domain of learning activity during each class session. Student respondents were asked demographic information during the first class session and developed a self-selected code that would identify themselves during future ESF surveys. The modified ESF was designed to elicit information related to participants' demographics (age and gender), whether they had previous leadership experience, whether they held a leadership role within an organization, and questions related to flow as they were reflecting on the activity (e.g., challenge, skill, interest, happiness, enjoyment, and concentration). At the conclusions of each class session, students were asked to fill out the ESF to better understand power pose and flow at the conclusion of the learning activity. A scale reliability test revealed an acceptable Chronbach's Alpha for the instrument items ($\alpha = .76$). Additionally, participants were also asked one question related to power pose (Item #8), "Did you feel you were in control when participating in the activity?" (Carney et al., 2010).

For this study, 36 participants completed a total of 417 ESF's, a response rate of 82.7% (14 measured activities x 36 participants = 504 total potential responses). In an effort to obtain consistent and reliable ESM data, incomplete surveys were not included in the data set for analysis. By comparison, Everett and Raven (2016) had a response rate of 81% for a sample of undergraduate leadership students and in a previous study Everett and Raven (2015) had a similar response rate of pre-service undergraduate AFNRE students using the ESM methodological approach. Thus, the researchers deemed the current studies response rate acceptable.

Leadership activities were categorized and coded into three groups based on domains of learning as defined by Bloom (1956) and redefined in the context of agricultural education by Newcomb et al. (2004). Teaching activities were coded into either the cognitive, psychomotor, or affective domain of learning. The cognitive domain bases recall or recognition of knowledge and development on an individual's intellectual abilities and skills, whereas the psychomotor domain refers to the manipulative or motor-skills area of one's ability to learn (Bloom, 1956). Finally, the affective domain describes an individual's changes in interest, attitudes, values, and one's ability to develop an appreciation while adjusting beliefs over time (Bloom, 1956).

The measure of flow was categorized into four-channels (anxiety, apathy, boredom, and flow) measuring the level of challenge and skill, as well as tangential indicators of flow including wishing you were doing something else, interest, enjoyment, happiness, and concentration. Flow was determined by the quotient of challenge to skill levels perceived by respondents in the ESF learning activity instrument. Flow statements were adapted from previous work by Hektner et al. (2007) with the instrument being a modified version developed by Everett and Raven (2016). Responses for both challenge and skill survey items were based on a five-point scale ranging from 1 - Not at all to 5 - Very much. Average challenge and skill levels among respondents were calculated as the intersection of the four constructs in determining whether flow was occurring and at what level (Everett & Raven, 2016).

The remaining variables for this analysis fall into four categories: 1) demographics questions related to age and gender; 2) previous leadership experiences including the type of organization and any leadership roles held in the organization (e.g., officer, committee chair, or other leadership position); 3) calculations of intrinsic motivation and engagement; and 4) power pose, which is a function of feeling in control during an activity. Intrinsic motivation was calculated using the composite scores of interest, enjoyment, and the inverse of wishing you were doing something

(Csikszentmihalyi & Csikszentmihalyi, 1988). Engagement was calculated based on composite scores of concentration, interest, and enjoyment (Shernoff et al., 2003). The five-point interval scale was utilized with this undergraduate sample as a way to simplify options for filling out instrument questions (1 – Not at All to 5 – Very Much) (Hektner et al., 2007) and has been successful in previous research by Everett and Raven (2015, 2016).

Data were analyzed using the SPSS 24.0 statistical software package. Descriptive statistics were calculated to determine measures of central tendency for independent variables. Chi-square associations were used to compare flow channels, intrinsic motivation, engagement, power pose, and domains of learning. Challenge and skill survey questions were used to determine appropriate channels (i.e., anxiety, apathy, boredom, and flow) using the four-channel model of flow developed by Csikszentmihalyi and Csikszentmihalyi (1988) and Massimini and Carli (1988).

Results and Discussion

The average age of student respondents in this study was 20.7 (SD = 1.9). Of the participants in this study, 57% were females. The average age of respondents with prior leadership experience was 20.8 (SD = 0.9), whereas the average age of students with no prior leadership experience was 19.5 (SD = 2.0). Results of all participants in an undergraduate leadership course indicated that 89% of respondents had leadership experiences prior to taking the undergraduate leadership course. Undergraduates cited having leadership roles (e.g., officer or captain) in the following organizations: 1) High School Sports Teams; 2) Student Council; 3) National Honor Society; 4) Boy/Eagle Scouts; 5) Fraternity/Sorority; 6) Camp Counselor; 7) 4H; and 8) FFA.

Survey results indicated that of the 417 responses, 25.7% of the respondent experiences were on the flow continuum (Table 2). Flow and power pose descriptive data were aggregated for data analysis and representation of information. A chi-square test of independence yielded a significant relationship between categories of flow and the power pose construct respondents who had a flow and power pose experience χ^2 (12, N = 417) = 39.67, p < .01 (Table 2). A comparison of respondents indicated that perceived control was most likely to occur when students were in a state of anxiety (21.8%) or apathy (26.1%) during an undergraduate leadership course. Aggregation of data indicated that a high percentage of undergraduate students perceived themselves to be in control while also indicating they were in a state of boredom (76.2%). Additionally, students also indicated being in control while also being in flow (56.0%) (Table 2).

Table 2

Associations between flow channels and power pose or perceived control of undergraduate leadership students (n = 417)

Power Pose or Perceived Control	Anxiety	Apathy	Boredom	Flow
1 – Not at all	3	10	5	5
	(3.3%)	(10.9%)	(4.0%)	(4.7%)
2 –	17	14	7	11
	(18.5%)	(15.2%)	(5.6%)	(10.3%)
3 – Neutral	29	22	18	31
	(31.4%)	(23.9%)	(14.3%)	(29.0%)
4 –	28	25	41	30
	(30.4%)	(27.2%)	(32.5%)	(28.0%)
5 – Very Much	15	21	55	30
	(16.3%)	(22.8%)	(43.7%)	(28.0%)
χ^2 (12, *N* = 417) = 39.67**				
Total Frequency of Events	92	92	126	107

*p < .05. **p < .01. Note: Data is from Leadership for Community Sustainability a 300-level course with 36 students taught in the 2016 spring semester at Michigan State University.

Mean comparisons of students having no prior leadership experience and prior leadership were similar when compared with happiness, intrinsic motivation, and engagement (Table 3). Overall, all students indicated they were happy (M = 3.90, SD = 1.0), intrinsically motivated (M = 3.88, SD = 1.0), and engaged (M = 3.91, SD = 0.8) in the undergraduate leadership course (Table 3). Effect size calculations indicated that there was no significant difference between happiness, intrinsic motivation or engagement and whether a student had prior leadership experience. However, A chi-square test of independence yielded a significant relationship between power pose and happiness χ^2 (16, N = 417) = 109.73, p < .01, intrinsic motivation χ^2 (48, N = 409) = 127.65, p < .01, and engagement χ^2 (40, N = 408) = 139.65, p < .01 among all students (Table 3).

Table 3

Associations between power pose or control and happiness, intrinsic motivation, and engagement of undergraduate leadership students with and without prior leadership experience

	No-Prior Leadership Mean (S.D.)	Prior Leadership Mean (S.D.)	All Students Mean (S.D.)
Happiness	3.92	3.90	3.90**
χ^2 (16, *N* = 417) = 109.73**	(1.1)	(1.0)	(1.0)
Intrinsic Motivation	3.87	3.88	3.88**
χ^2 (48, *N* = 409) = 127.65**	(1.1)	(1.0)	(1.0)
Engagement	3.94	3.90	3.91**
χ^2 (40, *N* = 408) = 139.65**	(0.9)	(0.8)	(0.8)

*$p < .05$. **$p < .01$. Note: Data is from Leadership for Community Sustainability a 300-level course with 36 students taught in the 2016 spring semester at Michigan State University. Scale of responses from 1 – *Not at All* to 5 – *Very Much*.

Class activities were thematically categorized as being learning lessons within either the cognitive, psychomotor or affective domain of learning. Cognitive domain lessons were based on recall of information or knowledge (e.g., analysis of a case study). Psychomotor domain lessons included student hands-on manipulations (e.g., creation of a puzzle). Affective domain lessons included an attitude, belief or behavioral component embedded in the lesson (e.g., behavioral surveys and discussion). There was a significant relationship between power pose and learning experiences categorized in the three domains of learning. Aggregated survey results indicated that of the 417 responses, 61% of the respondents indicated being engaged in activities in the cognitive domain, 47% indicated being engaged in psychomotor domain activities, and 75% of the respondents indicated being engaged in the affective domain learning activities while having a high level of perceived control during activities measured. A chi-square test of independence yielded a small significant relationship between power pose and domains of learning χ^2 (8, N = 417) = 16.40, p < .05 (Table 4).

Table 4

Associations between power pose and domains of learning of undergraduate leadership students during an Experience Sampling Method (ESM) study (n = 417)

Power Pose or Perceived Control	Cognitive	Psychomotor	Affective
1 – Not at all	11	9	3
	(5.0%)	(7.0%)	(4.5%)
2 –	25	19	5
	(11.3%)	(14.8%)	(7.5%)
3 – Neutral	51	40	9
	(23.0%)	(31.3%)	(13.4%)
4 –	70	32	22
	(31.5%)	(25.0%)	(32.8%)
5 – Very Much	65	28	28
	(29.3%)	(21.9%)	(41.8%)
χ^2 (8, N = 417) = 16.40*			

*p < .05. **p < .01. Note: Data is from Leadership for Community Sustainability a 300-level course with 36 students taught in the 2016 spring semester at Michigan State University.

Summary and Recommendations

Leadership and related skills are critical to the development of future leaders (Northouse, 2016). This study aims to add to current flow research in an undergraduate agriculture and natural resources setting (Everett & Raven, 2015, 2016, 2018) while introducing the concept of power pose (Carney et al., 2010; Cuddy et al., 2012, Cuddy et al., 2018) and potential relational aspects of flow and Flow Theory (Csikszentmihalyi, 1975). Results indicate there was a relationship between flow channels and power pose. However, there was a high incidence of boredom with students who also had high ratings of the construct related to power pose (76.2%). This indicates that some students may not be challenged by the curriculum or having had previous leadership experience (skills) may have predicated learners from being fully engaged in learning activities. With most respondents having prior leadership experience (e.g., FFA, 4-H, Honor Society), there exists a need for differentiated approaches to teaching curriculum as a means of supporting all learners in creating flow experiences. This approach may include leveraging students with previous leadership experience with those who have no leadership experience during class activities and group projects. Additionally, this may indicate that leadership experiences similar to those learning experiences in this course are being taught in the agricultural education classroom, 4-H meetings, or Honor Society events. This approach supports previous work conducted by Everett and Raven (2016) and amplifies the need for interactions between students with and without leadership experiences. Teaching and learning approaches that increase perceived levels of power in students with leadership experiences can provide a learning support system for students who bring less leadership experience to a learning environment.

Second, there was a significant relationship between power pose scale ratings and flow constructs of happiness, intrinsic motivation, and engagement. Students having high power pose scale ratings were also likely to be happy, intrinsically motivated, and engaged during learning in an undergraduate leadership course. This supports research conducted by Cuddy et al. (2018) indicating strong evidential value of power-posing (e.g., mood, attitudes and feelings about self). Based on the research, it is clear that relationships existed between power pose and happiness, motivation, and engagement in an undergraduate leadership course. Therefore, the authors encourage the further use of power posing in the context of leadership learning environments as ways to increase the potential for positive feelings (Keltner et al., 2003) and cognitive function (Smith et al., 2008) of students while also developing career

skills for the workforce. This may include students engaging in group activities while applying power pose posture in learning environments that allow space for human movement. An instructional approach may include small groups of students who are required to work in a circle and complete a leadership task that includes explicit instructor directions on student power pose posturing.

Finally, the results indicated there was a relationship between power pose and domains of learning (Bloom, 1956; Newcomb et al., 2004). These results suggest that during class, students felt a sense of control or power during lessons taught in all domains of learning (i.e., cognitive, psychomotor, and affective). Students were most likely to have high power pose ratings while in the affective (74.6%) and cognitive (60.8%) domains and slightly lower ratings in the psychomotor domain of learning (46.9%). This result indicates the affective domain, or times when students' beliefs and attitudes are framing learning experiences, may also be times when students feel as though they are in control or have a higher perceived power toward that activity. Additionally, similarly high cognitive ratings may also indicate power and cognition in learning provide an empowerment aspect related to student learning and increased control in one's abilities. These results support the work of Cuddy et al. (2012) in that power posing provides an opportunity for individuals to be more successful in both the affective and cognitive domains of learning while increasing positive behavior, control, and optimism toward future activities (Anderson et al., 2012; Anderson & Berdahl, 2002; Cuddy et al., 2018). The authors recommend incorporating power posing into leadership courses when course content is structured around learning in the affective and cognitive domains of learning. However, the authors also believe that leadership learning within the psychomotor domain should not be discounted and the results indicate potential for flow and perceived control in the context of this type of learning. Since incidences of perceived power were lower during the psychomotor domain of learning, the authors recommend further studies to better understand if this data was the result of this particular study or if power posing opportunities in the psychomotor domain are not likely to elicit high perceived control, increase positive feelings (Keltner et al., 2003) and cognitive function (Smith et al., 2008) of students.

In conclusion, the results of this study indicated there were associations among flow, power pose, happiness, intrinsic motivation, engagement, and domains of learning among undergraduate students in a leadership course in the College of Agriculture and Natural Resources at Michigan State University. This research sought to understand associations between flow constructs and power pose. To date, no research exists that compares the intersection of power pose and flow in the context of undergraduate education. Although a high percentage of respondents participating in the study provided robust data, the limited number of respondents (n = 36) and potential for recall bias proved to be a limitation of this study. The authors recommend replicating this study in another leadership course or perhaps classes with a management focus. Future research may include having students power pose while engaging in group activities as a way to determine if flow experiences are amplified under specific teaching and learning conditions. This study complimented previous research by Everett and Raven (2016, 2018) while adding to the theoretical framework of power pose. This study also differed through associations indicated between power pose and domains of learning (Bloom et al., 1956; Newcomb et al., 2004). Results of this study provide College of Agriculture and Natural Resources faculty with further support that flow is an important socio-psychological construct related to learning, while also providing a baseline for power pose considerations in undergraduate learning.

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