

Full Length Research Paper

On the design of the leadership scale for the elementary school and junior high school students

Tsung-Wen Cheng^{*1}, Chien-Chung Lin², Yao-Ming Chu³, Yao-Yu Tsai⁴

¹Fangliao High School, Pingtung, Taiwan

²Graduate Institute of Business and Management, Meiho University, Pingtung, Taiwan

³Department of Industrial Technology Education, National Kaohsiung Normal University, Kaohsiung, Taiwan

⁴Fangliao High School, Pingtung, Taiwan

Accepted 29 February, 2012

The purpose of the research attempts to develop the leadership scale of both elementary school and junior high students. The participants were the 122 students from 5th grade to 7th grade in Pingtung County, Taiwan. The researchers designed a student's leadership scale in accordance with the theory of leadership. Then, the scale would be revised by the scholars in this field, after validity and validation. The scale included nine skills: design skills, group skills, basic concept of leadership, problem solving skills, decision making skills, personality, values clarification, oral communication skills, and writing communication skills. The research discovers that the scale has positive internal consistency and each factor in the scale is highly related. Hence, the scale has positive construct validity.

Keywords: Leadership, elementary school student, junior high school student, scale, leadership scale.

INTRODUCTION

In a global competitive age such as today, the countries around the globe continue to investigate the knowledge innovation to develop the elite human resources (Wu, 2009). Thus, education is not simply to shape the students' future. Instead, the educator has to adopt new approaches and adapt to the movement of time in attempt to help develop their potentials and make them create their own future (Wu, 2003). Thus, from the trend of today's development, leadership is one of the students' great potentials.

The schools are drawing more and more attention to the leadership of pupils as well as the adolescents and, through education and leadership experience, seek to unearth the potential leaders (Schneider et al., 2002; Schneider et al., 1999). In an age so changing and unpredictable, the leadership has become an imperative need (Bennis, 2007). In Taiwan, the Special Education Act in 1997 reads that the leadership is one skill for the talented students (Ministry of Education, 2006).

This reveals that leadership becomes an important skill for the society in the future. How to make the students know their potential leadership proves a rather significant task.

The research pertaining to this topic in Taiwan has offered some scales (Li, 1993; Wang, 2001; Chen, 2004; Wang, 2005; Zheng, 2006). We can find that the researchers mentioned above approached their topics with different viewpoints: Li (1993) adopted the method of peer nominations; Wang (2001) approached the topic from the perspective of interpersonal relationship; Chen (2004) approached from leadership personality; Zheng (2006) approached based on student's living content; and Wang (2005) approached from the perspective of leadership. However, targeted specifically at the gifted children, the aforementioned research can hardly be used and promoted in all the schools.

Hence, the purpose of the research attempts to design a leadership scale, which fits all students. We hope that this will be used among the teachers, who will promote and guide students' leadership potentials. It would further enhance the self-understanding for the students; it would further offer a frame of reference to guide and design

*Corresponding Author E-mail: ptwen2466@gmail.com

suitable curriculum for the teachers.

The research first attempts to generalize the leadership contents, and secondly explores the causes of leadership, and thirdly builds a leadership assessment tool for teachers' reference based on the factors of the scaledesigned.

Literature review

The significance of leadership

Yukl (2006) has outlined the scholars' definition on leadership for over five decades and offers his definition as: (1) leadership refers to the behavior of an individual directing the activities of a group toward a shared goal (Hemphill and Coons, 1957); (2) leadership is "the influential increment over and above mechanical compliance with the routine directives of the organization" (Katz and Kahn, 1978); (3) leadership can be defined as the process of influencing the activities of an organized group toward goal achievement (Rauch and Behling, 1984); leadership is a process of giving purpose (meaningful direction) to collective effort, and cause willing effort to be expected to achieve purpose (Jacobs and Jaques, 1990); (5) leadership is the ability to step outside the culture to start evolutionary change processes that are more adaptive (Schein, 1992); (6) leadership is the process of making sense of what people are doing together so that people will understand and get committed (Drath and Palus, 1994); (7) leadership is about articulating visions, embodying values, and creating the environment within which things can be accomplished (Richards and Engle, 1986); (8) leadership is "a process of social influence by which an individual enlists the aid and support of others in the accomplishment of a task or mission" (Chemers, 1997).

Vroom and Jago (2007) posit that leadership is a process that includes motivation and further influences others. Also, one has to do so in a manner that enables the organization to attain the shared goal and future through team work and the shared group goal will deeply remain in the heart of both the leader and the follower.

Hunter (2004) approaches the topic of leadership on the basis of skills and assumes that leadership is a process of influencing others and it can be used to make others devoted themselves. Encouraged by the leader, the group strives to achieve the shared goal.

Antonakis and colleagues (2004) argue that the leader is a construct with multidimensional nature. Instead, leadership is what occurs in the real world and the definition of it will vary with time and space (Wang,

2004; Chen, 2004; Lee and Olszewski-Kubilius, 2007).

Factors that influence one's leadership

Today's leadership theory reinforces one's relationship with others: one has to cooperate with others, consider the situations, share powers, provide service, transfer the leadership, and pay special attention to his/her intellectual quotient, emotions, spirit and ability to convince others (Rogers, 2003).

As the research indicates, the factors that influence one's leadership are many. The pivotal factors are one's relationship with the members, personality, leadership type, emotion, culture, etc. (Zheng and Jin, 2009).

As the research (2008) conducted by the Girl Scouts of the U.S.A. (or GSUSA) shows, the adolescents regard leaders should have wider scope to offer their service, such as the people, things, and the environment around them, rather than the traditional purpose to obtain power. Moreover, the leaders would equip themselves to influence the world and make the world better, rather than the bureaucratic, compulsory and controlling modes in a traditional sense (Haslam et al., 2011).

In 1997, Special Education Act in Taiwan divided the students with gifted leadership into the category of "the gifted and the talented." This suggests that the Taiwanese government draws special attention to the cultivation of the talented students and understands the importance of cultivating the students with leadership potentials (Wang, 1997).

Article 18 of the Criteria for Identifying Disabled or Gifted Students regulates that the children gifted with leadership refer to children with gifted ability to plan, organize, communicate, coordinate, predict, decide, evaluate, and those who have excellent performance on solving the problems of the group affairs (Ministry of Education, 2006).

To generalize the scholars' comments (Katz and Kahn, 1978; Krajewski et al., 1983; Lessem, 1992; Sergiovanni, 1994; Baker III, 1996; Cai, 2000; Zheng and Wang, 2008), the researchers posit that leadership is closely related to students' personal leadership, interpersonal ability and their cognitive ability.

The aim of students' leadership relies on their ability to solve the problems in classes or in school clubs; they need different concepts, skills, and interpersonal skills to constantly organize, lead, and encourage other's action to achieve the goal of the group (McCormick, 1999). Students' leadership is not involved in the interest motivation (Nelson-Brown, 1998) and it does not have the factors such as the hierarchy of positions, the absolute

right and duty, and accountability. This constitutes the uniqueness of students' leadership.

According to the "Criteria for Identifying Disabled or Gifted Students" designed by the Ministry of Education in Taiwan (Ministry of Education, 2006), the researchers, after analyzing Karnes and Chauvin's (2000) and Wang's (2005) research, posit that a leader has nine skills: (1) **basic concept of leadership**: to understand the relevant concepts and different skills; (2) **writing communication skills**: to have the skill of writing the outline, speech draft, and research report; (3) **oral communication skills**: to articulate one's own viewpoint, to give public speeches, and to offer constructive suggestions or comments; (4) **values clarification**: to understand the importance of self-decision, to identify what one loves, to self-affirm, and to have empathy; (5) **decision making skills**: to collect the facts and information, to analyze the result of the decision, and to induce a rational comment; (6) **group skills**: to develop the ability of increasing the operation, negotiation, and consensus of the group; (7) **problem solving skills**: to demarcate the problem and to evaluate the plausible strategies; (8) **personality**: to have one's own confidence, self-awareness, ambition, amicability, and perseverance; and (9) **design skills**: to set goals and to design and evaluate activities.

METHODOLOGY

Research participants

The purposive sampling was used in this research. The total number of the sample participants was 142: they were the students both from an elementary school and a junior high school in Pingtung County, a place in southern Taiwan, ranged from 4th grade to 7th grade. However, the incomplete surveys collected would be removed, and the valid surveys were 122 (i.e. 43 for 5th grade, 35 for 6th grade, and 44 for 7th grade).

Procedures

Researchers induced the factors that influence students' leadership and further designed Students' Leadership Scale. Meanwhile, six scholars were invited to check, instruct and revise the questions of the scale in accordance with its appropriateness and its clarity. Then, after the constant revisions and discussions, the researchers finally finished the Students' Leadership Scale, which has 55 question statements. The students

have 20 minutes to finish the questions and the researchers will be in the classroom to administer the scale surveys.

Data analysis

SPSS 12.0 was used to undergo data process and statistical analysis. The analysis used would be: (1) item analysis, which undergoes critical ratio and correlation analysis in order for the basis of the question selection; (2) factor analysis, which was used to construct the validity of the scale. Varimax would undergo the orthogonal rotation to evaluate the common features and then determine the numbers of the factors. The common factors and factor rotation selected from the relevant matrix were used to increase the explanations between variances and factors; Cronbach's α , which was utilized to evaluate the relevancy of the shared factors. Then, the sum variants and individual variants after being calculated would be used to evaluate the consistency and stability of the questions.

RESULTS

The selection of the questions of the scale

With the results derived from the scores accumulated from the Students' Leadership Scale, student's leadership would be divided into High Score Level and Low Score Level according to the sum of scores (i.e. divided according to the 27% of the total scores). Each question would undergo t-test and the indiscriminating questions would be removed. The level of significance of the research was set as $p = .01$.

After revision, the total scores of each question and each layer of Pearson product moment correlation coefficient (the scores of the question were not included) were more than .40, and the level of significance was less than .01, which would be reserved. Then, factor analysis and reliability analysis would be used to undergo the questions reserved.

The critical ratio and the correlation coefficient prove statistically significant in the 55 questions of the pretest scale. All the questions have good discrimination and they would be reserved (See Appendix 1).

Factor analysis

After some questions were removed with item analysis,

the 55 leadership variances in the research collected respondents' responses with the Likert5- point scale and classified their responses according to the levels of agreement ("strongly agree"=5; "strongly disagree"=1). After the process of Kaiser-Meyer-Olkin measure of sampling adequacy (KMO=.933) and Bartlett's test of sphericity ($p < .001$), the results indicate that the data of the scale is suitable for factor analysis (Qiu, 2000).

Then, factor analysis was used to construct the validity of the scale methodologically with principal components analysis. The varimax of the orthogonal rotation was used to extract factor loading; the method of determining the number of factors was to set it as the number of each layer of the scale. Finally, according to the component matrix exported from the factor analysis as well as the distribution of the factor loading of each question, we can discover the factor components and question dissipation. In addition, we can find the eigenvalue of factors, the percentage of explained variances, and the cumulative percentage of explained variances.

The reservation principles of the factor analysis is that the eigenvalue is greater than 1, that its cumulative explained variance is greater than 50%; and that the factor loading of each question is greater than .50 as an criteria for question selection, and then constructs the analysis results of the scale.

The study accumulates nine factors, and the value of each item factor loading is ranged around .469 - .791. The eigenvalues and the explained variances are as follows: the eigenvalue of factor 1 is 7.03 and the explained variance is 13.26%; the eigenvalue of factor 2 is 5.32 and the explained variance is 10.04%; the eigenvalue of factor 3 is 4.97 and the explained variance is 9.39%; the eigenvalue of factor 4 is 4.64 and the explained variance is 8.76%; the eigenvalue of factor 5 is 4.39 and the explained variance is 8.28%; the eigenvalue of factor 6 is 4.38 and the explained variance is 8.27%; the eigenvalue of factor 7 is 4.08 and the explained variance is 7.70%; the eigenvalue of factor 8 is 3.35 and the explained variance is 4.95%; and the eigenvalue of factor 9 is 2.62 and the explained variance is 4.95%. The sum of the cumulative variances is 76.96% (See Appendix 1).

Analysis of internal consistency reliability

The results of the internal consistency reliability can be summarized as follows: the total reliability of the scale is .982. The reliability of the basic concept of leadership is .930; that of the writing communication skills is .764; that of oral communication skills is .826; that of the values clarification is .922; that of the decision making skills

is .939; that of the group skills is .945; that of problem solving skills is .948; that of personality is .931; and that of the design skills is .954.

According to Wu (2006), a scale with good reliability refers to the reliability coefficient ranged greater than .80; it is acceptable if ranged between .70 - .80. The reliability coefficient of the subscale is better ranged more than .70; it is acceptable if it is ranged around .60 - .70. The reliability coefficient of the research reaches .982 and that of the subscale is ranged around .763 - .954, indicating that the scale has good reliability.

DISCUSSION AND CONCLUSION

Based on Karnes and Chauvin (2000) and Wang (2005), the research proposes 9 leadership skills and attempts to design student's leadership scale.

The research discovers that the scale designed has positive internal consistency and reliability. The factors in the scale are highly related, indicating that the scale designed has good reliability and the scale is suitable for the students from 5th grade to 7th grade. In terms of reliability, the factor loading of each question item is more than .05, except the former question item 12, which is .469; the explained variance reaches 76.96%, indicating that the scale has good construct validity. In addition, the researchers propose nine skills for the leaders to get armed with: design skills, group skills, basic concept of leadership, problem solving skills, decision making skills, personality, values clarification, oral communication skills, and writing communication skills.

REFERENCES

- Antonakis J, Cianciolo AT, Sternberg RJ (2004). Leadership: Past, present, and future. In J. Antonakis, A. T. Cianciolo., and R. J. Sternberg (Eds.), *The nature of leadership* (pp. 3-15). Thousand Oaks, CA: Sage.
- Baker IIGA (1996). *Leadership competencies assessment instrument (LCAI)* (3rd ed.). Raleigh, NC: North Carolina State University.
- Bennis W (2007). The challenges of leadership in the modern world. *American Psychol.* 62(1): 2-5.
- Cai MY (2000). To construct the core skill scale for the group leaders: The Taiwanese and Japanese enterprises as an example, (Unpublished master's thesis), National Central University, Taoyuan, Taiwan.
- Chen ZJ (2004). *Program of leadership development*. Taipei: Psychological Publisher.
- Haslam SA, Reicher SD, Platow MJ (2011). *The new psychology of leadership: Identity, influence and power*. New York: Psychol. Press.
- Hunter JC (2004). *The World's Most Powerful Leadership Principle: How to Become a Servant Leader*. New York: Crown Business.
- Karnes FA, Chauvin JC (2000). *Leadership development program*. Scottsdale, AZ: Gifted Psychology Press.

- Katz D, Kahn R (1978). *The social psychology of organizations* (2nd ed). New York, NY: Wiley.
- Krajewski KJ, Martin JS, Walden J (1983). *The elementary school principalship: Leadership for 1980s*. New York, NY: Holt, Rinehart and Winston.
- Lee SY, Olszewski-Kubilius P (2006). The emotional intelligence, moral judgment, and leadership of academically gifted adolescents. *Journal for the Education of the Gifted*, 30(1): 29-67.
- Lessem R (1992). *Total quality learning: Building a learning organization*. Oxford: Blackwell.
- Li RX (1993). On the variables relating to the leadership potentials, (Master's thesis), National Taiwan Normal University, Taipei, Taiwan.
- McCormick MJ (1999). The influence of goal-orientation and sex-role identity on the development of leadership self-efficacy during a training intervention (Unpublished doctorate dissertation). Texas A and M University.
- Ministry of Education (Taiwan) (2006). The criteria for identifying disabled or gifted students. Retrieved August 28, 2011, from <http://law.moj.gov.tw/LawClass/LawContent.aspx?PCODE=H0080065>
- Nelson-Brown TA (1998). Student loan procurement: Exploring its linkages to leadership, diligence, and post-collegiate behaviors. (Unpublished doctorate dissertation). Louisiana State University.
- Qiu HZ (2000). Quantitative research and statistical analysis. Taipei: Wunan Book Company Ltd.
- Rogers JL (2003). Leadership. In S. R. Komives, D. B. Woodard, Jr., and Associates (Eds.), *Student services: A handbook for the profession* (pp. 447-465). San Francisco: Jossey-Bass.
- Schneider B, Ehrhart KH, Ehrhart MG (2002). Understanding high school student leaders II: Peer nominations of leaders and their correlates. *Leadership Quarterly*, 13, 275-299.
- Schneider B, Paul, MC, White SS, Holcombe KM (1999). Understanding high school student leaders I: Predicting teacher ratings of leader behavior. *Leadership Quarterly*, 10: 609-636.
- Sergiovanni TJ (1994). *Building community in schools*. San Francisco, CA: Jossey-Bass Publishers.
- Vroom VH, Jago AG (2007). The role of the situation in leadership. *Am. Psychol.* 62(1): 17-24.
- Wang ZD (2001). On the design of the assessment tool for gifted students' leadership. *J. Gifted Educ.* 1(1): 29-40.
- Wang ZD (2004). A pilot study of integrating leadership education into regular curriculum. *J. Gifted Educ.* 4(2): 1-16.
- Wang ZD (2005). *Leadership development program*. Taipei: Psychological Publisher.
- Wang ZD (1997). The curriculum development for the education of leadership. *J. Gifted Educ.*, 65: 8-15.
- Wu ML (2006). *SPSS application of statistics and learning practice: question analysis and applied statistics*. Taipei: Zhicheng Publishers.
- Wu QJ (2009). Development plan for world class universities and research centers for excellence, Higher Education. Technol. and Vocational Educ. Newsletter, 035.
- Wu WD (2003). Multiple intelligences and school management. *J. Educ. Res.* 110:20-40.
- Yukl GA (2006). *Leadership in organization* (6th ed.). New Jersey: Pearson Education Inc.
- Zheng JJ, Jin CH (2009). A Commentary on the research of attribution theory in leadership. *Advances in Psychol. Sci.*, 2:432-441
- Zheng SM (2006). A Study of Constructing the Frame of Leadership Competencies of High School Students, (Unpublished doctorate dissertation). National Taiwan Normal University, Taipei, Taiwan.
- Zheng SM, Wang ZD (2008). Constructing a leadership model for junior and senior high school students. *Bulletin of Special Education*, 33(2): 85-112.

Appendix

Table 1. Summary of the Reliability and Validity Analysis on the Scale of the Leadership (n=122)

New topic number	Old topic number	Factors	Question/ Statement	Correlation coefficient	Eigenvalues	Cronbach α	Reservation
1	48	Design skills (factor 1)	Leaders are armed with sufficient knowledge to solve the tasks.	.787***	7.03	.954	<input type="radio"/>
2	49		Leaders will finish the tasks in priority order.	.770***			<input type="radio"/>
3	50		Leaders clearly understand the ability of the members and distribute them the right task.	.767***			<input type="radio"/>
4	51		Leaders can always finish everything before the due time.	.726***			<input type="radio"/>
5	52		Leaders have better induction and reasoning abilities.	.751***			<input type="radio"/>
6	53		Leaders will collect, organize, and analyze the information.	.740***			<input type="radio"/>
7	54		Leaders are armed with the ability to design work plans.	.726***			<input type="radio"/>
8	55		Leaders can design the goal of the work plans to achieve.	.740***			<input type="radio"/>
9	29	Group skills (factor 2)	Leaders are able to instruct the members to get things done.	.707***	5.32	.945	<input type="radio"/>
10	30		Leaders are able to perceive each member's feelings.	.652***			<input type="radio"/>
11	31		Leaders will respect the members' idea.	.696***			<input type="radio"/>
12	32		Leaders are able to integrate each person's opinion.	.789***			<input type="radio"/>
13	33		Leaders' opinion are easily recognized and admitted among the members.	.595***			<input type="radio"/>
14	34		Leaders are able to effectively resolve the conflicts among the members.	.746***			<input type="radio"/>
15	35	Leaders are able to forge a shared goal with the members.	.816***	<input type="radio"/>			
16	1	Basic concept of leadership (factor 3)	Leaders are able to distinguish which things should be done and should not be done.	.740***	4.97	.930	<input type="radio"/>
17	2		Leaders are able to consider the details of the activities they host.	.803***			<input type="radio"/>
18	3		Leaders emphasize the importance of team work.	.723***			<input type="radio"/>
19	4		Leaders will support and encourage their members.	.730***			<input type="radio"/>
20	5		Leaders will enrich themselves.	.698***			<input type="radio"/>
21	6		Leaders draw attention to interpersonal relationship.	.708***			<input type="radio"/>
22	36	Problem solving skills (factor 4)	Leaders can always find the key point of the problem.	.771***	4.64	.948	<input type="radio"/>
23	37		Leaders are able to solve the problem through different ways.	.757***			<input type="radio"/>
24	38		Leaders consciously know the priority order of the problems.	.804***			<input type="radio"/>
25	39		Leaders will constantly find out where the problems are.	.798***			<input type="radio"/>
26	40		Leaders will discover more problems with members.	.797***			<input type="radio"/>
27	41		Leaders will do anything in advance in order to prevent its happening.	.743***			<input type="radio"/>
28	23	Decision making skills (factor 5)	Leaders are able to analyze all the situations before they make their decisions.	.738***	4.39	.939	<input type="radio"/>
29	24		Leaders will consider the consequences when they make their decisions.	.790***			<input type="radio"/>
30	25		Leaders will consider other's feeling when they make their decisions.	.769***			<input type="radio"/>
31	26		Leaders make their decisions after they discuss with their members.	.772***			<input type="radio"/>
32	27		Leaders will find out relevant proof to support their idea before they make their decisions.	.776***			<input type="radio"/>
33	28		Leaders will adjust their original thoughts if they find new evidences.	.700***			<input type="radio"/>
34	42	SO er P	Leaders do anything actively and unflinchingly.	.766***	4.38	.931	<input type="radio"/>

Table 1 continue

35	43		Leaders always act confidently.	.656***			○
36	44		Leaders are always willing to help others.	.729***			○
37	45		Leaders always try to fulfill other's request as in duty bound.	.682***			○
38	46		Leaders can always set a good example with their own conduct in work.	.796***			○
39	47		Leaders can always urge themselves to finish the work.	.787***			○
40	18	Values clarification (factor 7)	Leaders are willing to discuss and share their opinions with members.	.653***	4.08	.922	○
41	19		Leaders will raise some question for the members to think.	.686***			○
42	20		Leaders will offer different choices for members when hosting any activities.	.754***			○
43	21		Leaders will take actions according to the decisions they make when hosting any activities.	.750***			○
44	22		Leaders will respect member's choice and take actions together.	.828***			○
45	12	Oral communication skills (factor 8)	Leaders can always express their ideas clearly.	.789***	3.35	.826	○
46	13		Leaders can always persuade others to accept their own opinions.	.595***			○
47	14		Leaders can always choose proper time to express their ideas.	.746***			○
48	15		Leaders will carefully listen to other's voice.	.816***			○
49	16		Leaders will actively find something more to talk.	.382***			○
50	17		Leaders make others easy to talk to them.	.688***			○
51	7	Writing communication skills (factor 9)	Leaders are able to write clearly.	.373***	2.62	.764	×
52	8		Leaders are able to communicate and share opinion through emails, Internet, blogs, etc.	.489***			×
53	9		Leaders are able to use simple and clear sentence to record members' opinions.	.707***			○
54	10		Leaders' report is precisely and understandably written.	.652***			○
55	11		Leaders are able to write the written report clearly and effectively.	.696***			○

** $p < .01$ *** $p < .001$