

## **An Investigation of the Relationship between the Barlett-Kotrlik Inventory of Self-Learning Score and Demographic Variables in the Korean Context**

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*The purpose of this study was to examine the relationship between the Bartlett-Kotrlik Inventory of Self-Learning score and demographic variables such as GPA, gender, and grade-level within a Korean university context. The results suggest that GPA is significantly related to self-directedness among college students, and grade-level is another important variable that explains self-directedness scores. There were no differences based upon gender. Implications for future research and practice are presented.*

**Keywords:** Self-Directed Learning, Demographic Variables, Barlett-Kotrlik Inventory of Self-Learning

Self-directed learning has been considered an important adult learning concept and prominent area of research for the past three decades (Houle, 1984; Brockett & Hiemstra, 1991). However, given the trends toward self-development in work organizations, self-directed learning has become an important issue within the field of HRD (Ellinger, 2004). Since knowledge and skills have become perishable commodities, continuous learning must be embraced as a career-long process. Adults in colleges, universities, and work organizations must continuously learn and re-learn to remain marketable and employable (Centrol & Gayle, 1991; Guglielmino & Murdick, 1997; London & Smither, 1999). Enhancing the ability for self-directedness among students and workers is becoming essential if they are to become lifelong learners (Dunlap & Grabinger, 2003).

Several research streams within the broad base of self-directed learning research have focused on instrument development initiatives to assess self-directed learning readiness along with survey-based studies seeking to explore the relationship between self-directed learning readiness and variables such as age, gender, level of formal education, wellness, autonomy, learning styles, life satisfaction, health activated individuals, attitude toward mathematics, creativity, and resilience (Adenuga, 1991; Candy, 1991; Confessore & Confessore, 1994; Cox, 2002; Hassan, 1981; Leeb, 1983; McCarthy, 1985; Owen, 1996; Reynold, 1984; Robinson, 2003; Sabbaghian, 1979). Two prominent instruments have played a critical role in such studies: Guglielmino's (1977) Self-Directed Learning Readiness Scale (SDLRS) and Oddi's (1984) Oddi Continuing Learning Inventory (OCLI). These instruments have been widely used in quantitative studies despite some scholars' concerns and recommendations for developing new instruments to study self-directedness. The Bartlett-Kotrlik Inventory of Self-Learning (BKISL) represents a recently developed instrument to assess self-directed learning. While the Guglielmino and Oddi instruments contain personal variables, both have lacked consideration of the social and environmental variables which have been incorporated into the Bartlett-Kotrlik instrument.

Though many research studies have been done to examine the relationship between self-directed learning readiness and these aforementioned variables in western culture, there has been little research into the relationship between self-directed learning readiness and such variables in different cultural contexts. Scholars have specifically acknowledged that more research is needed to study self-directed learning in non U.S. cultures such as Asian contexts (Ellinger, 2004; Nah, 2000). Therefore, the purpose of this study was to examine the relationship between self-directed learning readiness score and demographic variables within the Korean context.

### **Review of Literature**

Self-directed learning has been conceived as a foundational and multi-faceted adult learning concept which has been variously defined in the literature (Ellinger, 2004). Though a common definition is non-existent, scholars often agree that self-directed learning emphasizes the learners' initiative over the schedule and implementation of learning (Knowles, 1975; Merriam & Caffarella, 1999). Knowles defines self-directed learning as "a process in which individuals take the initiative without the help of others in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (1975, p. 18). The following review will concentrate on the instruments that have been designed to assess self-directed learning and literature that has examined the relationship

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between self-directed learning and variables such as age, gender, level of formal education, life satisfaction, health activated individuals, attitude toward mathematics, creativity, and resilience.

*Instruments to Measure Self-Directed Readiness and Self-Directed Learning*

The SDLRS and OCLI have played a critical role in making self-directed learning one of the most extensively researched areas in adult education. Based upon Knowles' definition, the intent of the SDLRS was to measure the extent to which individuals perceived themselves to possess attitudes and skills often connected with the idea of readiness, and an internal status of psychological readiness. The instrument contains 8 factors. It has been widely used, but has generated considerable controversy and criticism regarding issues of reliability and validity. In addition, scholars have critiqued the samples used in research with the instrument, pointing to a lack of studies of self-directed learning among various ethnic groups, such as African Americans, Puerto Ricans, Hispanics, Asians, or Native Americans (Brookfield, 1985a). McCune (1988) has pointed out that the major samples for self-directed learning studies have consisted of middle-aged, educationally advanced females (McCune, 1988). Caffarella and O'Donnell, (1987) also argue that future studies about self-directed learning should address diverse populations and include individuals with lower levels of formal education, as well as those from different ethnic and various socioeconomic backgrounds (Brockett & Hiemstra, 1991). Researchers should recognize that the impact and perceived significance of self-direction may be different among learners from different cultures (Brockett & Hiemstra, 1991). Brookfield (1985b) asserts that the SDLRS would not be suitable for working class adults, older people, or less-educated individuals. The OCLI also assesses self-initiated learning and continuing professional education but has not been used as extensively as the SDLRS.

The Bartlett-Kotrlík Inventory of Self-Learning (BKISL) was recently developed to measure self-directed learning in terms of personal, social, and environmental variables. Several items were adjusted to apply to workplace learning contexts from the Motivated Strategies for Learning Questionnaire (MSLQ) created by Prinrich and Associates. Bartlett's (Bartlett, 1999; Bartlett & Kotrlík, 1999) initial analysis on the third set of pilot data, which was obtained from business educators in the United States, yielded 14 factors and 55 items (measured on a seven-point Likert-type scale). Based on these analyses, six items were removed (items 3, 20, 26, 46, 21, and 31) because of low loadings so that the instrument was refined to an 11-factor solution with 49 items. The 11 factors consisted of the following: intrinsic motivation, extrinsic motivation, performance and self-efficacy of work, time management, goal setting, peer learning, help seeking, others' performance ratings, supportive workplace, external support, and attitude towards technology. Bartlett (1999) has suggested that the Bartlett-Kotrlík Inventory of Self-Learning showed high estimates of internal consistency (.91 for the 49-item survey), but acknowledges that more research is needed to further investigate the reliability of the instrument. Furthermore, since instrument development is an ongoing process, the full 55-item instrument has been made available for additional data collection and analyses. The developer insists that the instrument has been strengthened in comparison with the SDLRS and the OCLI, integrates personal variables, and appends new social and environment variables not previously covered in these other instruments. Since the BKISL was recently developed to assess the self-directedness for complementing the possible disadvantages associated with the existing SDLRS and OCLI instruments, the instrument was selected to measure the self-directedness of college students within the Korean context.

*Studies about the Relationship of Self-Directed Learning with Other Variables*

Several studies have examined the relationship between Guglielmino's SDLRS and variables such as age, gender, level of formal education, life satisfaction, health activated individuals and attitude toward mathematics. Sabbaghian (1979) used the self-directed learning readiness scale as an instrument for a correlational study to examine the relationship between self-directedness and Guglielmino's factor of self-concept. The major findings suggested: (a) a significant relationship between self-directedness and self-concept, (b) individuals with more formal education showed a higher score on self-directed readiness, and (c) age and gender were not significantly related to self-directed readiness. Hassan (1981) also investigated the relationship between self-directed readiness and age, gender, and level of formal education. The results suggested that self-directed learning readiness and level of formal education have a great impact on an individual's participation in self-directed learning. Savoie's (1978) study investigated the relationship between self-directed learning readiness scores and the ability to succeed in a course which needs a high degree of self-direction. The result of Savoie's research suggested that the self-directed learning readiness score is a useful tool in determining the extent to which learners succeed in programs requiring self-direction. Brockett (1982) used the self-directed learning readiness score to investigate the relationship between the perception of self-directed learning readiness and the degree of life satisfaction. Findings suggested a significant positive correlation between life satisfaction and self-directed learning readiness. The relationship between the self-directed learning readiness score and health activated individuals who are described as individuals who pursue conducive behaviors in their lifestyles was examined by Leeb (1983) and findings suggested that there was a positive correlation between self-directed learning readiness traits and those who live with the health conducive

lifestyle. Reynold (1984) investigated the relationship between the perception of self-directed learning readiness and the motivational orientations for participation in college education. The results of the study indicate that women are significantly more ready for self-directed learning. The researcher insisted that the extent of self-directed readiness and motivational orientation should be considered to assign students with appropriate courses, programs, and politics. McCarthy (1985) studied the relationship between self-directedness and attitude toward mathematics. The results indicated that there was no significant relationship between self-directedness and attitude toward math. Cox (2002) examined the relationship between creativity and self-directed learning readiness among 114 adult community college students. The result showed a moderate positive correlation between creativity and self-directed learning readiness. Robinson (2003) investigated the relationship between self-directed learning readiness and resilience suggesting a positive relationship between self-directed learning readiness score and resilience and age. The relationship between self-directedness and gender has been examined in several researches (Hassan, 1981; Robinson, 2003). The results show that there is no relationship between genders in terms of self-directed learning readiness.

#### *Self-Directed Learning Research in Korea*

Limited research has examined self-directed learning in Korea using a Korean translated version of Guglielmino's SDLRS to measure self-directed learning readiness (Cho, Kwon, & Park, 2003; Park & Kwon, 2004). Studies have largely focused on measuring the level of self-directed learning readiness scales for elementary school teachers or high school teachers in the Korean educational context. Two empirical studies have examined self-directed learning readiness in Korean work organizations. One study examined employees' self-directed learning readiness and perceptions of the work environment and another examined the relationship between self-directed learning readiness and affective commitment (Kwon, Cho & Kwon, 2003; Park & Kwon, 2004). While these studies acknowledge the importance of self-directed learning in the Korean context, few studies have explored self-directed learning among college students who represent the skilled workforce of the future. Consequently, this study contributes to increasing the scope of self-directed learning research in Korea.

### **Research Questions and Research Design**

The following research questions guided the study: (1) Is there a difference in self-directed learning readiness by gender of college students? (2) What is the relationship between the self-directed learning readiness scale and gender, grade-level, and GPA?

#### *Instrumentation and Translation*

Since the refined version of the BKISL contained 11 factors and was mainly created for workplace surroundings, one of the factors was not suitable for the population of this study. As a result, the items comprising this factor were adjusted to make sense for the target population and combined with another factor. Supportive Work Place and External Support were merged, resulting in the collapsed factor: Supporting Learning Environment. Throughout the paper, the resulting 10 factor version of the instrument will be referred to as the collapsed version. The collapsed version of the BKISL including 55 items was translated into Korean. In order to establish the face validity of the Korean-translated instrument, the instrument translated into Korean was retranslated into English. In addition, every item in the Korean-translated version of the instrument was evaluated against the original item in the English version of the BKISL. If there were no extensive meaning differences between the BKISL and the Korean-translated version of the instrument, it was regarded that the Korean-translated version of the instrument would have the comparable face validity as the original English instrument. Recent research investigated the reliability and validity of the translated version of the BKISL in Korean context (Cho, Ellinger, & Hezlett, 2005). A factor analysis using principle components analysis with oblimin rotation was used to assess the structure of the instrument. Cronhach's alpha was used to estimate the internal consistency reliability. Researchers reported that the retranslated and collapsed version of the BKISL demonstrates acceptable face validity and most scales have adequate reliability in the Korean context. The overall reliability was reported .90. In addition to completing the Korean-translated version of the collapsed BKISL, study participants provided information about themselves. In a demographic section of the research instrument, each participant was asked to report his or her cumulative GPA, as well as his or her gender and grade-level.

#### *Population and Sample*

Twelve hundred undergraduate students enrolled in the College of Business Administration at Korean University in Seoul, Korea during the spring semester of 2003 were purposefully selected population for this study. Since 1,200 undergraduate students were the population, the ideal sample size (n=126) was determined based on a formula from Bartlett, Kotrlik, and Higgins (2001). The primary researcher solicited the assistance of a Korean University professor to implement the research. The professor selected classes within the College of Business

Administration at Korean University. Therefore the convenience sample for the research was comprised of undergraduate level classes. The students who attended the identified classes on the day the survey was administered were asked to participate in the study. There was only one senior student in the sample so that one individual's data were intentionally deleted for this study. Therefore, the total sample size for the study was 125.

#### *Procedures*

Permission to conduct the study and assistance with the administration of the survey instruments was obtained from professors teaching each of the selected classes in the College of Business Administration at Korean University. Their support was essential to hand out the instruments to their classes. The professors administered the instruments to their classes and then sent them to the primary researcher. The survey data obtained was entered into the Statistical Package for Social Science (SPSS) for analysis. The psychometric properties of the Korean translated version were examined to ensure the robustness of the instrument prior to further analysis of the data to address the research questions.

#### *Data Analysis*

Descriptive statistics were used to describe the sample on the personal variables. The demographic variables of age and cumulative GPA were analyzed by using means and standard deviations. The undergraduate grade levels (freshmen, sophomore, and junior) were ordinal variables that were reported by using frequencies and percents. In order to perform a regression analysis, the grade-level variable was regarded as a continuous variable: freshmen=1, sophomore=2, and junior=3. Gender was reported by frequencies and percents because gender was a nominal variable. The self-directed learning level of the sample was based on the total Bartlett-Kotrlík Self-Learning score and was reported by using means and standard deviations. Correlation analysis was used to estimate the relationships among the overall BKISL score, gender, grade-level, and GPA. An independent samples t-test was used to examine BKISL differences by gender. A multiple regression analysis with the enter method was used to examine the relationship between the self-directed learning readiness scale and gender, grade-level, and GPA. For the regression analysis, a dummy code was used for the gender variable. Males were coded as 0 and females were coded as 1. In order to detect outliers, standardized residuals and studentized residuals were scrutinized. In addition, leverage and Cook's D was used to identify an influential observation. For diagnosing collinearity, the variance inflation factor (VIF) was analyzed.

### **Results and Findings**

The majority of the participants for this study were male (n=89, 70.6%), management majors (n=102, 81.6%), and freshmen (n=73, 58.4%). The grade level of the undergraduate students in the sample was comprised of freshmen (n=73, 58.4%), sophomores (n=23, 18.4%), and juniors (n=29, 23.2%). The sample of this study had an average age of 21.51 (SD=1.81) years. The mean GPA was 3.3131 (SD=0.5735) on a scale where A+ =4.5, A-=4.0, B+=3.5, B-=3.0, and C+=2.5. The mean on the Korean-translated version of the BKISL was 46.04 (SD=4.72). According to the range for the BKSIL (Bartlett, 1999), the respondents for the Korean-translated version of the BKISL would be regarded as slightly self-directed learners.

Table 1 reports the correlations among the self-directed learning readiness scale and the three personal variables that are the focus of this study: gender, grade-level, and GPA. All the variables have positive correlations but the results suggest that GPA is highly correlated with the BKISL score. In addition, gender has a negligible correlation with the score of Bartlett-Kotrlík Inventory of Self-Learning.

Table 1. *Correlations between the Self-Directed Learning Readiness Scale and Variables: Gender, Grade-level, and GPA.*

Scales	<i>BKISL</i>	<i>Gender</i>	<i>Grade-Level</i>	<i>GPA</i>
BKISL				
Gender	.073			
Grade-Level	.347**	.085		
GPA	.488**	.237**	.246**	

\*\*Correlation is significant at the 0.01 level (2-tailed); Note. BKISL: Self-directed learning readiness score.

Table 2 is presented to display the findings pertinent to research question one. An independent samples t-test was used to investigate the BKISL by gender. The result indicates there is no difference between males and females on self-directed learning as assessed by the collapsed and translated BKISIL ( $t = -.771$ ,  $df = 124$ , and  $p = .442$ ).

Table 2. The Mean Score of the Korean Version of the BKISL for Males and Females.

<i>Gender</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Male	88	45.8192	4.6359
Female	37	46.5678	4.9438

Table 3, 4, and 5 display the results of the regression analyses performed to address research question two. For this model, all three independent variable were entered simultaneously. The grade level variable was regarded as continuous variable because the effect of grade level on the dependent variable is linear (the mean score of the BKISL: freshmen = 44.6647, sophomores = 47.3885, and junior = 48.4357). Table 3 shows that GPA, grade-level, and gender predict 29.7% of the variance in the self-directed learning scores. In the other words, GPA, grade-level, and gender explain slightly less than one-third of the variability in the self-directed learning scores.

Table 3. *Model Summary*

Model	R	R Square	Adjusted R Square	Change Statistics					
				Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.545a	.297	.280	3.9969	.297	17.207	3	122	.000

a Predictors: (Constant), GPA, GRADE-LEVEL, GENDER; b Dependent Variable: BKISL

Table 4 shows that the F value of model 1 is significant. In model 1, the F value is 17.207 and the p value is less than .05.

Table 4. *ANOVA Table*

<i>Model</i>		<i>Sum of Squares</i>	<i>Df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
1	Regression	824.688	3	274.896	17.207	.000a
	Residual	1949.010	122	15.975		
	Total	2773.698	125			

a Predictors: (Constant), GPA, GRADE LEVEL, GENDER; b Dependent Variable: BKISL;

Table 5 reports the results pertaining to the regression coefficients. Based on the result, GPA variable is significant at the 0.00 level. Grade-level variable is significant at the 0.05 level. The result shows that gender variable is not significant at the 0.05 level.

Table 5. *Regression Coefficients*

Model		<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	<i>t</i>	<i>Sig.</i>	<i>Collinearity Statistics</i>	
		<i>B</i>	<i>Std. Error</i>				<i>Beta</i>	<i>Tolerance</i>
1	(Constant)	31.436	2.368		13.275**	.000		
	GPA	3.642	.662	.440	5.470**	.000	.892	1.122
	GENDER	.522	.804	.051	.649	.518	.945	1.058
	GRADE LEVEL	1.349	.430	.430	3.137*	.002	.939	1.065

a Dependent Variable: BKISL; b \*\* t value is significant at P<.00 level; c \* t value is significant at P<.05 level

In order to see outliers, standardized residuals, leverage, Cook's D, and variance inflation factor (VIF) values were checked. For standardized residuals, most values are less than 2 but several values are slightly over 2. The impact of the value may be negligible. For leverage, all values are relatively small. For Cook's D, there is no major outlier in the distribution of the data. For VIF, the mean VIF in the independent variable was checked but there is no value substantially over 1.

## Discussion

Overall, the findings from this study suggest that: (1) in a Korean context, there is no difference between males and females with regard to the self-directed learning score; and, (2) GPA and grade level are significantly related to self-directed learning. The result of this study supports some of the previous research that also suggest that gender is not significantly associated with self-directed learning readiness (Sabbaghian, 1979; Robinson, 2003).

The results suggest that those who are in a higher grade-level may possess more of a tendency toward self-directedness than lower grade level students. If we assume that higher-grade level students are older than lower-grade level students, this result is somewhat different than Guglielmino, Guglielmino, and Long's, (1987) research which reports no significant differences in self-directed learning readiness score by age.

The results also indicate that students who have higher GPA have a tendency to be more self-directed. In fact, GPA had the strongest relationship with self-directed learning of the variables examined in the study. As this study is correlational, we are unable to determine causality. Additional research is needed to evaluate whether students achieve higher GPAs because they are more self-directed learners or if having a higher GPA fosters self-directed learning.

### *Limitations of the Study*

This study used a translated version of the BKISL so instrumentation would be the major threat to internal validity, although every effort was made not to distort the original meanings during the translation process. Another limitation is the use of a collapsed version of the instrument which may have had a slight impact on the results. Other limitations include the population and sample. Since the study was conducted within one Korean university, findings cannot be generalized. Furthermore, since a convenience sampling process was used claims of the sample representing a particular population cannot be made. While this study found a meaningful positive relationship between grade-level and self-directed learning readiness, more research is needed to see if this relationship holds throughout all four years of college.

## Conclusions and Recommendations

The results of the study suggest that there is no difference between males and females in terms of their self-directed learning scores. Several previous studies also suggest that there is no significant difference between males and females with regard to self-directed readiness. Thus, the result of this research supports the previous research (Sabbaghian, 1979; Robinson, 2003). However, those studies were conducted in western cultures. More research is needed to examine the BKISL based on gender in different cultures. The results also suggest that GPA is the most valuable variable in accounting for variance in self-directed learning readiness scores. Finally, it appears that self-directed learning increased according to grade-level which suggests that junior students may be more self-directed than freshmen students.

There are three recommendations for future research. First, the distribution of the sample for the study was unintentionally biased toward freshmen and males. Thus, future research should consider a stratified distribution of gender and grade level in the sample. Second, more studies need to be conducted in different educational settings in the Korean context given the sole focus on one institution in this study. Third, this study was not intended to test a direction of causality between GPA and self-directed learning readiness score so more research is needed to test the causality.

## How This Research Contributes to New Knowledge in HRD

Sleezer and Denny (2004) have acknowledged that HRD professionals may need to broaden their frames of reference if they are to “help their organizations acquire the workforce skills that are needed to successfully compete in today’s and tomorrow’s workplace” (p. 44). They have suggested a strategy that “involves working with other business, civic, and education leaders in a community to create structures that systematically integrate educational resources with business needs” (p. 47). Such a workforce development infrastructure strategy can generate an ongoing supply of skilled workers and link education and training initiatives to economic and social goals within a larger community.

Given some of the findings, particularly with regard to grade-level, from a pragmatic perspective, college and university educators may need to consider approaches to helping develop self-directed learning capabilities among freshmen since self-directedness is such an increasingly important competence in the world of work. More guidance or assistance for freshmen students might be needed to help them to develop study skills and self-directed learning capabilities in their courses or within training programs in preparation for future employment. This may be an area

for more closely linking HRD professionals, work organizations, and college and university educators. If educators and HRD professionals are able to assess the level of self-directed learning before teaching or training interventions, it may increase the effectiveness of classroom teaching and ultimately HRD interventions in business settings when graduates assume positions in work organizations. Since some studies have suggested that there is a relationship between self-directed learning and the ability to contribute within an organization, and success in job performance, developing these skills in college may be crucial for students preparing for the workforce. Furthermore, some scholars state "Individual readiness for self-directed learning could be an important factor in matching certain types of jobs with applicants seeking those jobs" (Guglielmino, & Roberts, 1992, p.271) which has implications for assessing and further developing these capabilities.

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