The Differences in Career Preparation Behavior by Cluster Types Based on Parental Support, Hopes, Career Decision-Making Self-Efficacy, and Career Attitude Maturity as Perceived by Specialized High School Students

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Abstract

The purposes of this study were to firstly categorize cluster types based on parental support, hopes, career decision-making self-efficacy, and career attitude maturity as perceived by specialized vocational high school students, and secondly to analyze any differences in career preparation behavior according to each cluster type. Data was collected from 226 high-school students in Grades 1 to 3, who attend a specialized vocational high school in Seoul. Major results of the research were as follow: First, four clusters were identified. These are 'Low Support-Active', 'High Support-Passive', 'High Support-Active', and 'Low Support-Need Attention Type'. Second, each cluster type showed meaningful differences in career preparation behavior. Career preparation behavior was highest in the 'High Support-Active' cluster, followed by the 'Low Support-Active' cluster, the 'High Support-Passive' cluster and the 'Low Support-Need Attention' cluster in turn. These results imply the necessity of specialized career education that considers the characteristics of each cluster type.

Keywords: Parental support, hopes, career decision-making self-efficacy, career attitude maturity, career preparation behavior, cluster type

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Introduction

For today's students, who will live in what most people expect to be a very different future, youth career education is more important than ever. Adolescence is a time when teenagers can explore their career options and prepare to embark on their career paths (Lee, 2008). This career exploration and preparation stage is a vitally important period when young people can decide the course of their lives through the information and guidance they receive (Lee, 2011).

Unlike academic high schools which aim at university entrance after graduation, specialized vocational high schools have specialized curriculum that aim to raise talented professionals in specific fields (Ministry of Education, Science and Technology, 2009). In this respect, these vocational high schools tend to pay more attention to students' aptitudes and their development. For this reason, students in specialized vocational high schools tent to choose their careers at a comparably earlier stage their peers in academic high schools. Because specialized vocational schools offer professional education related to specific fields, students in these schools can be considered to have made certain decisions about their career paths simply by choosing to attend them. However, many students choose to attend specialized vocational high schools due to family reasons or low academic performance, rather than after giving adequate consideration to their careers or due to self-understanding (Kim, 2018). As such, it is very important to help specialized vocational high school students who have difficulty with preparing for their careers, so that they can be fully equipped with the knowledge and tools to help them prepare for their futures properly while they are still at high school.

Career preparation behavior should be undertaken as part of the process of selecting a suitable career, and it includes all actions to implement a decision about a career after that decision is reached (Kim & Kim, 1997). The factors that affect career preparation behavior include parental support, hopes, career decision-making self-efficacy and career attitude maturity. These factors have been outlined in many previous studies, which are referred to below.

Parental support is the manner in which parents provide information to their children on education and career efficacy, and how it is perceived by their children. (Alliman-Brissett, Ergun, Lapan, Turner, & Udipi, 2003). Amongst those studies that deal with parental support, Kim and Park (2016) studied university students and reported that there is a correlation between parental support and career preparation behavior. Han and Cho (2009) reported the same result with high school students. Dietrich and Krake (2009) studied German teenagers and also reported that there is a positive correlation between parental support and career exploration.

Deciding one's career is closely related to how one perceives their future unfolding, so psychological and cognitive factors about one's perspective on the future need to be considered, which means that hope can be a major variable (Shin & Heo, 2018). According to Snyder et al. (1991), hope is defined as a cognitive set that is based on a reciprocally-

derived sense of successful agency (goal-directed determination) and path ways (planning to meet goals). In her study Ahn (2008) reported that the greater the sense of agency, the more career preparation behavior will be undertaken. Lee (2017) also reported that for specialized vocational high school students, hope has a significant positive correlation with career preparation behavior.

Students' career decision-making self-efficacy is one's individual belief and confidence regarding undertaking tasks about gathering occupational information, goal selection, developing an accurate self-appraisal, and problem solving (Betz & Taylor, 1983). Gushue, Scanlan, Pantzer, and Clarke (2006) studied African American high school students and reported that career decision-making self-efficacy has a positive effect on career exploration activities. Kim and Lee (2013) studied middle school students, academic high school students and specialized vocational high school students in Korea and concluded that career decision-making self-efficacy has a meaningful relationship with career preparation behavior. Existing research involving specialized vocational high school students also shows that the sub-factor of career decision-making self-efficacy affects the career preparation behavior of first and third grade students (Cho, 2013). Hong (2018) also demonstrated that career decision-making self-efficacy has a meaningful and positive effect on the career preparation behavior of high school students.

Career attitude maturity involves having a positive way of thinking and attributing things to oneself, not to others (Lee & Han, 1997). Geum (2009) studied female university students and reported that there were correlations between career preparation behavior and the sub factors of career attitude maturity including career readiness and decisiveness. Song (2015), in a study on regional university students, found that among the sub factors of career attitude maturity, career readiness and career decisiveness correlate with career preparation behavior. Goh (2015) also reported in a study involving specialized vocational high school students that career attitude maturity shows a meaningful and positive effect on career preparation behavior.

According to the Korean Ministry of Education (2017), the employment rate of specialized vocational high school graduates is 50.8%. Many of the students from specialized vocational high schools are employed immediately after their graduation, which means that they start working 2-7 years earlier than students form academic high schools. As such, it is important and necessary to provide timely guidance to these students so that they are equipped with adequate career preparation tools (Kim, 2018).

Existing studies on specialized vocational high school students' career decisions have largely centered on variables that directly or indirectly affect students' career preparation behavior (Ahn & Yun, 2015; Cho, 2013; Goh, 2015; Kim, 2018; Lee, 2017; Pyeon, 2015; Song, 2016) and tried to establish that those variables affect career preparation behavior. In other to develop more tailored career education for specialized vocational high school students, who have diverse needs, investigating cluster types based on similarities found in students, and identifying the characteristics that each cluster type shows is meaningful and

necessary.

This study aims to categorize cluster types based on the variables that affect specialized vocational high school students' career preparation behavior including parental support, hope, career decision-making self-efficacy and career attitude maturity, and to find any differences in career preparation behavior in accordance with each cluster type. Ultimately this study aims to demonstrate that cluster type based career education will improve the career preparation behavior of specialized vocational high school students.

The study addresses the following questions:

Question 1: What are the distinctive features of cluster types based on parental support, hope, career decision-making self-efficacy and career attitude maturity perceived as by high school students?

Question 2: How is career preparation behavior different by cluster types?

Method

Participants

This study involves students (from grade 1 to 3) from a specialized vocational high school located in Seoul, Korea. At this school there are 3-4 classes in each grade, and a total of 240 students from the school answered a questionnaire. Non-responses and unreliable responses were excluded from the study, meaning that a final total of 226 responses were selected for use in this research (See Table 1).

Table 1. Demographic characteristics of participants

General characteristics	Category	Frequency (n)	Percentage (%)
Gender	Male	132	58
	Female	94	42
Grade	1st	87	38
	2nd	68	30
	3rd	71	31
		226	100

Instruments

Parent support

The Career-related Parent Support Scale (Turner, 2003) was modified and translated by Kim (2004) was used. It consists of 27 questions composed of 4 sub factors such as career modeling (7 questions), emotional support (7 questions), instrumental support (8 questions) and verbal support (5 questions) (See Table 2).

Table 2. Sub-factors and reliability analysis of parental support

Sub-factors	Item number	Number of items	Cronbach α
Instrumental support	1,2,3,4,5,6,7,16	8	.858
Modeling	9,10,11,12,13,14,15	7	.922
Verbal support	17,18,19,20,21	5	.765
Emotional support	8,22,23,24,25,26,27	7	.904
All		27	.943

Hopes

The Hope Trait Scale developed by Snyder (1991), and the Hope State Scale developed by Snyder and Sympson (1996) were translated and validated into a Korean version of the Hope scale by Kang (2002). Kang's scale was modified by Kim (2004), which is used in this study (Refer to Table 3). Sub factors consist of agency thinking and pathways thinking. The Hope Trait Scale measures the level of hope through individual traits and it consists of 12 questions, including 4 questions on pathways thinking, 4 questions on agent thinking and 4 questions on neutral factors. The Hope State Scale measures the current state of hope levels by 6 questions (3 questions on both pathways thinking and agent thinking respectively). The total number of questions that measure Hope Traits and Hope States is 18. Neutral factors were excluded from the analysis and a higher score reflects higher level of hope.

Table 3. Sub-factors and reliability analysis of hopes

Sub-factors		Item number	Number of items	Cronbach α
Trait	Agency	1,4,6,8	4	.804
	pathways	2,9,10,12	4	.803
State	Agency	13,15,17	3	.823
	pathways	14,16,18	3	.832
Neutral factor		3,5,7,11	4	
All			18	.935

Note: Neutral factors are excluded for the analysis.

Career decision-making self-efficacy

The Career Decision Making Self-Efficacy Short Form developed by (Lee, 1991) was used in this study. Lee modified Betz and Voyten (1996)'s short form to make it appropriate

for teenagers. It consists of 25 questions including 4 sub factors such as occupational information, goal selection, future planning and problem solving (Refer to Table 4).

Table 4. Sub-factors and reliability analysis of career decision-making self-efficacy

Sub-factors	Item number	Number of items	Cronbach α
Goal selection	1,2,3,6,8,9,11,14,18,20,22	11	.901
Occupational information	7,15,19,21,23,24	6	.818
Problem solving	13,17,25	3	.804
Planning	4,5,10,12,16	5	.800
All		25	.943

Career attitude maturity

To measure career attitude maturity, the career attitude maturity inventory developed by Lee (1997) was used. This tool consists of 47 questions including 5 sub factors: Decisiveness, orientation, compromise, involvement and independence (Refer to Table 5).

Table 5. Sub-factors and reliability analysis of career attitude maturity scale

Sub-factors	Item number	Number of items	Cronbach α
Decisiveness	1,6*,11,16*,21*,26*,31,36,41*,45*	10	.872
Orientation	2*,7*,12*,17*,22*,27*,32*,37*	8	.851
Compromise	3*,8*,13,18*,23,28*,33,38*,42,46*	10	.796
Involvement	4,9,14*,19,24,29,34,39,43,47	10	.745
Independence	5*,10*,15*,20,25*,30,35,40,44*	9	.813
All		47	.909

Note: * means that scores were allotted inversely.

Career preparation behavior

The Career Preparation Behavior Scale developed by Kim (1997) and modified by Lee (2003) by the addition of two questions (numbers 8 and 12) was used in this study. This scale consists of 18 questions, including 6 questions on information gathering activity, 5 questions on necessary tool preparation activity, and 7 questions on practical effort (See Table 6).

Table 6. Sub-factors and reliability analysis of adaptive career preparation behavior

Sub-factors	Item number	Number of items	Cronbach α
Information gathering	1, 2, 3, 8, 9, 17	6	.794
Necessary tool preparation	4 ,5, 13, 14, 15	5	.763
Practical effort	6, 7, 10, 11, 12, 16, 18	7	.861
All		18	.919

Data analysis

The data collected in this study were statistically processed using SPSS version 18.0.

First, to verify the reliability of the measurement tool, Cronbach α was used to check the reliability of each scale. To examine the correlation of each variable, Pearson's product-moment correlation was implemented.

Second, a cluster analysis was attempted to find out types and the number of the clusters based on parental support, hope, career decision-making self-efficacy and career attitude maturity as perceived by specialized vocational high school students. At the first step, 18 cluster variables of parental support, hope, career decision-making self-efficacy and career attitude maturity were set and the number of clusters was decided after Wards' hierarchical cluster analysis using standardization grade. For the next step, K-means clustering, which is a non-hierarchical clustering of observation was used to determine the final clusters.

Third, for the difference verification of grades and genders of clusters, derived from the cluster analysis, cross tabulation analysis was implemented.

Fourth, to analyze the difference of career preparation behavior among the groups divided by the cluster analysis, a One-way ANOVA was adopted.

Results

Descriptive statistics and correlations

The minimum value, maximum value, mean and standard deviation of the sub factors of each variable (Parental support, Hopes, Career decision-making self-efficacy, Career attitude maturity and Career preparation behavior perceived by specialized vocational high school students) are shown in Table 7 and correlations among the variables are presented in Table 8.

Table 7. Descriptive statistics (N=226)

Variables	Sub-factors	Min	Max	M	SD
Parental support	Instrumental support	1.00	5.00	3.033	.837
	Modeling	1.00	5.00	3.456	1.038
	Verbal support	1.00	5.00	3.497	.496
	Emotional support	1.00	5.00	3.297	.909
Hopes	Agency	1.43	5.00	3.329	.782
	Pathways	1.14	5.00	3.594	.693
Career decision making self-efficacy	Goal selection	1.64	5.00	3.646	.677
	Occupational information	1.50	5.00	3.480	.704
	Problem solving	1.00	5.00	3.630	.827
	Planning	.60	3.60	1.932	.536
Career attitude maturity	Decisiveness	1.40	5.00	3.281	.787
	Orientation	1.00	4.88	3.164	.764
	Compromise	1.50	4.90	2.984	.615
	Involvement	1.60	4.90	3.557	.540
	Independence	2.33	5.00	3.742	.657
Career preparation behavior	Information gathering	1.00	5.00	3.353	.815
	Necessary tool preparation	1.00	5.00	2.958	.881
	Practical effort	1.00	5.00	2.843	.953

Table 8. Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1																	
2	.516**	1																
3	.631**	.471**	1															
4	.726**	.523**	.672**	1														
5	.420**	.346**	.393**	.465**	1													
6	.408**	.313**	.387**	.464**	.771**	1												
7	.343**	.230**	.334**	.354**	.751**	.709**	1											
8	.344**	.261**	.332**	.340**	.725**	.672**	.813**	1										
9	.285**	.233**	.171*	.238**	.493**	.587**	.587**	.534**	1									
10	.281**	.255**	.346**	.404**	.566**	.513**	.602**	.575**	.405**	1								
11	.071	.003	-.048	.053	.419**	.294**	.623**	.455**	.222**	.311**	1							
12	-.176**	-.110	-.280**	-.196**	-.075	-.105	.048	-.117	-.122	-.124	.404**	1						
13	.177**	.134*	.052	.182**	.540**	.455**	.538**	.502**	.241**	.433**	.554**	.273**	1					
14	.206**	.238**	.352**	.244**	.507**	.490**	.582**	.559**	.385**	.440**	.330**	-.090	.205**	1				
15	-.096	-.082	-.135*	-.183**	.204**	.220**	.392**	.301**	.153*	.080	.564**	.493**	.325**	.274**	1			
16	.281**	.295**	.374**	.364**	.558**	.509**	.621**	.594**	.340**	.435**	.376**	-.129	.326**	.549**	.112	1		
17	.249**	.196**	.312**	.265**	.461**	.412**	.492**	.509**	.187**	.357**	.273**	-.176**	.275**	.463**	.041	.668**	1	
18	.288**	.239**	.254**	.291**	.470**	.385**	.527**	.560**	.270**	.340**	.293**	-.191**	.302**	.416**	-.046	.696**	.764**	1

*p<.05, **p<.01

Note: Parental Support (1= Instrumental support , 2= Modeling , 3= Verbal support , 4= Emotional support), Hope (5= Agency, 6= Pathways) , Career Decision-Making Self-Efficacy(7=Goal selection, 8= Occupational information, 9=Problem solving, 10= Planning), Career Attitude Maturity (11=decisiveness, 12= orientation, 13=compromise, 14=involvement, 15=independence), Career Preparation Behavior (16=information gathering 17=necessary tool preparation activity, 18=practical effort)

Cluster types

Fifteen variables in total were used for the 2 step cluster analysis. The 15 variables included sub factors of each variable. Sub factors of parental support include instrumental support, modeling, verbal support and emotional support. The sub-factors of hope were agent thinking and pathways thinking; the sub factors of career decision-making self-efficacy were goal selection, occupational information, problem solving and future planning and the sub factors of career attitude maturity were decisiveness, orientation, compromise and involvement. The first step, Ward's hierarchical cluster analysis using standardization grade confirmed that the 4 clusters are appropriate considering feasibility of a dendrogram analysis. For the 4 clusters derived from the first step, K-means clustering, which is a non-hierarchical clustering of observation was implemented.

To characterize each cluster and decide its name, a center point of the final clusters and standardization grades are presented in Table 9 and a detailed profile that helps reveal differences among the variables is provided in Figure 1.

Among the variables suggested in this study, parental support is an external variable and hope, career decision-making self-efficacy, career attitude maturity are internal variables. Further, parental support is distinguished from the other variables in dividing clusters. Therefore, each cluster was named according to the characteristics of dominance presented by parental support and the other variables.

In Cluster 1, 29 students (12.8%) are included and their parental support is below average while hope, career decision-making self-efficacy, career attitude maturity are above average. This cluster was named– 'Low Support-Active', and it is expected that students in this group will show positive attitude and great adaptability about their careers, even with low support from their parents.

Cluster 2 includes 101 students, the biggest number of students out of the 4 clusters. Students in this group have higher parental support than average although other variables such as hope, career decision-making self-efficacy, and career attitude maturity are below average. This cluster was named 'High Support-Passive', in that students from this group are rather passive when it comes to preparing for their own careers even with high levels of emotional and instrumental support from their parents. They are expected to be influenced by their parents rather than trying to prepare a career on their own.

There are 49 students in cluster 3 which shows the highest level of parental support along with other variables such as hope, career decision-making self-efficacy, and career attitude maturity being above average. It is supposed that students in this cluster are actively involved in their career preparation as well as receiving great support from their parents, so this cluster was named 'High Support-Active'.

Finally, cluster 4 has 47 students where each variable is lower than average except for the two sub factors of career attitude maturity. Their hope and career decision-making self-efficacy are also the lowest out of the four clusters. This cluster needs more attention than the other clusters and was named, 'Low Support-Need Attention'.

Table 9. Center points of final clusters

Variable		Cluster 1	Cluster 2	Cluster 3	Cluster 4
		n=29	n=101	n=49	n=47
Parental support	Instrumental support	-1.104	.197	.994	-.779
	Modeling	-.981	.088	.917	-.539
	Verbal support	-.868	.129	.909	-.689
	Emotional support	-1.036	.138	1.042	-.745
Hope	Agency	.455	-.139	1.127	-1.156
	Pathways	.324	-.150	1.096	-1.019
Career decision-making self-efficacy	Goal selection	.800	-.242	1.119	-1.14
	Occupational information	.576	-.218	1.14	-1.075
	Problem solving	.281	-.079	.810	-.848
	Planning	.127	-.028	.850	-.904
Career attitude maturity	Decisiveness	1.259	-.331	.579	-.669
	Orientation	.598	-.282	-.102	.342
	Compromise	.532	-.138	.684	.745
	Involvement	.540	-.268	.930	-.727
	Independence	1.209	-.380	.261	-.202

Note: Cluster variables are presented by standardized score, M=0, SD=1

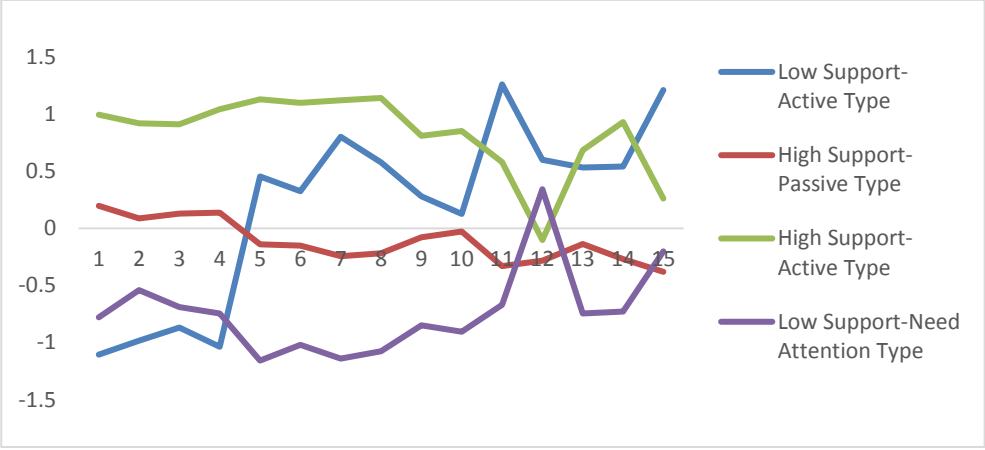

Figure 1. Cluster types by variables

Note: Parental support (1: Instrumental support 2: Modeling 3: Verbal support 4: Emotional support) Hope (5: Agency 6: Pathways) Career Decision-Making Self-Efficacy (7: Goal selection 8: Occupational information 9: Problem solving 10: Planning) Career Attitude Maturity (11:decisiveness 12: orientation 13: compromise 14: involvement 15: independence)

To find out if there is a difference by clusters in average terms with respect to the sub factors of parental support(instrumental assistance, modeling, verbal support, emotional support), hope(agent thinking, pathways thinking), career decision-making self-efficacy (goal selection, occupational information, problem solving, future planning) and career attitude maturity(decisiveness, orientation, compromise, involvement independence), a One-way ANOVA was implemented. As shown in Table 10 below, this proved that the clusters have statistically meaningful differences across each variable.

Table 10. Differences in variables by cluster types

Variable		Cluster 1	Cluster 2	Cluster 3	Cluster 4	*F*	Duncan
		M(SD)	*M(SD)*	*M(SD)*	*M(SD)*	(3, 222)	
Parental support	Instrumental support	2.11 (.743)	3.2 (.540)	3.86 (.501)	2.38 (.653)	79.04***	3>2>4>1
	Modeling	2.44 (1.105)	3.55 (.823)	4.41 (.579)	2.9 -(.866)	43.69***	3>2>4>1
	Verbal support	2.81 (.889)	3.6 (.508)	4.22 (.595)	2.95 -(.706)	46.07***	3>2>1,4
	Emotional support	2.35 -(.797)	3.42 (.618)	4.24 (.597)	2.62 (.661)	73.83***	3>2>4>1
Hope	Agency	3.68 (.667)	3.22 (.455)	4.21 (.538)	2.43 (.446)	106.93***	3>1>2>4
	Pathways	3.82 (.714)	3.49 (.404)	4.35 (.448)	2.89 (.542)	74.63***	3>1>2>4
Career decision-making self-efficacy	Goal selection	4.19 (.455)	3.48 .(360)	4.4 (.423)	2.87 (.430)	139.105***	3>1>2>4
	Occupational information	3.89 (.506)	3.33 (.397)	4.28 (.462)	2.72 (.524)	105.94***	3>1>2>4
	Problem solving	3.86 (.937)	3.57 (.567)	4.3 (.705)	2.93 (.755)	32.60***	3>1>2>4
	Planning	2 (.637)	1.92 (.398)	2.39 (.464)	1.45 (.354)	36.53***	3>1>2>4
Career attitude maturity	Decisiveness	4.27 (.582)	3.02 (.541)	3.74 (.718)	2.76 (.614)	53.56***	1>3>2>4
	Orientation	3.62 (.825)	2.95 (.542)	3.09 (1.050)	3.43 (.583)	8.99***	1,4>3,2
	Compromise	3.31 (.685)	2.9 (.424)	3.4 (.657)	2.53 -(.483)	26.40***	3,1>2>4
	Involvement	3.85 (.550)	3.41 (.401)	4.06 (.404)	3.16 (.444)	43.25***	3>1>2>4
	Independence	4.54 (.403)	3.49 (.542)	3.91 (.646)	3.61 (.593)	28.26***	1>3>4,2

***p<.001

Note: Cluster 1= Low Support-Active Type, Cluster 2= High Support-Passive Type, Cluster 3= High Support-Active Type, Cluster 4= Low Support-Need Attention Type

Differences analysis in cluster

In regards to the distribution of female and male students, the largest number of students of both genders belonged to cluster 2, the 'High Support-Passive' cluster. However, the results of a cross analysis between cluster types and genders, showed that there was no statistically meaningful difference between male and female students (χ^2 =7.655, df=3, p>.05), as shown in Table 11.

Table 11. Gender differences by cluster types

Gender	Cluster 1(%)	Cluster 2(%)	Cluster 3(%)	Cluster 4(%)	$\chi^2(df)$
Female	20(8.8)	52(23.0)	26(11.5)	34(15.0)	7.655(3)
Male	9(4.0)	49(21.7)	23(10.2)	13(5.8)	
All	29(12.8)	101(44.7)	49(21.7%)	47(20.8)	

Note: Cluster 1= Low Support-Active Type, Cluster 2= High Support-Passive Type, Cluster 3= High Support-Active Type, Cluster 4= Low Support-Need Attention Type

In regards to the distribution of students from grade 1 to grade 3, the largest number of students from all grades belonged to cluster 2, the 'High Support-Passive' cluster. However, the results of a cross analysis between cluster types and grades showed that-, there was no statistically meaningful difference across grades (χ^2 =11.992, df=6, p>.05), as shown in Table 12.

Table 12. Grade differences by cluster types

Grade	Cluster 1(%)	Cluster 2(%)	Cluster 3(%)	Cluster 4(%)	$\chi^2(df)$
1st	9(4)	39(17.3)	25(11.1)	14(6.2)	
2nd	6(2.7)	30(13.3)	11(4.9)	21(9.3)	11.992(6)
3rd	14(6.2)	32(14.2)	13(5.7)	12(5.3)	
All	29(12.8)	101(44.7)	49(21.7)	47(20.8)	

Differences in career preparation behavior by cluster types

To analyze the mean-differences among clusters with respect to career preparation behavior, a One-way ANOVA was implemented. The results of this showed that, all 4 clusters have statistically meaningful differences in the sub factors of career preparation behavior, namely information gathering, necessary tool preparation and practical effort (p<.001). To ascertain which cluster types shows differences in career preparation behavior, Duncan's post hoc analysis was attempted. The results of the One-way ANOVA and post hoc analysis on the differences in career preparation behavior by cluster type are shown below in Table 13.

The overall average score for career preparation behavior was highest in the 'High Support-Active' cluster, (cluster3), followed in turn by the 'Low Support-Active' cluster, (cluster1), the 'High Support-Passive' cluster (cluster2) and the 'Low Support-Need attention' cluster, (cluster 4) in turn. The results of Duncan's post-hoc analysis showed that the level of career preparation behavior differed in each cluster in the same order as above, with significance level .001.

Table 13. Differences in career preparation behavior by cluster types

Variable		Cluster 1	Cluster 2	Cluster 3	Cluster 4	*F*	Duncan
		M(SD)	M(SD)	M(SD)	M(SD)	(3, 222)	
Career preparation behavior	Information gathering	3.75(.801)	3.25(.667)	3.98(.607)	2.68(.815)	32.48***	3,1>2>4
	Necessary tool preparation	3.39(.902)	2.81(.773)	3.57(.804)	2.36(.637)	23.82***	3,1>2>4
	Practical effort	3.18(.859)	2.76(.812)	3.53(.944)	2.12(.725)	24.60***	3>1>2>4
Career preparation behavior		3.41(.654)	2.94(.668)	3.69(.720)	2.37(.586)	35.39***	3>1>2>4

****p*<.001

Note: Cluster 1= Low Support-Active Type, Cluster 2= High Support-Passive Type, Cluster 3= High Support-Active Type, Cluster 4= Low Support-Need Attention Type

Career preparation behavior based on clusters (F=35.39, p<0.001) and the sub factors of career preparation behavior [information gathering (F=32.48, p<0.001), necessary tool preparation activity (F=23.82, p<0.001), practical effort (F=35.39, p<0.001)] manifested meaningful difference. To find out which clusters showed differences, Duncan's post hoc analysis was implemented. The results of this analysis, with significance level .001, were as follows: In information gathering and necessary tool preparation activity, the 'High Support-Active' cluster, (cluster 3) and the 'Low Support-Active' cluster, (cluster 1) were together the highest, followed by the 'Low Support-Passive' cluster, (cluster 2) and the 'Low Support-Need attention' cluster (cluster 4) in order. For practical effort and career preparation behavior, the 'High Support-Active' cluster, (cluster3) was the highest followed by the 'Low-Support Active' cluster, (cluster 1), the 'High Support-Passive' cluster, (cluster2) and the 'Low Support-Need attention' cluster, (cluster4)' in turn.

Discussion and conclusion

The purpose of this study was to find out if there are any differences in career

preparation behavior among cluster types classified according to certain variables including parental support, hope, career decision-making self-efficacy and career attitude maturity as perceived by specialized high school students. The results of this study are described as follows.

Parental support, hope, career decision-making self-efficacy and career attitude maturity all have positive correlations with career preparation behavior. This conforms to existing studies, with the same correlation between parental support and career preparation behavior found in Kim (2012), Kim (2014), Ahn (2008) and Ji (2010). Hope and career preparation behavior also show meaningful correlation as in Kim (2005), Ahn (2008), Yang and Yeon (2015) and Lee (2012)'s studies. This means that a high level of hope can actively help career preparation behavior. There is also a positive correlation between career decision-making self-efficacy and career preparation behavior as in Kim (2012), Kim (2013), Kim (2018), Kim (2016), and Hong (2018).

This study identified 4 cluster types based on parental support, hope, career decision-making self-efficacy and career attitude maturity as perceived by specialized vocational high school students. The four clusters were named 'Low Support Active' (cluster 1), 'High Support-Passive' (cluster 2), 'High Support Active' (cluster 3) and the 'Low Support-Need attention' (cluster 4). There were statistically meaningful differences in terms of career preparation behavior by cluster type.

First, the score for each variable in cluster 1 (Low Support-Active) is higher than average except for the parental support variable. Students in this cluster have high level of hope, career decision-making self-efficacy and career attitude maturity even with low parental support. They are predicted to be active and assertive when it comes to career preparation behavior. Cluster 1 (Low Support-Active) has the second highest scores out of the 4 clusters for career preparation behavior. Students in this cluster demonstrate great career attitude maturity. However, considering that they are already high school students, it will be difficult to achieve meaningful effects through parental consulting or parental education that raise parental support within a short time. Therefore, as suggested by Park and Jeon (2018), it may be better to make the best use of programs or consultation that can improve factors which are already high other than parental support.

Second, in cluster 2 (High Support-Passive), the score for each variable was lower than average except for the parental support variable. In this cluster, students are prone to behave inconsistently without proper planning in career preparation because they have low level of hope, career decision-making self-efficacy and career attitude maturity even with high parental support. They are also expected to be easily satisfied with low level of achievement. Therefore, career counseling for these students should focus on helping them to gain more confidence and instructing them on how to prepare for their careers more proactively.

Third, students in cluster 3 (High Support Active), not only have high parental support but also high levels of hope, career decision-making self-efficacy and career attitude maturity compared to the averages. For this reason, they are expected to express their own

opinions more assertively and behave more actively when it comes to career preparation than students in the other 3 cluster types. They don't seem to have a great need for career counseling, but considering that they are high school students, it is necessary to provide them with detailed information about their career choices when this is required or requested.

Fourth, cluster 4 (Low Support-Need attention) showed lower scores than average across each variable. Students in this cluster will be passive about their career preparation behavior both in terms of quantity and quality compared to the students in the other 3 clusters. As it has been proved that there is a positive correlation between career decision-making self-efficacy and career preparation behavior in studies by Kim (2012), Kim (2013), Kim (2018), Kim (2016) and Hong (2018), it is important to motivate these students to have higher career decision-making and self-efficacy by not only providing detailed information about their career choices but also offering appropriate programs that can give them chances to enlarge their experience of career decision-making and to have confidence in career preparation.

In summary, clusters identified by an analysis of four variables (parental support, hope, career decision-making and self-efficacy and career attitude maturity) were examined to see if there are differences in career preparation behavior by cluster types. Conclusions that can be derived from this analysis are as follows.

First, in this study, 4 cluster types based on parental support, hope career decision-making self-efficacy, and career attitude maturity as perceived by specialized vocational high school students were identified and named. When students prepare for their own careers, parental support which is given externally, and hope, career decision-making self-efficacy, and career attitude maturity, which are internal variables, all have an effect on career preparation behavior. The one external variable (parental support) can be distinguished from the other variables which are internal (hope, career decision-making self-efficacy, career attitude maturity) when they are classified and analyzed. Therefore, each cluster was named based on this binary distinction, with the first part of the name referring to the level of parental support and the second to the other variables, so that the four clusters were maned 'Low Support-Active', 'High Support-Passive', 'High Support-Active' and 'Low Support-Need attention'. Students with high parental support but low levels of the other internal psychological variables showed low levels of career preparation behavior. However, when students' internal psychological variables were higher than average, their level of career preparation behavior was also high, even though they received less support from their parents. From this it can be deduced that the internal psychological variables (hope, career decision-making and self-efficacy, career attitude maturity) are more powerful than the external variable(parental support) in determining overall career preparation behavior.

Second, the results of the analysis of differences in career preparation behavior by cluster types, showed that –there were meaningful differences among the clusters. Career preparation behavior was highest in the 'High Support-Active' followed by the 'Low Support-Active', the 'High Support-Passive' and the 'Low Support-Need attention' in turn.

This means that it is necessary to raise parental support, hope, career decision-making self-efficacy and career attitude maturity to improve students' career preparation behavior. To do this, career education and programs that meet the needs and situations of specialized vocational high school students' need to be developed and put into place. In particular, for the students who belong to the 'Low Support-Need attention' cluster type, more active measures should be adopted to promote their career preparation behavior.

This study has significance in that it has proved differences in career preparation behavior by cluster types which were classified based on parental support, hope, career decision-making self-efficacy and career attitude maturity as perceived by specialized high school students.

The limitations of this study and suggestions for areas of future research are as follows:

First, it may be difficult to generalize the results of this study as the sample is limited to only one school in the Seoul area. In later studies, larger and more varied samples from more schools in different areas and from a wide range of students need to be collected to see if the results for the four cluster types suggested in this study hold.

Second, this study is limited as data used in it was derived from the participants' self-reporting questionnaires. It is well known that this type of test can yield distorted results depending on the participants' attitude such factors as response bias. In later studies, more reliable and various instruments such as observation and interview need to be adopted.

Third, this study is limited to the analysis of characteristics by cluster types. More concrete and diverse programs that can be applied to each cluster type need to be developed in later studies.

Finally, this study deals with only one external variable (parental support). In later studies, other external variables related to career such as peer support or social support as well as work value and career barriers can be examined.

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Korean Abstract

특성화고 고등학생들이 지각한 부모지지, 희망, 진로결정자기효능감, 진로태도성숙에 기초한 군집유형별 진로준비행동에서의 차이[1]

이성심 (숭실대), 전주성 (숭실대)

이 연구의 목적은 특성화고 고등학생들이 지각한 부모지지, 희망, 진로결정자기효능감, 진로태도성숙에 근거하여 군집유형을 분류하고, 각 군집유형에 따라 진로준비행동에 차이가 있는지를 분석하는 것이다. 서울시 특성화 고등학교에 재학 중인 1, 2, 3학년 고등학생 226명(여=132, 남=94)을 대상으로 수집한 자료를 일원분산분석, 군집분석, 교차분석 등을 이용하여 분석하였다. 이 연구의 주요 연구결과를 정리하면 다음과 같다. 첫째, 특성화고 고등학생이 지각한 부모지지, 희망, 진로결정자기효능감, 진로태도성숙를 사용하여 군집분석을 실시한 결과, 네 개의 군집이 도출되었다. 군집 1은 부모지지를 제외한 나머지 변인들의 값이 평균 이상인 '낮은지지-능동형', 군집 2는 부모지지를 제외한 나머지 변인들의 값이 전체 평균 이하인 '높은지지-수동형', 군집 3은 부모지지를 비롯한 모든 변인들이 평균값 이상인 '높은지지-능동형', 군집 4는 모든 변인이 전체 평균보다 낮은 수준으로 나타난 '낮은지지-관심필요형'이다. 둘째 군집유형에 따라 진로준비행동에 차이가 있는지를 분석한 결과, 군집유형 간에 유의미한 차이가 있었다. 높은지지-능동형, 낮은지지-능동형, 높은지지-수동형, 낮은지지-관심필요형 순으로 진로준비행동이 높게 나타났다. 이와 같은 결과는 각 군집의 특성에 대한 이해와 그 특성에 맞는 진로교육이 필요함을 시사한다.

주요어: 부모지지, 희망, 진로결정자기효능감, 진로태도성숙, 진로준비행동, 군집유형

[1] 본 논문은 이성심(2018)의 석사학위 논문을 수정, 보완한 것임