Examining the Demographic Factors Influencing Special Educator' Integration of Self-Determination Concept into Instruction

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Abstract

This study aimed to explore the impact of special education teachers' demographics including gender, school level taught, educational program, and teaching experience on the integration of self-determination concept into their instruction. A total of 883 elementary and secondary special educators participated in the research. The Classroom Self-Determination Teaching Assessment (CSDTA) was developed to assess the degree to which teachers integrate the self-determination notion into their instruction. Data were analyzed using descriptive and inferential statistics. Results indicated that there was no interaction among the four factors, nor among any combination of three of them. In summary, secondary school teachers demonstrated a significantly higher degree of teaching independent living skills than their elementary school counterparts, particularly those with more extensive teaching experience. Moreover, teachers in resource classes exhibited a greater proficiency in teaching self-advocacy and goal-setting skills, while those in self-contained classes predominantly focused on instructing independent living skills. Recommendations are provided.

Keywords: demographic factors, self-determination, special educators, elementary and secondary school

1. Introduction

In recent decades, the fields of special education and psychology have paid considerable attention to self-determination. Two important factors may explain this phenomenon. First, communities free from discrimination have been created as a result of the full inclusion policy, protecting and upholding the civil rights of those with disabilities. In this setting, the definition of civil rights has been broadened to include concepts like normalization, self-determination, self-advocacy, and independent living (Ryan & Deci, 2017). Furthermore, research has consistently revealed a positive association between self-determination and academic success (Gaumer-Erickson et al., 2015). Given that individuals with disabilities often appear underprepared or deficient in their capacity to exercise self-determination, promoting self-determination knowledge and skills in this population has become a crucial concern in special education.

Researchers conceptualize self-determination from various perspectives. For example, this term is defined as the dispositions and capabilities necessary to function as the primary causal agent in his or her life and to make choices and decisions unaffected by improper external interference (Wehmeyer & Mithaug, 2006). A self-determined individual has the capacity to make their own choices according to their best interests (Ryan & Deci, 2017). Furthermore, self-determined individuals usually have a clear understanding of who they are and are adept at making appropriate choices and decisions. They know how to set realistic goals, control their behaviors, resolve challenges, and live autonomously (Walker et al., 2011). In summary, self-determination refers to several skills including having a clear understanding of personal traits, making appropriate choices and decisions, possessing problem-solving capabilities, having confidence in one's influence over life events, and holding optimistic expectations for success (Wehmeyer et al., 2007).

In general, with the guidance of parents and teachers, adolescents typically gradually acquire skills such as decision

making, goal setting, self-management, and problem solving (Burstein et al., 2005). Through the support and guidance of their parents and teachers, adolescents continue to learn about self-growth and self-independence. Their ultimate goal is to become capable of self-determination. However, for most adolescents with disabilities, due to their limited cognitive understanding, lack of support from the school and social systems, and inappropriate parenting styles, they often cannot learn self-determination through this model. Consequently, their knowledge and abilities related to self-determination are generally insufficient (Moore & McNaught, 2014). This, in turn, gradually affects the performance of adolescents with disabilities in various aspects such as academics, the workplace, and interpersonal interactions (Shogren et al., 2015). Therefore, enhancing the level of self-determination among these adolescents and exploring the relevant factors influencing the development of this skill truly deserves the attention of the academic community.

2. Literature Review

Based on the ecological theory (Abery & Stancliffe, 2003), a person's internal knowledge, attitudes, and skills significantly influence their self-determination skills. However, it is the external environmental factors that are crucial in determining whether self-determination can develop effectively. This theory indicates that the environments affecting an individual's self-determination development can be categorized into four levels including microsystem, mesosystem, exosystem, and macrosystem. The microsystem refers to the environments where an individual most frequently interacts with others, such as family and school. In these settings, individuals learn self-determination through guidance and observation. The mesosystem highlights the significance of interactive contexts, for example, whether students can apply skills acquired at school within their home environments. Such transferability is crucial for mastering and solidifying self-determination. In summary, the ecological theory suggests that special education play a crucial role in enabling students with disabilities to learn self-determination (Cristea, 2024; Cuenca-Carlino & Mustian, 2013; Louick & Emery, 2024). Curriculum and instruction provided by special education teachers are especially key to affecting the development of self-determination among these students (Burke et al., 2024; Chao, 2011; Kupers et al., 2023).

Moreover, research indicates that factors like the teacher's gender, educational setting, and teaching experience may influence self-determination instruction. Therefore, it is crucial to examine the relationship between these teacher demographic variables and their instruction (Kelly & Shogren, 2014). Indeed, Wehmeyer et al. (2000) found that more than 60% of secondary school special educators incorporate self-determination skills into their curriculum such as choice making, problem solving, and goal setting. Moreover, they also detected a negative correlation between teachers' inclination to incorporate self-determination concept into their instruction and the level of restrictiveness in the educational environment. Specifically, special education teachers who teach in resource classes demonstrated a greater willingness to teach students self-determination skills compared to those who provided special education services in more segregated settings, such as self-contained classes and special schools.

Similarly, the study carried out by Carter et al. (2008) indicated that high school special education instructors placed a greater emphasis on the integration of self-awareness and self-advocacy into their teaching more than their general education counterparts. This implied the deficiency of these two skills among students with disabilities who are educated in less inclusive teaching environments. Furthermore, the study also identified the curricular area as a factor influencing teachers' efforts to integrate the concept of self-determination into their teaching practices. Specifically, special education teachers in elective classes emphasized the instruction of choice-making skills compared to those teaching academic subjects.

With respect to the teaching experience, Grigal et al. (2003) examined the interaction between the incidence of student disabilities and teaching experience in affecting high school special educators' instruction on self-determination. As expected, they found that teachers' instructional efforts in teaching self-determination increase with their experience. Notably, those with more than 10 years of experience incorporated self-determination concept into their instruction to a significantly greater extent when teaching students with high-incidence disabilities. Similarly, Cho et al. (2013) explored how elementary school educators implement self-determination instruction. Their findings suggested that the type of instructional setting (i.e., general education, resource classes, and self-contained classes) does not significantly predict the integration of self-determination practices within their pedagogy. Conversely, teaching experience emerges as a significant predictor. The data revealed that educators with a more extensive background in teaching exhibit a greater propensity to incorporate self-determination concepts into their curriculum. This inclination suggests that pedagogical experience may enhance the prioritization and efficacy of teaching self-determination.

Furthermore, findings of previous research have shown that gender is one of the factors that affect secondary special educators in integrating the concept of self-determination into their teaching (Tung & Lin, 2005). Specifically, female teachers teach students with disabilities related self-determination skills to a significantly greater extent than male teachers. It is suggested that female teachers generally tend to have traits of being more compassionate and patient, and therefore they are willing to provide students with more opportunities to try and improve during the teaching process and are more likely to encourage students to learn how to solve problems. The teaching style of male teachers, on the other hand, is relatively more rigid and often demands obedience from students as a priority which in turn tends to discourage the development of students' self-determination.

Given the limited research on the impact of teachers' demographic variables on integrating self-determination concepts into their teaching, it is important to further explore this topic. Additionally, although the aforementioned studies have investigated the influence of teachers' demographic factors on self-determination instruction, the focus has primarily been on one specific factor, lacking a more comprehensive assessment, as well as an exploration of possible interactions between these factors. Therefore, the purpose of this study was to investigate how demographic variables of special educators affect the incorporation of self-determination concept in their teaching by using a relatively large sample to examine multiple factors simultaneously. Drawing upon existing literature, the investigation concentrated on four key factors, including the gender of the teachers, the school level they instruct, educational program they teach, and their teaching experience. The focus was on analyzing the primary and interaction effects among these factors to offer a clearer evaluation of how self-determination teaching aligns with demographic attributes.

3. Method

3.1 Participants and Procedure

A stratified random sampling method was employed to recruit participants. The initial step in the recruitment process was to use geographical location as the criterion for stratification. Consequently, Taiwan was divided into four regions: North, Central, South, and East. Following this, the proportions of special education teachers in elementary and secondary schools in each region were ascertained. Schools were then randomly selected using computer software. Once the schools were chosen, we contacted the chief of special education at the selected school to inquire about their willingness to take part in the study. In summary, a total of 938 questionnaires were mailed out and 915 were returned. We eliminated 32 questionnaires due to incomplete data and the final number of valid questionnaires was 883 (see Table 1). This study was approved by the Internal Review Board (IRB) of Ministry of Science and Technology.

Table 1. Participant Demographic Characteristics

Variable	Region				Total (N = 883)
	North (n = 406)	Central (n = 215)	South (n = 182)	East (n = 80)	
Gender					
Male	60	53	39	21	173
Female	346	162	143	59	710
Educational Program					
Resource class	222	108	101	49	480
Self-Contained class	184	107	81	31	403
School Level Taught					
Elementary	237	118	99	41	495
Secondary	169	97	83	39	388
Teaching Experience					
Novice (0-4 years)	121	54	26	30	231
Moderate (5-9 years)	109	72	62	19	262
Experienced (10-19 years)	101	52	66	20	239
Expert (20 or more years)	75	37	28	11	151

3.2 Measure

The *Classroom Self-Determination Teaching Assessment* (CSDTA) was developed to assess the extent to which special educators integrate the concept of self-determination into their instruction. The CSDTA comprises 24 items, each of which is rated using a 5-point format (1 = Never, 5 = Always). The CSDTA is divided into four subscales: (a)*Self-Concept*: measuring the degree to which educators instruct students about self-concept and self-awareness (e.g., Teaching students to know their own personality and physical characteristics). (b)*Self-Advocacy*: examining the degree to which educators teach students about self-reinforcement and self-assertion (e.g., Teaching students that everyone has their own unique strengths). (c)*Goal Setting*: measuring the emphasis placed on teaching students about goal setting and achievement in the contexts of both learning and leisure activities (e.g., Teaching students to set learning goals). (d)*Independent Living Skills*: measuring the extent to which educators impart skills essential for independent living (e.g., Teaching students the necessary skills for efficient grocery shopping).

The reliability and validity analysis results for the CSDTA are as follows: (a)*Content Validity*: Prior to the pilot testing, three university professors in this field reviewed and provided feedback on the appropriateness of the preliminary scale content. (b)*Internal Consistency Reliability*: The analysis, conducted with a sample of 203 participants during the pilot testing, revealed that the Cronbach's α ranged from .79 to .88 for each subscale. The full scale's Cronbach's α was .93. (c)*Item Analysis*: Results of item-total correlation analysis showed that the coefficients between each item and their corresponding subscales ranged from .46 to .79. All these correlations exceeded the criterion value of .30. Furthermore, regarding the exploratory factor analysis, the scree plot analysis pointed to the feasibility of extracting four distinct factors, which together explained 51.49% of the variance.

3.3 Data Analysis

Means (*M*) and standard deviations (*SD*) were first calculated to analyze data. A subsequent four-way analysis of variance (ANOVA) was performed to examine the interactions among teacher gender, school level taught, classroom type taught, and teaching experience. If this interaction is significant, further tests for higher-order interactions would be conducted. If not significant, 3 separate three-factor interaction tests would be undertaken. Similarly, for a significant three-way ANOVA interaction, further tests on the simple interaction effect would be conducted. If insignificant, two-factor interaction tests would be performed. For the simple interaction effect, if it reaches a significant level, tests for the simple simple-main-effect would be carried out. If not, tests for the simple main effect would be conducted.

Additionally, regarding the two-factor interaction test, if the interaction proves significant, a one-way ANOVA will examine the simple main effect of both independent variables. However, if the two-way ANOVA shows no interaction effect, a one-way ANOVA will determine the main effects of the two variables. In cases where this test demonstrates significant effects and involves more than three comparison groups, further post-hoc multiple comparisons would be undertaken.

4. Results

4.1 Descriptive Statistics Results

M and *SD* based on teachers' demographic variables for the CSDTA are displayed in Table 2. The significant group differences displayed in the table are findings derived from the main effect analyses which are described in the subsequent sections.

Regarding the inferential statistics, a four-way ANOVA was first conducted and the results showed no significant interaction effects among the four factors. Consequently, the possible three-way ANOVAs were further performed. Likewise, no interaction was detected. Post hoc tests following the three-way ANOVA results included six two-way ANOVAs; that is the six pairwise combinations among the four factors.

First, concerning the analysis of teacher gender and educational program, the two-way ANOVA indicated no significant interaction effects on the CSDTA subscales and full scale. Since no interaction effects were found, further post hoc tests were performed to examine the main effects of both factors, respectively. Regarding teacher gender, the results showed that female teachers scored significantly higher than male educators on Self-Concept, $F(1, 879) = 11.63$, $p < .01$, Self-Advocacy, $F(1, 879) = 12.80$, $p < .01$, Independent Living Skills, $F(1, 879) = 17.79$, $p < .01$, and Full scale, $F(1, 879) = 15.96$, $p < .01$.

Table 2. Means (SD) Based on Participant Demographic Variables

Variable	*n*	Subscale				Full Scale
		Self- Concept	Self- Advocacy	Goal Setting	Independent Living Skills	
Gender						
Male	173	[b]17.40 (3.04)	[b]22.56 (4.20)	16.29 (3.45)	[b]27.34 (4.86)	[b]83.51 (13.28)
Female	710	[a]18.35 (3.16)**	[a]23.86 (3.99)**	16.76 (3.44)	[a]29.15 (5.29)**	[a]88.12 (13.34)*
Educational Program						
Resource class	480	18.26 (3.18)	24.05 (3.95)	[a]17.17 (3.09)**	[b]27.57 (5.22)	87.05 (13.02)
Self-Contained class	403	18.05 (3.14)	23.07 (4.14)	[b]16.08 (3.76)	[a]30.26 (4.91)**	87.42 (13.95)
School Level						
Elementary	495	18.09 (3.19)	23.43 (4.21)	16.52 (3.60)	28.65 (4.97)	86.66 (13.75)
Secondary	388	18.25 (3.12)	23.82 (3.86)	16.87 (3.25)	28.98 (5.60)	87.93 (13.03)
Teaching Experience						
Novice	231	18.21 (2.86)	23.52 (3.89)	16.72 (3.48)	28.64 (5.03)	87.09 (12.21)
Moderate	262	18.00 (3.12)	23.54 (3.90)	16.58 (3.23)	28.78 (5.31)	86.89 (13.10)
Experienced	239	18.09 (3.15)	23.30 (4.26)	16.76 (3.23)	28.60 (5.19)	86.74 (13.44)
Expert	151	18.50 (3.65)	24.33 (4.25)	16.63 (4.08)	29.37 (5.59)	88.74 (15.69)

The *M* denoted by superscript *a* is significantly higher than the corresponding *M* denoted by superscript *b* within each variable (*$p < .05$; **$p < .01$).

With respect to educational program, special education teachers who teach in resource classes outperformed those who provide services in self-contained classes on Goal Setting, $F(1, 879) = 16.51$, $p < .01$. Conversely, self-contained class teachers scored significantly higher than resource class teachers on Independent Living Skills, $F(1, 879) = 30.47$, $p < .01$. Grand means for both factors are displayed in Table 2, while Table 3 provides a summary of the cross-tabulated means.

Table 3. Means (SD) by Teacher Gender and Educational Program

Gender	Educational Program	*n*	Subscale				Full Scale
			Self- Concept	Self- Advocacy	Goal Setting	Independent Living Skills	
Male	Resource class	97	17.23 (3.21)	22.41 (4.39)	16.87 (3.06)	26.51 (5.46)	83.02 (14.31)
	Self-Contained class	76	17.61 (2.81)	22.76 (3.97)	15.56 (3.79)	28.40 (3.72)	84.14 (11.89)
Female	Resource class	383	18.52 (3.12)	24.46 (3.72)	17.25 (3.09)	27.84 (5.13)	88.07 (12.48)
	Self-Contained class	327	18.15 (3.20)	23.15 (3.99)	16.20 (3.72)	30.70 (5.06)	88.19 (14.30)

Table 4. Means (SD) by Teacher Gender and School Level Taught

Gender	School Level	*n*	Subscale				Full Scale
			Self- Concept	Self- Advocacy	Goal Setting	Independent Living Skills	
Male	Elementary	109	17.51 (2.87)	22.80 (4.21)	16.20 (3.74)	26.90 (4.70)	83.29 (13.57)
	Secondary	64	17.20 (3.32)	22.15 (4.19)	16.45 (2.92)	28.08 (5.07)	83.89 (12.86)
Female	Elementary	386	18.26 (3.26)	23.61 (4.20)	16.61 (3.55)	29.15 (4.94)	87.61 (13.67)
	Secondary	324	18.46 (3.04)	24.15 (3.71)	16.95 (3.30)	29.16 (5.69)	88.73 (12.93)

Furthermore, in the analysis involving teacher gender and school level, the results displayed no significant interaction on all subscales and the full scale. Likewise, because no interaction effects were found, post hoc tests were consequently conducted to investigate each factor's main effect. Results showed that significance was found for

teacher gender, but not for school level taught. Given that the differences between male and female educators have already been examined, it is unnecessary to repeat the main effect analysis. The cross-tabulated means are shown in Table 4.

Regarding the analysis between teacher gender and teaching experience, the two-way ANOVA yielded no statistical significance on the subscales and full scale. Consequently, further post hoc tests were performed to assess the main effect of teacher gender and teaching experience, respectively. Results indicated that significance was found on teacher gender, but not on teaching experience. Again, there is no need to reanalyze the main effect of the teacher gender. Table 5 summarizes the cross-tabulated means on the CSDTA for teacher gender by teaching experience.

Table 5. Means (SD) by Teacher Gender and Teaching Experience

Gender	Teaching Experience	*n*	Subscale				Full Scale
			Self- Concept	Self- Advocacy	Goal Setting	Independent Living Skills	
Male	Novice	32	17.50 (3.09)	21.53 (4.70)	15.71 (3.27)	26.91 (5.61)	81.65 (14.96)
	Moderate	48	17.14 (2.70)	22.67 (3.86)	16.03 (3.44)	28.75 (4.95)	82.59 (12.63)
	Experienced	64	17.15 (2.99)	22.16 (3.62)	16.83 (3.55)	27.29 (4.39)	83.42 (10.83)
	Expert	29	18.26 (3.57)	24.42 (4.93)	16.19 (3.87)	28.90 (4.89)	87.29 (16.84)
Female	Novice	199	18.33 (2.81)	23.84 (3.65)	16.88 (3.49)	28.92 (4.89)	87.97 (11.52)
	Moderate	214	18.19 (3.18)	23.73 (3.89)	16.70 (3.18)	29.24 (5.30)	87.85 (13.04)
	Experienced	175	18.43 (3.14)	23.71 (4.40)	16.73 (3.45)	29.08 (5.39)	87.96 (14.11)
	Expert	122	18.55 (3.68)	24.31 (4.09)	16.73 (3.83)	29.49 (5.79)	89.08 (15.46)

In addition, with respect to the analysis of educational program and school level, the two-way ANOVA indicated that the significant interaction was only found on Independent Living Skills, $F(1, 879) = 4.75$, $p = .030$. Follow-up analyses to the significant interaction were conducted to examine the simple main effect for both factors. To control for Type I error, α was set at .025 for each analysis.

Findings of the simple main effect analysis for school level taught showed that in the context of resource classes, no significant differences were detected. Conversely, when considering the self-contained classes, secondary school teachers scored significantly higher than elementary school teachers on Independent Living Skills, $F(1, 879) = 5.81$, $p = .016$.

Regarding the simple main effect analysis for educational program, with the sample being elementary school teachers, the mean score of self-contained class educators was significantly higher than that of resource class teachers, $F(1, 879) = 20.10$, $p < .01$. Similarly, among secondary school educators, those in self-contained classes scored significantly higher than their counterparts in resource classes, $F(1, 879) = 46.95$, $p < .01$.

On the contrary, significant interaction effects were not found on the other three subscales and full scale. Post hoc tests were consequently performed to examine each factor's main effect. Results indicated that significance was found for educational program, but not for school level taught. Likewise, given that the differences between resource and self-contained class teachers have already been examined, it is unnecessary to repeat the main effect analysis (see Table 2 for grand means and significant differences). The cross-tabulated means are displayed in Table 6.

With respect to the educational program and teaching experience analysis, findings of the two-way ANOVA revealed significant interaction effects on three subscales: Self-Concept, $F(3, 875) = 3.88$, $p = .009$, Self-Advocacy, $F(3, 875) = 2.75$, $p = .042$, and Full scale, $F(3, 875) = 3.19$, $p = .023$.

Post hoc tests were subsequently conducted for the two factors (α set at .025) to examine their simple main effects. For the simple main effect of teaching experience (α set at .008), statistical significance was found only among teachers in self-contained classes, but not among those in resource classes. Specifically, in self-contained classes, expert teachers with 20 or more years of teaching experience exhibited a significantly higher mean score on Self-Concept, $F(1, 875) = 7.28$, $p = .007$, and Self-Advocacy, $F(1, 875) = 8.41$, $p = .004$, compared to novice teachers with 0 to 4 years of experience.

Table 6. Means (SD) by Educational Program and School Level

Educational Program	School Level	*n*	Subscale				Full Scale
			Self-Concept	Self-Advocacy	Goal Setting	Independent Living Skills	
Resource class	Elementary	263	18.06 (3.21)	24.09 (3.95)	17.06 (3.16)	[d]27.69 (4.70)	86.90 (12.84)
	Secondary	217	18.50 (3.13)	24.00 (3.95)	17.31 (2.99)	[c]27.42 (5.80)	87.23 (13.26)
Self-Contained class	Elementary	232	18.12 (3.17)	22.68 (4.39)	15.90 (3.95)	[b]29.74 (5.04)	86.39 (14.75)
	Secondary	171	17.94 (3.10)	23.60 (3.74)	16.31 (3.47)	[a]30.97 (4.65)	88.83 (12.71)

Significance based on the simple main effect analysis for School Level ([a]30.97 > [b]29.74) and for Educational Program ([a]30.97> [c]27.42; [b]29.74 > [d]27.69).

Furthermore, with regard to the simple main effect for educational program, statistical significance was only detected among novice teachers with 0 to 4 years of experience. Specifically, novice teachers in resource classes exhibited significantly higher mean scores on Self-Concept, $F(1, 875) = 12.11$, $p < .01$, Self-Advocacy, $F(1, 875) = 17.41$, $p < .01$, and Full scale, $F(1, 875) = 5.17$, $p = .023$, compared to their novice counterparts in self-contained classes.

Since no interaction effects were found on Goal Setting, $F(3, 875) = 1.93$, $p = .122$, and Independent Living Skills, $F(3, 875) = 2.55$, $p = .055$, the main effect analysis was subsequently conducted. The results indicated that statistical significance was only found in educational program, but not in teaching experience. Again, there is no need to reanalyze the main effect of the classroom type taught. Table 7 summarizes the cross-tabulated means for educational program by teaching experience.

Table 7. Means (SD) by Educational Program and Teaching Experience

Educational Program	Teaching Experience	*n*	Subscale				Full Scale
			Self- Concept	Self- Advocacy	Goal Setting	Independent Living Skills	
Resource class	Novice	133	[c]18.83 (3.07)	[c]24.47 (3.86)	17.48 (3.29)	28.03 (5.46)	[c]88.81 (12.65)
	Moderate	144	17.88 (3.15)	23.60 (4.00)	16.82 (3.16)	27.19 (5.42)	85.49 (13.48)
	Experienced	136	18.08 (3.12)	23.74 (4.02)	17.07 (2.70)	27.11 (4.84)	86.01 (12.48)
	Expert	67	18.32 (3.48)	24.79 (3.72)	17.52 (3.19)	28.37 (4.98)	89.00 (13.43)
Self-Contained class	Novice	98	[b]17.38 (2.31)	[b]22.24 (3.56)	15.68 (3.48)	29.47 (4.26)	[b]84.76 (11.24)
	Moderate	118	18.14 (3.09)	23.45 (3.78)	16.28 (3.30)	30.72 (4.49)	88.60 (12.47)
	Experienced	103	18.10 (3.19)	22.71 (4.50)	16.35 (3.79)	30.56 (5.00)	87.72 (14.63)
	Expert	84	[a]18.64 (3.80)	[a]23.97 (4.61)	15.91 (4.56)	30.18 (5.94)	88.53 (17.36)

Significance based on the simple main effect analysis for Educational Program ([c]18.83 > [b]17.38; [c]24.47 > [b]22.24; [c]88.81> [b]84.76) and for Teaching Experience ([a]18.64> [b]17.38; [a]23.97 > [b]22.24).

Lastly, regarding the school level taught and teaching experience analysis, the results indicated that the significant interaction was found on three subscales and full scale: Self-Concept, $F(3, 875) = 3.56$, $p = .014$, Goal Setting, $F(3, 875) = 5.53$, $p = .001$, Independent Living Skills, $F(3, 875) = 4.01$, $p = .008$, and Full scale, $F(3, 875) = 3.64$, $p = .013$. Post hoc tests following the significant interaction involved the simple main effect analysis for each factor.

With respect to the simple main effect analysis for school level taught, significant differences were identified only among expert teachers. Specifically, secondary school teachers with this level of teaching experience displayed significantly higher mean scores than their elementary school counterparts on Goal Setting, $F(1, 875) = 18.40$, $p < .001$, Independent Living Skills, $F(1, 875) = 5.65$, $p = .018$, and Full scale, $F(1, 875) = 9.52$, $p = .002$.

Regarding the simple main effect analysis for teaching experience, pairwise comparisons were conducted among teachers with varied teaching experience. To control for Type I error, α was set at .008. Results showed that among elementary school teachers, no significance were detected on all subscales and the full scale. In contrast, among secondary educators, significant differences were noted, with those having more extended teaching experience demonstrating higher instructional levels. Specifically, expert teachers exhibited significant higher mean score than

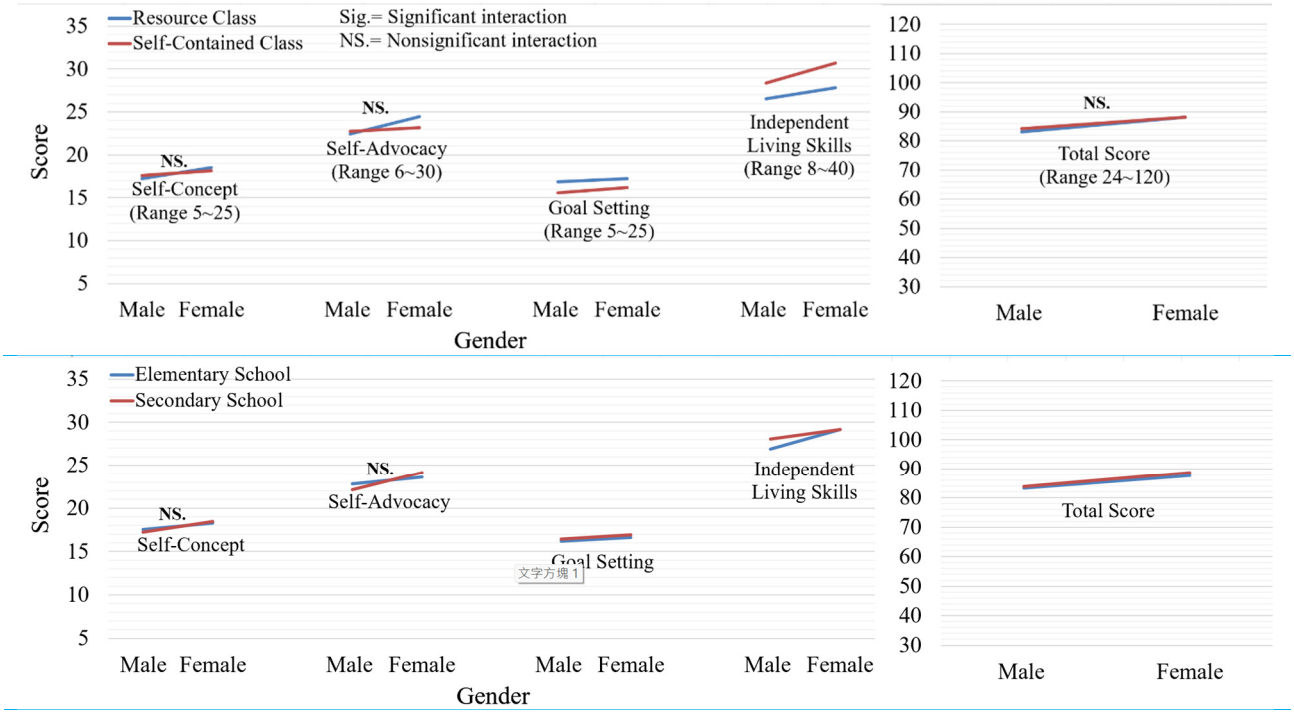
experienced teachers on Self-Concept, $F(1, 875) = 9.67$, $p = .002$, Independent Living Skills, $F(1, 875) = 9.93$, $p = .002$, and Full scale, $F(1, 875) = 11.81$, $p = .001$. Furthermore, experienced teachers also showed significantly higher mean scores on Goal Setting compared to novice teachers, $F(1, 875) = 8.41$, $p = .004$, and those with moderate teaching experience, $F(1, 875) = 9.74$, $p = .002$. The cross-tabulated means for school level taught by teaching experience are displayed in Table 8. Since the interaction effect was not observed on Self-Advocacy, $F(3, 875) = 1.52$, $p = .207$, the main effect analysis was conducted for school level taught and teaching experience respectively. Results showed no statistical significance for either analysis. The cross-tabulated means are displayed in Table 8.

Table 8. Means (SD) by School Level and Teaching Experience

School Level	Teaching Experience	*n*	Subscale				Full Scale
			Self- Concept	Self- Advocacy	Goal Setting	Independent Living Skills	
Elementary	Novice	129	18.08 (2.97)	23.16 (4.31)	16.83 (3.32)	28.81 (4.46)	86.88 (12.71)
	Moderate	119	17.69 (2.96)	23.24 (3.79)	16.63 (3.51)	28.03 (5.13)	85.58 (13.13)
	Experienced	149	18.43 (3.02)	23.48 (4.23)	16.66 (3.42)	29.02 (4.99)	87.59 (13.47)
	Expert	98	18.10 (3.92)	23.93 (4.55)	[d]15.75 (4.20)	[c]28.63 (5.36)	[c]86.27 (16.14)
Secondary	Novice	102	18.39 (2.73)	23.97 (3.24)	[c]16.57 (3.69)	28.43 (5.68)	87.36 (11.60)
	Moderate	143	18.25 (3.24)	23.79 (3.99)	[b]16.53 (2.98)	29.41 (5.40)	87.98 (13.02)
	Experienced	90	[b]17.53 (3.29)	22.99 (4.30)	16.92 (2.89)	[b]27.90 (5.47)	[b]85.34 (13.36)
	Expert	53	[a]19.23 (2.99)	25.07 (3.56)	[a]18.25 (3.30)	[a]30.75 (5.80)	[a]93.30 (13.83)

Significance based on the simple main effect analysis for School Level ([a]18.25 > [d]15.75; [a]30.75 > [c]28.63; [a]93.30 > [c]86.27) and for Teaching Experience ([a]19.23 > [b]17.53; [a]30.75 > [b]27.90; [a]93.30 > [b]85.34; [a]18.25 > [b]16.53; [a]18.25 > [c]16.57).

To present the interaction more clearly between variables, the mean scores of pairwise variables on the CSDTA subscales and total score are displayed in Figure 1.



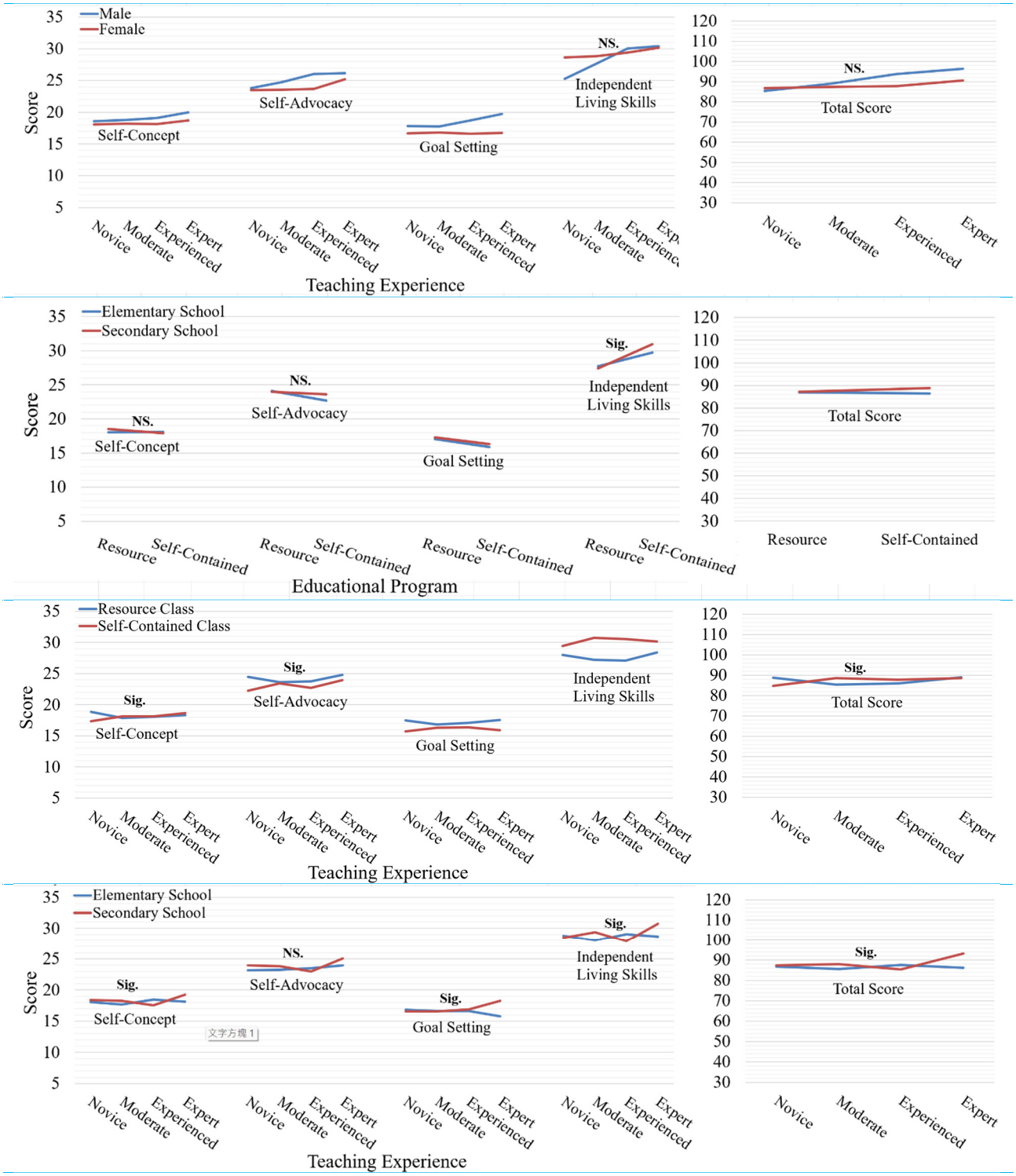


Figure 1. Mean Scores of Pairwise Variables on the CSDTA Subscales and Total Score

5. Discussion

The present study examined the factors influencing special education teachers' integration of the self-determination concept into their teaching. The results showed that all four factors examined in this study are contributing factors. However, they impact integration in different ways. Specifically, there was no interaction among these four factors,

nor among any three of them. In terms of two-factor analysis, out of the six pairs, three pairs involving educational program, school level taught, and teaching experience exhibited significant interactive relationships. In short, three major conclusions were derived from the present study.

First, there were no consistent interactions between any two factors on the CSDTA subscales, highlighting the diversity among special education teachers when teaching different self-determination concepts. Second, when interpreting the extent to which a contributing factor influences teachers in conducting self-determination instruction in a two-way ANOVA depends on what another factor the researcher simultaneously considers. Taking the school level taught as an example, although it simultaneously interacts with educational program and teaching experience in influencing the instruction of independent living skills, the significance of the interaction effects between them is different (with effect sizes η^2 of .005 and .014, respectively). Specifically, the results indicate that, overall, expert teachers in secondary schools with 20 or more years of experience teach independent living skills at a higher level compared to their counterparts in elementary schools with the same level of experience. Additionally, secondary school teachers demonstrate a considerably higher degree of teaching independent living skills than elementary school teachers when working with children who have severe disabilities at a self-contained class. Third, gender is the only factor that does not interact with other background factors to influence self-determination teaching. The following further elaborates on the impact of each factor on self-determination instruction at their respective levels.

In terms of the school level taught, there is a clear trend indicating that secondary school teachers demonstrate higher levels of self-determination instruction compared to elementary school teachers, especially those with over 20 years of teaching experience. Significant differences were observed in teaching skills related to goal setting, independent living skills and overall scale. These outcomes may be attributed to the increasing demand for self-determination skills in the learning process as students with disabilities transition from elementary to secondary school (Wehmeyer et al., 2007). Therefore, this may explain why secondary school special education teachers are more dedicated to teaching self-determination skills compared to their elementary school counterparts. Furthermore, from a motivational perspective, children transitioning from elementary to secondary school tend to experience an increase in their learning motivation as they grow older. Furthermore, because self-determination behaviors inherently emphasize the importance of students' intrinsic motivation, as Deci and Ryan (2008) have argued that all self-determined actions stem from intrinsic motivation, it is speculated that this is another reason why secondary school teachers may place relatively more emphasis on self-determination instruction. However, since the significant differences among secondary and elementary school teachers are not consistently present across all age groups or skill dimensions, further empirical research results are needed to support the inferences made in this study.

Furthermore, regarding the teacher's gender, as this variable did not interact with the other three variables, the interpretation of the results is relatively straightforward. In addition to goal setting, female special education teachers demonstrated higher levels of instruction in self-concept, self-advocacy, independent living skills, and overall self-determination skills compared to their male counterparts. This result is in consistent with previous research findings in Taiwan (Tung & Lin, 2005). It is suggested that this can be attributed to gender-differentiated socialization wherein traditional Chinese culture tends to encourage the personality development of females towards traits such as being nurturing and skillful verbal expression. These qualities are indeed advantageous for the implementation of self-determination instruction. Furthermore, the predominance of female teachers both domestically and internationally has gradually shaped the gender atmosphere within school environments, reinforcing the motivation and effectiveness of female teachers in their teaching (Slavin, 2008).

Regarding the educational program taught, summarizing the findings of the three two-factor ANOVAs conducted in this study, it can be presumed that teachers who teach in resource classes demonstrated significantly higher levels of instruction in self-concept, self-advocacy, goal setting, and overall self-determination skills compared to teachers who provide special education services in self-contained classes. These results are consistent with the argument that more inclusive educational environments are conducive to the development of self-determination skills among students with disabilities (Wehmeyer et al., 2000). Due to the influence of individual cognitive levels on the acquisition of self-determination skills (Carter et al., 2006), this study suggests that this may explain why resource class teachers are more committed to integrating self-determination concepts into their teaching processes, as their students primarily consist of individuals with mild disabilities.

Another point worth noting is that both elementary and secondary school educators in self-contained classes exhibit significantly higher levels of instruction in teaching students independent living skills compared to resource class teachers. This result is consistent with findings from previous research, which indicated that self-contained class teachers in Taiwan tend to prioritize instruction of functional skills, such as self-care and daily living skills, while

placing relatively less emphasis on cognitive aspects like self-concept or self-advocacy skills (Chao, 2011). Although this instructional approach may meet the needs of students with moderate to severe disabilities in their educational and daily life tasks, it is crucial to consider that there is a positive correlation between the cognitive and practical aspects of self-determination (Hughes et al., 2006; Wehmeyer, 2003). Specifically, clear self-knowledge and self-confidence can enhance students' motivation for practical application, and practical behavior can, in turn, strengthen their self-knowledge and build self-confidence. Therefore, investigating how to modify the teaching model in self-contained classes to place more emphasis on cognitive aspects alongside practical ones is worthwhile.

Regarding the influence of teaching experience, it is evident that teachers with more experience, especially those identified as expert teachers with over 20 years of experience, tend to integrate the concept of self-determination into their instruction to a greater extent compared to their less experienced counterparts. This is particularly notable among teachers at the secondary school level or those teaching in self-contained classes. In short, two types of consistency were found in this study. Firstly, teachers with extensive teaching experience consistently exhibit a greater level of instruction in both overall self-determination concepts as well as in each dimension measured by the CSDTA compared to the less experienced teachers. Furthermore, expert teachers, those with over 20 years of experience, consistently demonstrate a greater level of instruction than the other three groups categorized by years of experience: novice teachers (0-4 years), teachers with moderate experience (5-9 years), and those considered experienced (10-19 years). These research findings align with previous studies (Cho et al., 2013), once again highlighting the strong positive correlation between the level of instruction in self-determination concepts for students with disabilities and the teaching experience of special educators.

6. Conclusion

Overall, elementary and secondary school students with disabilities generally lack the self-determination skills necessary for academic performance. Therefore, finding ways to promote related skills such as developing clear self-knowledge, striving for self-advocacy, setting appropriate goals, and living independently has become an important issue in contemporary special education (Burke et al., 2024; Dawson et al., 2023). Given that special education teachers play a crucial role in cultivating students' self-determination knowledge and skills, based on the ecological systems theory, it is worth investigating whether their demographic characteristics including gender, educational program, school level, and teaching experience impact the integration of the self-determination concept into their instruction. Findings indicate that all these variables are contributing factors in teaching these skills, with different interaction patterns. Specifically, female teachers and those who teach in higher grade levels, resource classes, and who have more teaching experiences are more devoted to teaching students self-determination skills. Specifically, female teachers are more devoted to teaching overall self-determination skills than male teachers. Furthermore, secondary school teachers demonstrated a significantly higher degree of proficiency in teaching independent living skills, whereas resource class teachers show greater proficiency in teaching self-advocacy and goal-seting skills. The findings of this study, consisten with previous research, again highlights the critical role of teachers in developing the self-determination skills of students with disabilities.

7. Recommendations and Limitations

The findings suggest that male special educators, those working in elementary schools, those instructing in self-contained classes, and those with less teaching experience, tend to integrate the concept of self-determination into their lessons to a lesser degree compared to their colleagues. To better meet the self-determination needs of students with disabilities, it is suggested that these educators reevaluate their teaching strengths and areas for improvement.

Furthermore, it is heartening to see self-contained class teachers dedicate themselves to teaching students independent living skills. However, this commitment prompts another question: does it mean that instruction in self-concept, self-advocacy, and goal setting is comparatively insufficient? This issue certainly deserves further reflection. Considering that acquiring a comprehensive set of self-determination skills can significantly enhance the academic performance of students with disabilities, it is advisable for self-contained class teachers to appropriately adjust their instructional emphasis on the various components of self-determination skills.

There are two limitations in this study. First, since the CSDTA is a self-report scale, there is uncertainty regarding whether special education teachers actually incorporate the concept of self-determination into their instruction. Another limitation is that the CSDTA assesses only four subskills of self-determination. Therefore, it should be cautious to interpret the findings of this study.

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