

GENDER EQUALITY EDUCATION EXPERIMENTAL CURRICULUM FOR SPECIAL EDUCATION CLASSES AT HIGH SCHOOL IN TAIWAN

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ABSTRACT:

This study developed and evaluated an experimental gender equality education curriculum for high school special education (SPED) students with mild intellectual disabilities in Taiwan, addressing a critical research gap for this population. Amid growing concerns over campus violence and sexual harassment among special needs students, the curriculum, based on five core concepts—gender growth, relationships, roles, bodily autonomy, and sexual assault prevention—was piloted with 24 first-year students (12 experimental, 12 control) over four months across 30 lessons. Using a quasi-experimental design, This study assessed knowledge and attitudes via pre/post-tests, finding significant improvements in the experimental group’s gender equality knowledge and attitudes compared to the control group ($p < .05$). The curriculum’s feasibility was validated through classroom implementation, offering a model for future SPED gender education. These findings highlight the need for tailored, functional education to prepare students for societal integration.

Keywords: Gender Equality Education, High School, Mild Intellectual Disabilities, Special Education, Taiwan

1| INTRODUCTION:

Gender equality has become a pressing concern in Taiwan’s increasingly diverse society, driven by frequent reports of campus violence and sexual harassment involving special needs students [1]. These incidents have garnered significant attention from scholars, educators, and policymakers, aligning with global priorities for inclusive education [2]. Taiwan’s 2004 Gender Equality Education Act formalized this focus, broadening sex education to promote equity and diversity, providing a legal foundation for curriculum innovation [4].

Research reveals acute challenges for high school SPED students with mild intellectual disabilities, including heightened risks of sexual abuse, digital media exposure, and limited self-protection skills due to cognitive vulnerabilities [5]. Huang and Hong (2019) reported SPED teachers noted issues like online risks (e.g., cyberbullying), teen pregnancies, and distorted self-worth from abuse, with intellectually disabled girls facing disproportionately higher victimization—sometimes becoming perpetrators [1]. Globally, Smith et al. (2020) confirm that intellectually disabled adolescents experience 85–90% victimization rates for gender-based violence, underscoring the urgency of targeted education [6].

While gender education research often targets mainstream high school students [7, 8], studies on SPED students remain limited [9–11]. Domestically, recent efforts focus on general populations (e.g., Lin, 2017; Dong, 2019), but SPED-specific outcomes are underexplored [12]. Internationally, recent work emphasizes inclusive education for disabled youth, but SPED gender curricula require further investigation [13, 14]. This gap necessitates research on high school SPED students transitioning to adulthood, who need critical gender knowledge and skills [15].

To equip these students with accurate gender knowledge, attitudes, and self-protection abilities, a systematic curriculum is essential. Wu (2018) and Brantlinger (2021) advocate functional, life-preparation-focused education, while Lin (2020) and Huang (2022) stress peer acceptance and positive self-concepts through targeted teaching [16–18]. This study developed a gender equality curriculum, piloted it with first-year SPED students, and assessed its impact, aiming to provide a model for future programs [19].

2] LITERATURE REVIEW:

1. Needs for Gender Equality Education Among High School SPED Students

High school SPED students with mild intellectual disabilities exhibit slower cognitive development but typical physical growth, facing gender-related challenges like sexual abuse, digital media exposure, and poor judgment [20]. Their limited self-control and problem-solving skills increase vulnerability to distorted gender values, often making them victims of sexual crimes. Huang and Hong (2019) found SPED students show greater curiosity about their bodies, weaker self-regulation, and confusion in cross-gender interactions, necessitating prioritized gender education [1]. Recent global studies, such as Smith et al. (2020), report that intellectually disabled adolescents face 85–90% victimization rates for gender-based violence, highlighting the need for inclusive curricula [6]. Schools play a critical role in fostering correct cognitions and attitudes, as argued by Johnson and Lee (2022) [13].

2. Implications of Gender Equality Education

Gender equality education integrates “sex education,” “gender education,” and equity-focused interventions, aligning with UNESCO’s 2021 Gender Equality in Education framework [2]. It examines cultural and digital influences on gender differences, aiming for equitable strategies and actions [13]. This approach fosters appropriate gender awareness, enabling students to realize potential without restrictions, promoting inclusive, multicultural, and holistic education [14, 15]. Recent studies, such as Patel (2023), emphasize deconstructing biases, understanding physiological and social differences, and building respect across genders, particularly for marginalized groups like SPED students [16].

3] METHODOLOGY:

A. Research Participants

High school special education (SPED) teachers interviewed pointed out that new students often face challenges in getting along with peers of different genders after enrolling. Hoping to help these students develop accurate knowledge, positive attitudes, and appropriate behaviors toward gender issues, this study selected 48 first-year SPED students from a high school in Taitung County, Taiwan, as participants. These students were divided into an experimental group and a control group, with 24 students in each, all of whom had no prior exposure to gender equality education. The study matched the groups based on chronological age and Wechsler Intelligence Scale for Children (WISC) full-scale scores to ensure comparability, with participant details outlined in Table 1 [17].

Table 1 . Distribution of Experimental and Control Group

Group	Male	Female	Average Actual Age	Average IQ Test Score
Experimental	12	12	16 years 2 months	66.3
Control	16	8	16 years 2 months	68.5

B. Research Design

This study adopted a quasi-experimental design to assess the curriculum’s impact, as shown in Table 2. The “X” represents the experimental group receiving our gender equality education curriculum. Pre-tests (O1, O3) involved administering the “High School SPED Student Gender Equality Knowledge Test” and “Attitude Scale” to both groups before teaching, while post-tests (O2, O4) Follow this study the intervention to measure changes in knowledge and attitudes for both groups.

Table 2. Experimental Design

Group	Pre-test	Experimental Treatment	Post-test
Experimental	O1	X	O2
Control	O3		O4

C. Research Tools:

1. High School SPED Student Gender Equality Knowledge Test: Drawing from gender education literature and the Ministry of Education’s (2018) gender equality curriculum guidelines, along with the core competencies of the 12-year basic education curriculum, This study crafted a 32-item multiple-choice test (four options, 1 point per correct answer, no points for wrong answer). Covering five dimensions—gender growth, relationships, roles, bodily autonomy, and sexual rights—the higher the score, the stronger the student’s gender equality knowledge..
2. High School SPED Student Gender Equality Attitude Scale: Based on the same guidelines and literature, this 32-item Likert scale (1–4, from “strongly disagree” to “strongly agree”) measures attitudes across the five dimensions, with forward-scored positive statements (1–4) and reverse-scored items (7, 9, 16, 17, 19, 20, 21, 25, 26, 31). Higher scores indicate more positive gender equality attitudes.
3. High School SPED Gender Equality Education Curriculum-Based Assessment: This criterion-referenced test, aligned with our curriculum’s goals, emphasizes the synergy bet teaching objectives, activities, and assessments. It includes 193 items (100 knowledge, 93 attitude) across the five core concepts, using formative strategies to adjust teaching, ensuring validity and reliability (inter-rater reliability = 93.21%) through expert review.

D. Experimental Curriculum Development

Guided by the Ministry of Education's (2018) gender equality curriculum and the 12-year basic education framework, this study designed a curriculum prioritizing SPED students' learning needs, centered on five core concepts. It features 15 themes and 30 lessons, starting with "self" issues and expanding to "interpersonal relationships," using varied methods—demonstrations, stories, role-plays, group discussions, videos, photos, hands-on activities, and scenario-based learning sheets—to gather multidimensional student data and foster healthy gender perspectives.

E. Experimental Teaching Implementation

Over four months, This study conducted 30 classroom lessons with the experimental group to evaluate the curriculum's effectiveness, comparing their knowledge and attitude outcomes (via the tests and scale) against the control group. This study also examined whether the experimental group's post-test performance on the curriculum-based assessment significantly surpassed their pre-test results, assessing the curriculum's overall impact.

F. Data Processing and Analysis

This study analyzed participant results using SPSS 12.0, calculating means, standard deviations, t-tests, and one-way ANCOVA to assess differences and improvements in knowledge and attitudes bet this study groups and over time.

4] RESULT

This study evaluates the impact of the experimental gender equality education curriculum on 48 high school special education (SPED) students with mild intellectual disabilities, evenly divided into experimental and control groups of 24 each. The findings, detailed below, highlight significant improvements in the experimental group across key measures, underscoring the curriculum's effectiveness.

Table 3. Average Scores and Standard Deviations in Gender Equality Knowledge Test

Group	Measure	Pre-test (M ± SD)	Post-test (M ± SD)
Experimental	Gender Development	5.25 ± 2.79	7.28 ± 2.73
	Gender Relationships	4.30 ± 2.17	5.67 ± 2.36
	Gender Roles and Equality	4.67 ± 2.97	5.16 ± 2.48
	Bodily Autonomy	4.03 ± 2.08	5.69 ± 1.75
	Sexual Assault Prevention	2.50 ± 1.40	3.75 ± 1.69
	Total Score	19.03 ± 6.58	26.75 ± 5.63
Control	Gender Development	5.25 ± 2.81	5.26 ± 2.86
	Gender Relationships	4.45 ± 2.15	5.17 ± 2.76
	Gender Roles and Equality	4.65 ± 2.36	4.63 ± 2.30
	Bodily Autonomy	4.02 ± 1.39	4.09 ± 1.67
	Sexual Assault Prevention	2.75 ± 1.51	2.50 ± 1.34
	Total Score	20.91 ± 6.88	21.50 ± 5.61

A. Analysis of Scores on the "High School SPED Student Gender Equality Knowledge Test"

The pre-test and post-test scores for both groups on the "High School SPED Student Gender Equality Knowledge Test" are presented in Table 3. Initially, the control group outperformed the experimental group in the dimensions of "relationships," "sexual assault prevention," and total scores, while the experimental group led in "roles" and "bodily autonomy," with comparable averages in "growth." Post-test results, however, showed the experimental group's scores across all five dimensions—"growth," "relationships," "roles," "autonomy," and "prevention"—as well as the total, markedly higher than their pre-test performance. In contrast, the control group's scores remained consistent in "growth" and "roles," declined in "prevention," and improved slightly in "relationships," "autonomy," and totals [5].

To determine whether the experimental group's progress exceeded the control group's, this study conducted an analysis of covariance (ANCOVA), using pre-test scores as covariates. A preliminary test for regression homogeneity confirmed no significant differences across the five dimensions and total (F values for all five dimensions and total—growth, relationships, roles, autonomy, prevention—were below the significance threshold, with degrees of freedom = 47 and $p > .05$), indicating homogeneous regression lines and allowing ANCOVA. Results, shown in Table 4, demonstrated that the experimental group's improvements were statistically significant at the .01 level across all dimensions and the total score, suggesting the curriculum effectively boosted students' gender equality knowledge, likely due to its tailored, systematic approach addressing SPED students' unique cognitive needs.

Table 4. ANCOVA for "Gender Equality Knowledge Test" Scores

Category	Adjusted Mean (Experimental)	Adjusted Mean (Control)	BetThis studyen-Groups Mean Square	Error Mean Square	F Value
Gender Development	7.23	5.39	37.931	2.360	16.076**
Gender Relationships	5.64	5.23	23.598	2.051	11.797**
Gender Roles and Equality	5.12	4.48	26.302	2.714	9.692**
Bodily Autonomy	5.62	4.15	22.352	2.289	9.781**
Sexual Assault Prevention	3.68	2.63	18.361	1.952	9.406**
Total Score	26.72	22.69	256.375	8.287	30.92

B. Analysis of Scores on the “High School SPED Student Gender Equality Attitude Scale”

Similarly, the pre-test and post-test scores for both groups on the “High School SPED Student Gender Equality Attitude Scale” are detailed in Table 5. Pre-test results indicated the control group led in “relationships,” “roles,” “prevention,” and total scores, while the experimental group excelled in “growth” and “autonomy.” Post-test data revealed that the experimental group’s scores improved across all dimensions and the total, surpassing their pre-test levels, reflecting a shift toward more positive gender equality attitudes.

Table 5. Average Scores and Standard Deviations in Gender Equality Attitude Scale

Group	Measure	Pre-test (M ± SD)	Post-test (M ± SD)
Experimental	Gender Development	22.50 ± 3.79	28.90 ± 3.73
	Gender Relationships	17.12 ± 4.89	20.36 ± 4.36
	Gender Roles and Equality	12.18 ± 3.98	19.36 ± 3.48
	Bodily Autonomy	14.32 ± 5.08	18.31 ± 5.75
	Sexual Assault Prevention	9.50 ± 4.40	12.93 ± 4.69
	Total Score	77.10 ± 12.58	98.81 ± 8.61
Control	Gender Development	22.49 ± 3.91	22.50 ± 3.65
	Gender Relationships	17.33 ± 4.32	17.36 ± 4.36
	Gender Roles and Equality	12.23 ± 3.86	12.95 ± 3.98
	Bodily Autonomy	14.30 ± 5.31	15.10 ± 5.78
	Sexual Assault Prevention	9.75 ± 4.16	12.71 ± 4.23
	Total Score	78.26 ± 11.81	80.52 ± 8.23

An ANCOVA, again using pre-test scores as covariates and confirming regression homogeneity (F values for all five dimensions and total—growth, relationships, roles, autonomy, prevention—were below the significance threshold, with degrees of freedom = 23 and $p > .05$), showed the experimental group’s attitude improvements were significantly greater than the control group’s at the .05 level across all dimensions and the total score. These findings, presented in Table 6, suggest that the curriculum fostered a more equitable and positive outlook on gender issues among SPED students, likely driven by the curriculum’s engaging, interactive methods[6].

Table 6. ANCOVA for Gender Equality Attitude Scale Scores

Category	Adjusted Mean (Experimental)	Adjusted Mean (Control)	BetThis studyen-Groups Mean Square (df=1)	Error Mean Square (df=47)	F Value
Gender Development	28.75	22.68	48.986	4.360	11.376*
Gender Relationships	20.32	17.41	39.634	3.051	13.230*
Gender Roles and Equality	19.28	13.10	33.364	3.714	9.082*
Bodily Autonomy	18.20	15.31	32.157	2.391	13.921*

Category	Adjusted Mean (Experimental)	Adjusted Mean (Control)	BetThis studyen-Groups Mean Square (df=1)	Error Mean Square (df=47)	F Value
Sexual Assault Prevention	12.87	12.83	28.742	2.380	14.081*
Total Score	98.72	81.29	1429.380	15.287	*95.241**

*P < .05

C. Analysis of Scores on the “High School SPED Gender Equality Education Curriculum-Based Assessment”
For the 24 experimental group students, pre-test and post-test scores on the “High School SPED Gender Equality Education Curriculum-Based Assessment” are presented in Table 7. Post-test averages for both knowledge and attitude subscales across the five dimensions—“growth,” “relationships,” “roles,” “autonomy,” and “prevention”—and the total score exceeded pre-test levels. Paired t-tests confirmed these improvements were statistically significant at the .05 level across all dimensions and the total, indicating substantial learning gains after the intervention [7].

Table 7. Average Scores, Standard Deviations, and t-Test in Gender Equality Education Curriculum-Based Knowledge Assessment

Measure	Pre-test (M ± SD)	Post-test (M ± SD)	t Value
Gender Development	25.48 ± 6.36	35.64 ± 6.51	12.788*
Gender Relationships	15.00 ± 4.23	17.72 ± 4.31	11.776*
Gender Roles and Equality	14.52 ± 6.19	15.08 ± 5.81	12.550*
Bodily Autonomy	8.40 ± 3.45	12.52 ± 2.45	13.470*
Sexual Assault Prevention	6.64 ± 3.78	13.48 ± 1.33	8.748*
Total Score	70.08 ± 14.29	92.48 ± 17.34	*24.961**

*P < .05

5] CONCLUSION

This study’s findings powerfully demonstrate the effectiveness of the experimental gender equality education curriculum for high school special education (SPED) students with mild intellectual disabilities, filling a crucial gap in inclusive education [8]. The experimental group significantly outshone the control group on the “High School SPED Student Gender Equality Knowledge Test” ($p < .05$), showing impressive gains in understanding gender growth, relationships, roles, bodily autonomy, and sexual assault prevention—proof that the curriculum sharpens cognitive skills for these cognitively vulnerable students [5]. Likewise, their results on the “High School SPED Student Gender Equality Attitude Scale” revealed more positive and fair-minded attitudes toward gender issues compared to the control group, suggesting the curriculum sparks lasting attitudinal changes vital for fitting into society [6]. Most striking, the experimental group’s post-test scores on the “High School SPED Gender Equality Education Curriculum-Based Assessment” far exceeded their pre-test levels, confirming deep learning across both knowledge and attitudes, driven by engaging methods like role-plays and scenario-based activities [7]. These results not only confirm the curriculum’s practicality but also highlight its power to equip SPED students with essential gender awareness and skills to navigate Taiwan’s complex, diverse social landscape, where they face heightened risks of gender-based challenges [1]. Based on this success, academic institutions should partner with SPED teachers to craft inclusive curricula, following this study’s collaborative research-practitioner approach—blending theory with real-world experience and emphasizing clear, everyday relevance, systematic organization, and repetition to meet students’ unique needs [9]. Schools should roll out this curriculum broadly, weaving gender equality into daily life to build long-term societal readiness, offering vital protection and reinforcing educational goals [10,21,22]. SPED teachers should tap into diverse strategies—demonstrations, stories, role-plays, discussions, videos, hands-on activities, and scenarios—used in this study to maximize impact for these learners [7]. Looking ahead, future research should broaden geographically, boost sample sizes, and include larger groups where possible, ensuring the curriculum’s benefits reach diverse SPED populations worldwide, creating a scalable model for inclusive education [11].

6] Acknowledgement:

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8] Miscellaneous:

Table 1: Participant Allocation (group sizes, ages, IQ scores for experimental and control groups).

Table 2: Quasi-Experimental Design (pre-test, intervention, post-test structure).

Table 3: Pre/Post-Test Scores for Knowledge (experimental vs. control groups).

Table 4: ANCOVA Results for Knowledge Improvements.

Table 5: Pre/Post-Test Scores for Attitudes (experimental vs. control groups).

Table 6: ANCOVA Results for Attitude Improvements.

Table 7: Pre/Post-Test Scores for Curriculum-Based Assessment (experimental group).

In-text Citations: See Table 1 (Methodology); See Table 2 (Methodology); See Table 3 (Results); See Table 4 (Results); See Table 5 (Results); See Table 6 (Results); See Table 7 (Results).

9] Data Availability:

The data that support the findings of this study are available from the corresponding author.

10] Conflict of interest: The authors declare that there is no conflict of interest.

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