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Social Capital and Posttraumatic Growth of Students with Acquired Visual Impairment in Japanese Schools for the Blind

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Abstract: The induction of posttraumatic growth (PTG) is important for realizing the reintegration of people with acquired visual impairment to society. In Japan, many of these individuals receive education at schools for the blind as enrolled students. The purpose of this study was to examine the relationship between cognitive and structural social capital at schools for the blind and the PTG of students with acquired visual impairment. A questionnaire survey was conducted among students enrolled in vocational courses at schools for the blind throughout Japan. The results of the analysis of data from a sample of 255 students indicated that cognitive social capital with peers and teachers and structural social capital indicated by the frequency of participation in school club activities and interaction with local people were positively related to PTG. The findings highlight that social capital at schools for the blind are associated with markers of PTG in students with acquired visual impairment. Moreover, the findings highlight the value of schools for the blind with regards to the social participation of students with acquired visual impairment.

Keywords: acquired visual impairment; Japan; posttraumatic growth; school for the blind; social capital



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1. Introduction

Posttraumatic growth (PTG) is defined as “positive psychological changes experienced as a result of struggle with traumatic or highly challenging life circumstances” [1] (p. 3). The theory of PTG asserts that after struggles are observed, changes are induced by PTG in the following three manners. The first is an enhancement of individual relationships, such as strengthened connection with others or increased compassion for people who are facing challenges. The second includes changes in self-recognition, such as the appreciation of one’s inner personal strength or the discovery of new possibilities in one’s life. The third involves a change in life philosophy, including changing views about what is important in life [1]. In addition, recent various studies of PTG have reported that several other factors may be associated with PTG: optimism, rumination and contemplation, self-disclosure, social support, the identification of persons with whom one can share experiences, meaningful leisure engagement, and helping others [1–5].

It is common for people to experience trauma either due to the physical process leading to impairment or their personal and social response to it [6]. Visual impairment (VI) refers to a diminished ability to see that cannot be alleviated by glasses or contact lenses [6,7]. VI can be classified into two categories: congenital VI and acquired VI [8]. Acquired VI involves impairment after a life period without any sight issues [9–11]. The period is sometimes prescribed as at least five years after birth [12]. Adulthood is the time during which we pursue careers and build our social roles [13,14]. Due to societal attitudes that value “normal” functioning in social and vocational roles, VI often leads to experiences of career restriction and decline in perceived self-worth. Undergoing a psychological

transformation from the sighted self to the non-sighted self becomes inevitably necessary for social adaptation [15,16]. In addition, because VI is generally caused by permanent ophthalmic illnesses with no cure, it is important to change one's own perception and values in order to utilize one's abilities [3,17,18]. The induction of PTG is thus an important part of the process of returning to society for people who have acquired VI in adulthood.

Those who have acquired VI in adulthood in Japan usually develop a career path to achieve occupational independence at rehabilitation centers and schools for the blind. As of 2020, Japan has 67 schools for the blind (66 public [1 national, 62 prefectural, and 3 city-based], 1 private). Among these, more than 80% of schools for the blind have a kindergarten department and a vocational course in addition to their main department (primary and secondary). Vocational courses are affiliated with 58 schools, most of which conduct three-year education programs aimed at qualifying students as acupuncturists or moxibustionists and Amma or Shiatsu massage therapists. These three-year courses are termed "Riryoka". Acupuncture, moxibustion, and massage have been developed as professions for people with VI in Japan since the Edo era (1603–1867) because such work does not rely on sight and primarily utilizes the sense of touch [19,20]. The professions of acupuncture and moxibustion have long supported the high employment rate of people with VI in Japan [21,22]. Riryoka is open to any adults with VI over the age of 18 who have graduated high school. More than 200 adult students with VI enroll in Riryoka every year. Currently, about 550 students are enrolled in Riryoka nationwide, many of whom have acquired VI and had to change careers due to their impairment after attending college and obtaining employment. More than 40% of the enrolled students are in their 40s [23]. Each school with Riryoka has a clinical room that forms part of the practical training room in which actual treatments are performed for local people. The employment rate of Riryoka graduates is as high as 80% [24]. Thus, schools for the blind have made marked achievements in assisting the social participation of students with acquired VI.

Inclusive education has become a global standard in many countries, including Japan. Accordingly, schools for the blind have expanded their educational role [25]. For example, in the United States, under the "revolving door" concept, students with VI tend to be enrolled in schools for the blind only during periods of substantial necessity and do not stay in such schools for extended periods [26,27]. This means that students with difficulty learning in mainstream schools due to their complicated educational needs are temporarily enrolled in schools for the blind for various purposes [28,29]. In addition, schools for the blind often provide direct and indirect support to children studying at mainstream schools. Schools for the blind have thus maintained their positions as important places to support students with VI, despite the fact that they are considered as segregated placements in the era of inclusion.

Schools for the blind not only gather blind students in similar situations, but also have teachers with VI who may serve as role models [28,30]. Since all teachers and school dormitory instructors are specialized in the education of students with VI, schools for the blind provide accommodation for education and afterschool activities such as sports with specific considerations for VI [31]. In such an environment, students with VI are able to demonstrate their abilities, leading to active participation in various activities, such as school events, school committee meetings, and events at school dormitories. Since schools for the blind usually encompass facilities from kindergarten to vocational department within the same premises, participation in school-wide activities creates opportunities for intergenerational interactions between children, students, and the local people, which brings about the expansion of individual networks [28,32]. At school dormitories, students of different generations live together and share adequate amount of time. Thus, schools for the blind offer opportunities for activities in which students with VI can actively participate. Moreover, these schools offer elements that can enable students to build relationships of trust and reciprocity with peers and teachers, as well as expand their personal networks in the local community.

Social capital is defined based on the notion that individuals can acquire social resources that evolve from accessible social networks or social structures characterized by mutual trust [33,34]. Trust, reciprocity, and social networks are often identified as key elements of social capital [35,36]. Two methodological approaches are primarily employed in the study of social capital: the individual-level approach and the community-level approach. Within the individual-level approach, social capital consists of cognitive social capital and structural social capital. Cognitive social capital refers to people's subjective sense of trust and mutual support, whereas structural social capital refers to the behavior of people who can be objectively evaluated, such as their frequency of participation in events and the number of people with whom they interact on a daily basis [37,38]. Therefore, schools for the blind that provide enrolled students with opportunities and activities to connect with others can be viewed in terms of cognitive, as well as structural, social capital.

In such schools for the blind with elements of cognitive and structural social capital, students with acquired VI in adulthood spend three years of their lives aiming to develop vocational independence. As the incidence rate of VI is low, entering a school for the blind is often their first time meeting peers who share their circumstances. Through interaction with teachers who have VI, students with acquired VI will see that such teachers are financially independent despite their disability [4], and this may bring about a positive change to the disappointment due to acquired VI. Places where students possess autonomy and assertiveness are created through participation in various activities carried out in a well-considered environment [28,32]. In terms of skills for daily life, such as housework and personal care, learning tools and methods that utilize senses other than vision in the dormitory lead to motivation to live as the non-sighted self. These are thought to bring about positive psychological transformation. Thus, it is inferred that the cognitive and structural social capital at schools for the blind influences PTG, which is important for the return to society of students with acquired VI who spend much of their time in such schools.

Prior studies have examined the relationship between social capital at mainstream schools and the psychological aspects of enrolled students. For example, among students with disabilities enrolled in general high schools, it has been shown that better social capital at school, as measured by relationships with peers and teachers, improves emotional well-being [39]. Studies examining PTG among Islamic children affected by terrorism reported that school ties and good relationships with homeroom teachers contributed to improving PTG [40,41]. Furthermore, students who participate in extracurricular activities at school, regardless of their sex or race, have been reported to have better psychological aspect than those who do not [42]. However, all such studies are limited to mainstream schools, and no research has yet focused on social capital at schools for the blind.

Therefore, the purpose of this study was to clarify the relationship between cognitive and structural social capital at schools for the blind and the PTG of students with acquired VI. The research questions of present study are:

- Are cognitive and structural social capital at schools for the blind associated with PTG for students with acquired VI?
- If they are related, what components of cognitive and structural social capital are related?

2. Materials and Methods

2.1. Study Design and Participants

The present study was a non-experimental cross-sectional study that used a self-administered questionnaire. The participants of this study were students enrolled in Riryoka in schools for the blind. Potential participants were eligible if they (a) were adults with acquired VI and (b) were pursuing their careers but ended up leaving due to their vision impairment. In this study, adults with acquired VI were defined as anyone over the age of 18 who did not have a VI or who did not have a VI that was severe enough to attend a school for the blind before the age of 18. This criterion coincides with the criteria

in preceding studies on people with acquired VI [43,44] and with the classification used by Rosenblum et al. in their study [45]. Potential participants were excluded if they (a) had a vision impairment severe enough to require them to attend a school for the blind before the age of 18 or (b) had no prior work or college experience before entering Riryoka.

2.2. Procedure

All 58 schools for the blind with Riryoka across Japan were invited to participate in this study through domestic mail. Schools willing to participate were asked to send back the school principal's written consent with a reply form providing the necessary number of questionnaires, preferred version of the questionnaires (large print/braille/audio/text data), and a simple questionnaire (four items) regarding school attributes.

The questionnaires were delivered to the participants through their classroom teachers between December 2021 and March 2022. To ensure that the participants in this study participated of their own free will, the first item of the questionnaire asked about their consent to participate with an explanation that the submission of the questionnaire was not necessary if their consent was not obtained. In addition, the cover page of the questionnaire clearly specified that the responses would not affect the respondent's school grades. The time required to complete the full questionnaire was about 20 min. This research was approved by the Research Ethical Committee of the Faculty of Human Sciences, University of Tsukuba in 2021 (authorized registered number Tsuku 2021-185A).

2.3. Measures

2.3.1. Social Capital

Cognitive Social Capital at School. To measure cognitive social capital at schools for the blind (abbreviated as CSCS, hereafter), we used the "Social Capital Scale for University Life" developed by Haga et al. [46] with slight modifications. The modifications involved changes to wording, such as changing "university" to "school for the blind". Although Haga et al.'s scale is a Japanese scale developed to measure university students' social capital, it was deemed appropriate for our research purpose in the following ways. Firstly, social capital is known to reflect cultural norms and values [47,48]. Hence, it was important that we used a Japanese scale which had passed the process of validity verification. Secondly, although there are other Japanese scales, such as the "Social Capital Questionnaire for Adolescent Students" [49], these scales tend to focus on high-school-aged youth. Since this research focused on adults learning in schools, it was important for us to look for a scale targeted to students of similar ages as our participants. Lastly, this scale can measure social capital based on the elements of trust, perception of reciprocal relationships, and familiarity. It also provides scores in the three domains of "all close peers at school", "all students at school", and "all teachers at school". These elements and domains coincide with past research done in Western countries [37,50].

The questionnaire used in this study consisted of eleven items in three domains. Respondents were asked to choose one answer from 1 (strongly disagree) to 5 (strongly agree). For example, the question items included such sentences as "I think there are many people I can trust", "I feel close to them", "I want to do something for others", and "I think I can acquire new knowledge and skills by interacting with them". The value of scores ranged from 11 to 55 points in the 3 domains. The higher the score, the higher the cognitive social capital. Values of Cronbach's alphas in the CSCS-P, CSCS-S, and CSCS-T were 0.92, 0.93, and 0.93, respectively, in the present data. This implied excellent internal reliability in each domain [51]. Confirmatory factor analysis showed a comparative fit index (CFI) of 0.952 and a root mean square error (RMSEA) of 0.053 [52]. Both indicate the rationality of the usage of this scale in the present study.

Structural Social Capital at School. By utilizing methods adopted in past studies [53–55], the following five items were used as measures of structural social capital at schools: frequency of participation in "school events", "school club activities", and "school committees" and the frequency of "interaction with local people" during school life, as well as the usage

of the “school dormitory”. Regarding the frequency of participation, respondents were requested to express their percentage of participation, with full participation defined as 100%. As for “interaction with local people”, the frequency of the interaction was asked in a percentage. “Interaction with local people” was understood as interaction with persons other than school staff or the respondent’s family members during both formal (e.g., classes, practical training) and informal (e.g., private meetings, shopping near school) activities held inside or outside school. Percentages were categorized into “never (0%)”, “occasionally (1–79%)”, and “frequent (80–100%)”, while the usage of the school dormitory was considered dichotomous information in the analysis.

2.3.2. Posttraumatic Growth

PTG accruing from the experience of vision loss was measured using the Japanese Posttraumatic Growth Inventory PTGI-J [56]. The PTGI-J is a translated Japanese version of the original Posttraumatic Growth Inventory PTGI [57], which has been used frequently in various studies globally. The validity and reliability of PTGI-J have already been verified [56]. The PTGI-J consists of 21 items that indicate possible psychological growth due to trauma caused by various crisis experiences. Responses were provided on a 6-point scale (0: not experienced at all to 5: experienced very strongly) regarding psychological growth. The total score of PTGI-J ranges from 0 to 105. Higher total scores indicate greater PTG. The value of Cronbach’s alpha regarding the 21 items in the present study was 87.

2.3.3. Demographic Variables

Surveyed items for participants’ attributes included sociodemographic factors (age, sex, presence or absence of family living together, final education, and work experience) and items related to VI (severity of impairment and duration of impairment). Regarding the severity and duration of VI, the grade of the Physical Disability Certificate and the time of its acquisition were noted. The Physical Disability Certificate is an official certificate issued to people with various difficulties and is based on an evaluation of the impairment, such as physical function [58]. With respect to VI, the grade of the certificate is divided into six categories from Grade 1 to Grade 6, depending on the severity of impairments of both visual acuity and field. Severity is highest in Grade 1 and lowest in Grade 6. According to the grade-defining criteria, the severity of acuity in Grade 1 and 2 matches the definition of “blindness” in the International Classification of Diseases 11 [59]. In Grade 5, the criterion for impaired vision is prescribed by four parallel definitions, including “more than 50% loss of visual field”, and the criterion for visual acuity.

In the present questionnaire, the time of acquisition was chosen from seven prepared answers arranged from the shortest (within half year) to the longest (more than 10 years ago) period.

2.3.4. Attributes of the School

Attributes of schools included the total number of students, the location of the school (urban or rural), the number of students living in dormitories, the number of teachers with VI, and the number of students enrolled in Riryoka.

The total number of students at each school and number of students in Riryoka were collected from the annual report published by Association of the Principals of Schools for the Blind, an organization that comprises all principals of schools for the blind in Japan [23].

2.4. Strategy for Analysis

Descriptive statistical quantities such as the mean, standard deviation (SD), and frequency distribution were analyzed depending on the type of the variable expressing each item. In order to observe the relationship between various items with PTG, a multiple linear regression analysis was performed using the PTGI-J score as the dependent variable. The choice of independent variable in the regression was determined following three steps.

First, the analysis mainly aimed to evaluate the association of social capital with PTG. Therefore, CSCS-P, CSCS-S, and CSCS-T, as well as five measures of structural social capitals, were used as independent variables.

Second, typical attributes of respondents that have been reported to be associated with social capital or PTG were used as independent variables. These items were as follows: age [15,60,61], sex [62,63], grade of the Physical Disability Certificate [3], years since acquisition of Physical Disability Certificate [60,64], years of current school enrollment [65], final education [60], presence/absence of family members living together [4,66], total number of students in school [67], and school location [48].

Third, as an assessment of other items collected by the present questionnaire, the correlation coefficient or rank correlation coefficient with respect to the PTGI-J score was univariately computed for each item. In case the correlation coefficient or rank correlation coefficient were accompanied by a probability less than the threshold value such as 0.1 [68,69], the item was incorporated in the regression.

Regarding the number of independent variables utilized in the multiple regression equation, we followed the frequently referenced criterion that the number of independent variables multiplied by 10 should not exceed the sample size [70]. Using independent variables determined using the process described above, a multiple linear regression analysis was performed. A probability value < 0.05 was considered statistically significant in this study. All statistical computations were performed using the Statistical Package for Social Science (SPSS; version 28, 2022; IBM Corporation, Tokyo, Japan).

3. Results

3.1. Summary of Collected Data

Of the 58 schools, 36 participated in the study. Completed questionnaires were collected from a total of 317 respondents. This number is equivalent to a participation rate of 58%, which is relatively high compared to other studies that have focused on people with VI [71,72].

Among the 317 cases, the respondents' personal attributes matched the operational definitions described in Section 2.1 in 255 cases. Therefore, the data from these 255 cases were analyzed in this study.

A summary of the personal attributes of the 255 participants is presented in Table 1. The mean \pm SD of participants' ages were 44.3 ± 11.2 years old, and the sex distribution was 151 males, 103 females, and one case with unreported sex. There were three students aged over 65.

A total of 243 respondents had a Physical Disability Certificate. Regarding the grades of the certificates, the maximum frequency was 131 (53.9%) in Grade 2, followed by 62 (25.5%) in Grade 1 and 22 (9.1%) in Grade 5. Therefore, VI was very serious among the 193 (79.4%) respondents in Grade 1 and Grade 2.

The type of VI was "impaired visual acuity" in 53 (21.8%) respondents, "impaired visual field" in 110 (45.3%) respondents, and "both" in 80 respondents (32.9%). Therefore, a total of 190 (78.2%) respondents had visual field defects.

The mean \pm SD of respondents' working years before entering a school for the blind was 16.9 ± 11.6 years. A total of 203 (79.6%) respondents had more than five years of work experience.

Among the 36 schools that participated in the study, 1 was a national school, and the remaining 35 were prefectural schools. The number of enrolled students in each school ranged widely from 12 to 171, presenting a mean of 39.1 and a median of 25.2. The classification of schools by the total number of students revealed that there were 9 small-sized schools (less than 21 students), 20 medium-sized schools (21 to 50 students), and 7 large-sized schools (51 or more students). The distributed numbers of the 255 participants analyzed in the 3 sizes were 25 (9.8%) in small-sized schools, 131 (51.4%) in medium-sized schools, and 99 (38.8%) in large-sized schools. Regarding the location of schools, 15 schools

were located in “rural” areas (41.7%), which was more frequent than “urban” (8 schools (22.2%).

Table 1. Summary of individual items.

Item	Mean ± SD/ Frequency	Item	Mean ± SD/ Frequency
Age in years	44.3 ± 11.2	Years since acquisition of Physical Disability Certificate	
		0.5–<1	7 (2.9%)
Sex		1–<3	66 (27.2%)
Male	151 (59.2%)	3–<5	34 (14.0%)
Female	103 (40.4%)	5–<7	36 (14.8%)
Unidentified	1 (0.4%)	7–<10	33 (13.6%)
Years enrolled in Riryoka		≥10	67 (27.6%)
<1	80 (31.4%)	Final Education	
1–<2	79 (31.0%)	Junior high school	20 (7.8%)
2–<3	58 (22.7%)	High school	103 (40.4%)
≥3	38 (14.9%)	Vocational school	56 (22.0%)
Possession of Physical Disability Certificate		Junior college	20 (7.8%)
Yes	243 (95.3%)	University	47 (18.4%)
No	12 (4.7%)	Graduate school	4 (1.6%)
Grade of Physical Disability Certificate		Unidentified	5 (2.0%)
Grade 1	62 (25.5%)	Working years in the past	16.9 ± 11.6
Grade 2	131 (53.9%)	Presence/absence of family members living together	
Grade 3	11 (4.5%)	Living with family	193 (75.7%)
Grade 4	16 (6.6%)	Living alone	62 (24.3%)
Grade 5	22 (9.1%)		
Grade 6	1 (0.4%)		

Observed values of CSCS, measures of structural social capital, and PTGI-J scores in participants are shown in Table 2. The mean ± SD of CSCS-P, CSCS-S, and CSCS-T were 45.1 ± 7.6 points, 40.4 ± 8.9 points, and 42.8 ± 8.3 points, respectively. Regarding measures of structural social capital, the percentages of “frequent” in school events, club activities, and committee meetings were higher than 40%; however, in the school club activities, “never” was also high (about 36.9%). As for interaction with local people, the maximum percentage was found for “never” 54.5%, followed by “occasionally” 41.6% and “frequent” 3.9%. A total of 81 (31.8%) students used the dormitories. The mean ± SD of the PTGI-J scores of the participants was 61.3 ± 19.6 points.

Table 2. Quantitative summary of the measures of social capital and score of PTGI-J.

Item	Statistical Quantities	Item	Statistical Quantities
Measures of Social Capital		Participation in school committees	Frequency (%)
Cognitive Social Capital Scale CSCS	Mean ± SD	Never (0%)	66 (25.9%)
CSCS-P (Peers) (Range 11–55)	45.1 ± 7.6	Occasionally (1–79%)	26 (10.2%)
CSCS-S (Students) (Range 11–55)	40.4 ± 8.9	Frequent (80–100%)	163 (63.9%)
CSCS-T (Teachers) (Range 11–55)	42.8 ± 8.3	Interaction with local people	Frequency (%)
Measures of Structural Social Capital		Never (0%)	139 (54.5%)
Participation in school events	Frequency (%)	Occasionally (1–79%)	106 (41.6%)
Never (0%)	14 (5.5%)	Frequent (80–100%)	10 (3.9%)
Occasionally (1–79%)	39 (15.3%)	Usage of school dormitory	Frequency (%)
Frequent (80–100%)	202 (79.2%)	Yes	91 (31.8%)
Participation in school club activities	Frequency (%)	No	174 (68.2%)
Never (0%)	94 (36.9%)	PTG score	Mean ± SD
Occasionally (1–79%)	54 (21.1%)	PTGI-J (Range 0–105)	61.3 ± 19.6
Frequent (80–100%)	107 (42.0%)		

3.2. Relationship between Social Capital and Posttraumatic Growth

Prior to the multiple regression analysis, correlation coefficients or rank correlation coefficients with PTGI-J scores were calculated for survey items other than the intended variables described in Section 2.4. However, no item passed the criterion. Therefore, the intended variables described in Section 2.4 were used as independent variables in the regression analysis.

Computation for multivariable linear regression was performed for 253 responses because partial data were missing for two participants. For all independent variables substituted in the computation, the variance inflation factor (VIF) were less than 10.0, meaning that there was no multicollinearity [73].

Values of standardized coefficient β values, their 95% CIs, and probabilities are shown in Table 3. Items that showed statistical significance with respect to β were as follows: CSCS-P ($\beta = 0.24$ (95% CI: 0.09–0.38)) and CSCS-T ($\beta = 0.17$ (95% CI: 0.03–0.32)) in cognitive social capital and participation in school club activities ($\beta = 0.15$ (95% CI: 0.01–0.28)) and interaction with local people ($\beta = 0.13$ (95% CI: 0.01–0.26)) in structural social capital. Thus, we found that the higher the CSCS-P and CSCS-T scores in cognitive social capital and structural social capital through participation in school club activities and interaction with local people, the higher the PTGI-J score.

Table 3. Linear regression results.

Item	B	(95% CI)	β	(95% CI)	<i>p</i>	VIF
Cognitive Social Capital Scores						
CSCS-P (Peers)	0.63	(0.24–1.01)	0.24	(0.09–0.38)	<0.01 **	1.73
CSCS-S (Students)	0.27	(−0.07–0.61)	0.12	(−0.03–0.28)	0.12	1.99
CSCS-T (Teachers)	0.40	(0.06–0.75)	0.17	(0.03–0.32)	0.02 *	1.79
Measures of Structural Social Capital at School						
Participation in school events	0.35	(−3.93–4.63)	0.01	(−0.11–0.13)	0.87	1.14
Participation in school club activities	3.22	(0.30–6.15)	0.15	(0.01–0.28)	0.03 *	1.43
Participation in school committees	−0.23	(−2.90–2.45)	−0.01	(−0.13–0.11)	0.87	1.14
Interaction with local people	4.53	(0.34–8.72)	0.13	(0.01–0.26)	0.03 *	1.25
Usage of school dormitory	2.05	(−3.01–7.10)	0.05	(−0.07–0.17)	0.43	1.20
Individual attributes						
Age	0.26	(0.06–0.47)	0.15	(0.03–0.27)	0.01 *	1.18
Sex	−1.89	(−7.18–3.40)	−0.05	(−0.18–0.08)	0.48	1.44
Years enrolled in Riryoka	0.04	(−1.69–1.77)	0.00	(−0.12–0.13)	0.13	1.31
Grade of Physical Disability Certificate	0.35	(−1.69–2.38)	0.02	(−0.10–0.14)	0.74	1.25
Time since acquisition of Physical Disability Certificate	0.67	(−0.75–2.10)	0.06	(−0.06–0.18)	0.35	1.19
Final education	1.45	(−0.27–3.16)	0.10	(−0.02–0.22)	0.10	1.18
Presence/absence of family members living together	0.43	(−5.03–5.89)	0.01	(−0.11–0.12)	0.88	1.21
School attributes						
Total number of students	0.00	(−0.06–0.07)	0.01	(−0.15–0.16)	0.92	1.62
School location	−2.10	(−5.14–0.94)	−0.08	(−0.21–0.04)	0.18	1.24

** $p < 0.01$ and * $p < 0.05$.

Regarding the other variables incorporated in the regression, only age was significantly positively associated with the PTGI-J score ($\beta = 0.15$ (95% CI: 0.03–0.27)). The value of the determination coefficient in the regression was $R^2 = 0.30$.

4. Discussion

The purpose of this study was to clarify the relationship between cognitive and structural social capital at schools for the blind and the PTG of students with acquired VI.

The mean age of the students who participated was 44.3 years and the mean of working years before entering Riryoka was 16.9 years. These findings indicate that a considerable fraction of respondents had relatively long careers and had to discontinue their careers due

to the impairment. The mean of the PTGI-J score observed among the 255 respondents was 63.1. This score can be interpreted as a middle level score when compared to past studies, such as those by Sztonyk and Formella [4] and Tanner et al. [5].

The results of the multiple regression analysis concluded that both cognitive and structural social capital at schools for the blind were related to the PTG of students with acquired VI. Furthermore, the following components were associated with PTG: close peers and teachers at schools for the blind in cognitive social capital and frequency of participation in club activities and interaction with local people in structural social capital.

Studies conducted in mainstream schools have reported that cognitive social capital and structural social capital at schools provide enrolled students with psychological benefits [39–42]. Hence, our research results corroborate previous studies. However, as indicated by our extensive literature review, this is the first study to show that social capital at schools for the blind are related to the PTG of students with acquired VI. The possible reasons why cognitive and structural social capital at schools for the blind is associated with the PTG of students with acquired VI are summarized below.

First, self-disclosure to others about one's own feelings and challenges related to VI is considered to be an important factor related to PTG for people with acquired VI [5]. Furthermore, previous research has reported that people with VI in the same circumstances are able to disclose their own emotions and difficulties quite naturally [74,75]. Since VI is a low-incidence disability, it is rare to meet others with VI [76,77]. However, at schools for the blind, one can find peers and teachers in the same situation. Living in such an environment may have led these students with acquired VI to successfully achieve self-disclosure to others.

Second, it has been reported that encountering others who provide constructive support, including role models who have had similar PTG experiences, encourages PTG [4,78]. Teachers in schools for the blind have enriched specialized knowledge and skills concerning VI [31,32]. Additionally, 80% of teachers in Riryoka at schools for the blind have VI, and many of them have acquired VI [79]. Thus, it is conceivable that, in schools for the blind, students with acquired VI obtained constructive support effectively through the presence of these teachers.

Third, the discovery of new possibilities and appreciation for life by individuals with acquired VI are known to be factors related to PTG, and meaningful leisure activities have been shown to provide this [2]. There is ample research showing how people with VI have difficulty finding and implementing leisure activities due to a lack of information, a lack of organized venues, a lack of professional instructors, and difficulty in accessing suitable venues [80]. However, at schools for the blind that have gymnasiums and equipment that meet the needs of those with VI, sports such as goalball, blind table tennis, running, and swimming can be played under the guidance of specialist teachers. Hence, students with acquired VI learning in this type of environment may have a greater chance of discovering new possibilities and appreciating their new life with VI.

Last, it has been reported that using the knowledge and experience that one has acquired through difficult events to help others is associated with PTG [1,2,81]. Each Riryoka has a clinical room for practical training that provides opportunities for all students to interact with local people and contribute to the treatment and maintenance of their health. The clinical room experience may have played a role in the PTG of students with acquired VI.

Schools for the blind are prone to criticism in the era of inclusive education as these are "all close peers at school, "segregated placements" [25]. However, this study showed that the elements of the isolated school for the blind are associated with markers of PTG in students with acquired VI, which help them return to society. This is aligned with the findings reported by Bredewold and van der Weele [82]; thus, to promote social inclusion, it is important to understand the usefulness of segregated placements.

The present study has some limitations and implications for the direction of future research. The investigative period of this study coincided with the global spread of COVID-

19, the impact of which forced many schools to cancel events and club activities. Therefore, lower scores than normal may have been observed, especially for structural social capital measurements. Age was associated with PTG in this research, and this suggests that PTG can be expected even in middle-aged adults with acquired VI [61]. Moreover, an increase of the educational effect may be expected due to PTG. Further research will be required to clarify this. Finally, this was a cross-sectional study and thus could not provide inferences regarding a causal relationship between social capital and PTG. Thus, the exact mechanism of PTG induction through social capital is unknown. Research that employs longitudinal, as well as qualitative, approaches through interviews should be conducted in the future. This will provide details not only about the elements of social capital that have been confirmed to have a relationship with PTG in this study but also about the elements that have not been confirmed to have a relationship, such as CSCS-S of cognitive social capital and school events and school committees of structural social capital.

5. Conclusions

PTG is inevitably an important phenomenon for those who aim to return to society after experiencing difficulties due to the acquisition of VI. This study showed that the cognitive and structural social capital of schools for the blind is related to PTG among students with acquired VI. Schools for the blind are places in which students with acquired VI can spend time and obtain a sense of camaraderie with their peers and younger students with the same disability, as well as with teachers that serve as role models. In addition, schools for the blind allow these students to build trusting relationships and networks through school events and extracurricular activities under the guidance of teachers with specialized knowledge about VI. By putting themselves in such circumstances, students with acquired VI can change their perception of their disability and find positive meaning in their lives post-impairment. The findings highlight the value of schools for the blind with regards to the social participation of students with acquired VI.

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