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Role perceptions among teachers of students with visual impairments in inclusive settings: implications for teacher training

Wiebke Gewinn, Hisae Miyauchi & Sven Degenhardt

Abstract

Obligatory inclusive education is leading to changes in the roles of special education teachers. Specialised counselling and support for different target groups have gained in significance in subsidiary special education. Classic teaching is becoming less important for special education teachers – a phenomenon that current teacher qualification programmes do not yet reflect.

This study examined the perception of the role of teachers of students with visual impairments (TVI) who work in inclusive education.

Since inclusion is an international target, this study was conducted in three countries with similar economic standards but different historical and cultural roots of inclusive school development. However, data from the USA, Japan and Germany all indicates that the task profiles of TVIs working in inclusive education differ significantly from the classic teacher role as a Teacher of knowledge. It is clear that particularly the education of TVIs must be adjusted further to the requirements of consulting and support tasks in inclusive settings.

Keywords

TVI and role perception, Inclusive Education, Expanded Core Curriculum, Teacher Training

Titel

Rollenverständnis von Blinden- und Sehbehindertenpädagog:innen in inklusiven Settings – Implikationen für eine veränderte Lehrer:innenbildung

Zusammenfassung

Die Rollen sonderpädagogischer Lehrkräfte verändern sich im Zuge inklusiver Schulentwicklung. In einer subsidiären Sonderpädagogik gewinnen fachspezifische Beratung und Unterstützung unterschiedlicher Adressatengruppen an Bedeutung. Die klassische Lehrtätigkeit tritt für die Berufsgruppe in den Hintergrund, was die aktuelle Lehrer:innenbildung noch nicht widerspiegelt.

Die vorliegende Studie untersuchte das Rollenverständnis von Blinden- und Sehbehindertenpädagog:innen, die im inklusiven Bildungssetting arbeiten.

Da Inklusion eine internationale Zielkategorie darstellt, wurde diese Untersuchung in drei Ländern mit ähnlichen wirtschaftlichen Voraussetzungen aber unterschiedlichen historischen und kulturellen Verankerungen der inklusiven Schulentwicklung durchgeführt. Daten aus den USA, Japan und Deutschland weisen jedoch einheitlich darauf hin, dass die Aufgabenprofile von Blinden- und Sehbehindertenpädagog:innen in der Inklusion deutlich von der klassischen Lehrer:innenrolle abweichen. Es wird klar, dass sich insbesondere die Ausbildung von Blinden- und Sehbehindertenpädagog:innen intensiver auf die Anforderungen von Beratungs- und Unterstützungstätigkeiten in inklusiven Bildungssettings ausrichten muss.

Schlagworte

Lehrer:innenrolle von Blinden- und Sehbehindertenpädagog:innen, Inklusive Bildung, Spezifisches Curriculum, Lehrer:innenbildung

Inhaltsverzeichnis

1. Education for all and challenges in inclusive education
 - 1.1. Special education teachers' roles over time
 - 1.2. The Itinerant Teaching Model in inclusive education for students with VI and the Expanded Core Curriculum
 2. Research questions and study design
 - 2.1. Methods
 3. Results
 - 3.1. Variable: country
 - 3.2. Variable: duration of occupation in inclusive settings
 - 3.3. Variable: inclusive school type
 - 3.4. Weighting of ECC working areas
 - 3.5. Variable: country
 - 3.6. Variable: percentage of allocation to roles
 4. Discussion
- Literatur
- Kontakt
- Zitation

1. Education for all and challenges in inclusive education

“Education for all” is one of the topical aims of UNESCO and this requires many changes in education systems worldwide. By December 2020, 182 nations had ratified the Convention on the Rights of Persons with Disabilities (CRPD) (United Nations, 2006) so far. These nations are thus bound to ensure accessible education in inclusive settings for all learners with disabilities in their countries. The growing number of countries to ratify the Convention since 2006 underlines a global discussion about inclusive school development. Successful inclusive education requires well-qualified teachers to meet the learning needs of their students and ensure access to education. In this respect, teacher training programmes consequently must adapt to the present challenges that professionals face in the field of inclusive education. This article focuses on the results of an international comparative study funded by the DAAD,¹ which examined the understanding of the roles of certified teachers of students with visual impairment (TVIs) in inclusive settings in the USA, Japan and Germany. Although visual impairment is a low incidence disability, it is crucial to conduct in-depth research in this field. Since school teaching is predominantly sight focused, the main purpose must be to identify the unique and complex educational needs of students with visual impairments (VI) in order to be able to design adequate interventions and overcome barriers. For this very reason, the CRPD requires inclusive education systems to provide reasonable accommodations to ensure accessible learning environments. Therefore, the present study exemplifies the necessity to train professionals with high expertise in the particular field of pedagogy for VI. Consequently, it reflects implications for a changing teacher training.

All around the world, teacher training programmes qualify professionals as general education teachers, who are dedicated to imparting content to students, educating them in social behaviour and to advise them on their educational path (Darling-Hammond, 2005, pp. 237-240; Röbe, Aicher-Jakob & Seifert, 2019, pp. 56-59). In many regions of the world, there are special education teachers (SETs) who broadly address all barriers to access learning due to social disadvantages and disabilities. The specific nature of some of these settings makes further specialisation necessary: in the case of vision and hearing impairments, for example, specifically qualified professionals are essential.

1.1. Special education teachers' roles over time

Although teacher qualification programmes differ internationally, there have always been parallels in the provision of special educational structures. For instance, in the USA, Japan and Germany – countries with different cultural and political roots – SETs including TVIs were traditionally staff of special schools with the responsibility to teach, educate and consult with students with special needs, e.g. VI. (Degenhardt, 2020, pp. 148-167; Shepherd, Fowler, McCormick, Wilson & Morgan, 2016, p. 83). The efforts of the civil rights movement in the USA during the 1950s, the integration movements during the 1970/80s in other countries such as Germany and Japan, and now with inclusion, have led to changes in the educational placement of students with VI. With this change, the teaching approaches of general education teachers have had to address diverse groups of students (Kahn & Lewis, 2014, pp. 886-888; Miyauchi, 2010, pp. 33-36; Reiser, 2001, p. 471). Students with disabilities have attended local public schools in all three countries ever since. While the perception of the roles of general education teachers does not differ through obligatory inclusive schooling, the complexity of diversity between groups of students has increased. With inclusion, general education teachers face new challenges to prepare and conduct classes and carry out their dedicated roles. In fact, the roles of SETs have changed because an increasing number of students with disabilities attend regular schools. The review by Melzer et al. (2015) on the tasks of teachers in inclusive education concludes that cooperation between general education teachers and SETs is crucial and includes the recognition of different tasks when designing educational processes. Following the findings of several studies mentioned in the review, knowledge of the teaching content is a core competence of general education teachers whereas SETs have to fulfil specialised tasks such as cooperating with teachers for class preparation, developing individual teaching strategies and assessing students' skills regarding certain diagnostic questions (Melzer et al., 2015, p. 73). In inclusive settings, SETs have more consulting tasks, addressing participants of an educational network. Indeed, they have to act more indirectly to contribute promote the educational participation of students with disabilities (McLinden M., Douglas, Cobb, Hewett & Ravenscroft, 2016, pp. 181-182, 194; Reiser, 2018, pp. 107-110). In the field of VI, there are only a few studies dealing with issues of shifting roles. Koehler & Wild (2019) examined the level of participation of students with VI in regular sciences classes in the USA and Canada. This reflects the shift of roles of TVIs in inclusive schooling for students with VI. The findings show that TVIs have to collaborate with general education teachers regarding the curricular content and the materials used in class. The study also clarifies the indispensable expertise of TVIs to realise accessible classroom activities. TVIs mostly have to develop suitable accommodations, e.g. tactile media and verbal descriptions of visual content and assist using assistive technology. TVIs additionally have to find ways to align these disability-specific interventions with the content of the general curriculum by collaborating with general education teachers.

The study also reveals one disturbing outcome: Koehler & Wild found that 37% of the TVIs in the sample responded that they spend the majority of their time related to the science class in one-one-one teaching situations (2019, pp. 1-17). An older study by Wolffe et al. (2002) investigated TVIs' tasks in six US states. They showed that TVIs tended to spend more time imparting academic skills than helping students to improve their disability-specific skills (Wolffe et al., 2002, p. 295). The large-scale study by Griffin-Shirely et al. (2004) across the US and Canada showed similar results.

Before this background, it seems appropriate to learn more about the way TVIs working in inclusive settings perceive their roles and the content areas they deal with.

1.2. The Itinerant Teaching Model in inclusive education for students with VI and the Expanded Core Curriculum

For a better understanding of the characteristics of the shifting roles of TVIs in inclusive schooling, it is necessary to explain the common inclusive education model for students with VI. The itinerant teaching support model has been established in this field in various countries. In contrast to typical classroom teachers, TVIs visit mainstream schools to provide direct and indirect support. TVIs who are in charge of the itinerant models are known as itinerant teachers, visiting teachers or peripatetic teachers, depending on the region or country. In this model, students with VI take advantage of educational, social, and recreational opportunities in their local schools with TVIs' support in their home community (Miyauchi & Gewinn, 2021; Swenson, 1995). More than 80% of students with VI attend local mainstream schools in the USA and the majority receives support from TVIs using this model (US Department of Education, National Center for Education Statistics, 2017). Beside the USA, this type of service is also very popular in all other parts of the world, even in low- and middle-income countries (Lynch & McCall, 2007; Miyauchi & Gewinn, 2021).

To ensure that students with VI can access general classes, itinerant TVIs are required to support and advise educational networks and to facilitate access to the general curriculum, involvement in learning and educational outcomes (Brown & Baemish, 2012, p. 82; McLinden et al., 2016, p. 180).

To ensure and carry out the expertise in the field of education for people with VI, the content of the Expanded Core Curriculum (ECC) serves as a framework. It is discussed transnationally among experts from all Anglo-Saxon countries and many Asian countries (especially Japan and China) as well as European countries (Degenhardt, Gewinn & Schütt, 2016; Islek, 2017; Kamal, 2017). The subject discourse initially started in the USA during the 1980s and led to the development of curricula for students with VI in all other countries.

The ECC provides an overview of the disability-specific content, which other educational curricula do not reflect. The ECC includes the following nine areas, which TVIs must prioritise (Degenhardt et al., 2016; Sapp & Hatlen, 2010).

1. **Sensory Efficiency** includes acquiring and mastering skills that enable an efficient use of sensory systems to access information. Sensory efficiency components involve visual, auditory, tactile, gustatory, olfactory, proprioceptive and vestibular functions. The foundation of development and learning is the ability to understand and to make sense of what is seen, heard, touched, smelled or tasted. For students with VI the efficient use of all senses is critical to gather and process information. Therefore, students with VI need appropriate interventions because the impairment of one sensory system does not automatically imply better functioning of the remaining sensory systems (Allmann, Lewis & Spungin, 2014, pp. 117-171).
2. **Compensatory Skills** involve the components of concept development, spatial understanding, communication modes, speaking and listening skills, study and organisational skills, and the use of adapted educational materials and specialised devices. Students with VI need individualised instruction on these components, which are essential to ensure access to the general curriculum (Allmann et al., 2014, p. 63).
3. **Orientation & Mobility (O&M)** is the area of ECC covering the concepts and skills needed to safely get from one place to another. Instructions address spatial awareness, body positioning, cane techniques, sighted guide techniques and skills to navigate in public transportation (Allmann et al., 2014, pp. 248-251).

4. **Independent / Daily Living Skills (DLS)** include all skills related to personal hygiene, eating, dressing, clothing care, time management, cooking, cleaning, household tasks and money management. Students with VI need individual instruction in these areas because they frequently miss the incidental learning opportunities that their sighted peers grow up with (Allmann et al., 2014, pp. 283-284).
5. **Assistive Technology** is the area that focuses on all essential skills and knowledge needed to use technical devices (screen readers for computers, braille keyboards, magnification, etc.) to access aspects of school / work / daily life (Allmann et al., 2014, pp. 187-189).
6. **Leisure Skills** relate to knowledge, behaviours and skills that allow students with VI to participate in physical activities, have fun and relax during their free time (Allmann et al., 2014, pp. 369-371).
7. **Self Determination** focuses on skills that enable students with VI to advocate for their own need and aims. This area involves instruction to facilitate the making of choices on future plans and solving problems (Allmann et al., 2014, pp. 470-472).
8. **Career Education** is a topic that needs special intervention. Vision impairment influences job opportunities. Therefore, it is essential to determine individual strengths, interests and needs during career guidance (Allmann et al., 2014, pp. 411-414).
9. **Social Interaction** is an area addressed in the ECC because in contrast to their sighted peers, students with VI often struggle to acquire social behaviour by imitating events observed visually. With specialised instruction, the students learn about appropriate body language, social communication and interaction (Allmann et al., 2014, pp. 324-326).

The content areas of the ECC show that certified professionals require specific expertise to ensure high-quality education, as mentioned in the CRPD.

The study by Khan & Lewis (2014) makes the case that general education teachers often feel ill-equipped to teach students with special needs – especially VI – in their classroom. This emphasises the essential role that TVIs play in contributing their expert knowledge, referring to the ECC. Furthermore, Schütt's study also reveals that general education teachers' desire for tailored guidance and support tally almost exactly with the categories of the ECC (2015, pp. 119-132).

In this context, and more than a decade after introducing the CRPD, it seems appropriate to investigate how TVIs approach the challenges of shifting roles. Moreover, for the German context, Degenhardt referred to the unsuitable structure of teacher training in this respect (2003, pp. 102-104). Melzer *et al.* also underlined the lack of research surrounding issues on tasks and teachers' roles in inclusive education (2015, p. 65). Due to similar challenges employing the same basic ideas to provide support for students with VI in inclusive settings, the present study investigates how TVIs from three different countries understand their changing professional roles. In this respect, the study addresses a research gap. The value of international comparative studies is acknowledged, as inclusion is a global and intercultural target. Despite the efforts of UNESCO, OECD and the European Agency there are desiderata regarding the implication to implement profound changes in education systems throughout the world. Furthermore, international research in the field of special education often reflects comparisons of western cultures (Powell, 2016; Richardson & Powell, 2011). The present study delivers the results of a cross-cultural comparison.

2. Research questions and study design

The study deals with the following central research questions:

1. How do TVIs serving in inclusive educational settings perceive the traditional professional roles (*Teacher of knowledge, Educator and Consultant*)?

2. How do TVIs in inclusive settings perceive their new role, as a *Contributor* promoting educational participation?
3. Which content changes addressing the challenges of inclusive schooling are needed in teacher training programmes?

The present study is part of a research project about developing Individual Education Planning (IEP) for students with VI in German inclusive settings. The project is being realised in four steps. The first step consists of a qualitative analysis about current IEP models in Germany (Gewinn, 2020, pp. 32-45). The second step investigates the embedding of Universal Design for learning (UDL) in general education teachers' class preparation. Furthermore, the qualitative study analyses the influence of the IEP on class preparation. Both qualitative studies showed that issues regarding roles arise between TVIs and general education teachers, touching aspects of collaboration for class preparation (Gewinn, i.D.). Consequently, step three, which is the focus of this article, investigates the understanding of the professional roles of TVIs in inclusive education for students with VI. The fourth step will show and discuss an adapted IEP approach mainly deriving from the findings from the first two steps.

	Research Questions	Aims	Methods
1. Step	1. Current use of IEP – models in pedagogy for visual impairment?	• Inventory of the IEP in pedagogy for visual impairment	• Qualitative analysis of interviews with TVIs from five German states
2. Step	2. Perception of a the German term "Förderung" (special education support)? 3. Embedding of UDL in class preparation of general education teachers? 4. Influence of the IEP on class preparation?	• Need for reorientation for the IEP - process • Identification of components to reorganise the IEP	• Qualitative analysis of interviews with general education teachers from five German states
3. Step	5. TVI's perception of three traditional teacher roles? 6. TVI's perception to the new role being a contributor to facilitate educational participation?	• Integration of the findings into the national and international subject discourse	• Quantitative questionnaire about TVIs' understanding of certain roles in USA, Japan & Germany
4. Step	7. Reorganisation of components and content areas of the IEP	• Validation and development potentials of the draft for individual educational planning	• Qualitative analysis of a focus group discussion about a drafted IEP - model

Figure 1: Research process: Questions – Aims – Methods

2.1. Methods

The international comparative study uses a quantitative method design to examine TVIs' understanding of professional roles.

Since inclusion is a global challenge, three countries with similar economic standards were considered (Germany, the USA and Japan). These countries also share similar long traditions of institutionalised education structures for students with VI and challenges of inclusive school development, but differ in school political roots. A DAAD-funded project and further contacts with peer researchers at universities in the USA enabled an international cooperation. After a literature review and intense intercultural subject discourse among the researchers of the project, an online questionnaire was designed in German and English. It was piloted from June to August 2019 among TVIs working in inclusive settings in Germany and USA. With $N = 20$, participants it suited the requirements for a field pre-test (Faulbaum, Prüfer & Rexroth, 2009, p. 96). Initially, $N = 10$ participants completed the online questionnaire with the option of including comments. Two participants were interviewed about the questionnaire using a thinking aloud technique about the structure, complexity and wording of the questionnaire. After an analysis of the interviews and comments, the questionnaire was adjusted and sent out to a further 10 participants (Faulbaum et al., 2009, p. 97). The pre-test indicated a comprehensive structure

and an appropriate length of the questionnaire. The participants completed it in an average of 12 minutes. Before starting the main study, the second author of this article translated the questionnaire from English into Japanese. Together with five Japanese TVIs and researchers in the field of VI, the questionnaire was checked for content clarity. Finally, the questionnaire was distributed from September 2019 until February 2020 in all three countries.

In Germany and the USA, the questionnaire was disseminated via mailing lists of school principals, researchers and associations among TVIs working in inclusive settings. In Japan, the participants used a paper version of the questionnaire because Japanese teachers cannot necessarily be contacted online. In Japan, principals recruited the participants.

Beside demographic data on gender, qualifications and the duration of occupation in inclusive settings, the participants were asked about their personal role perception. They had to divide up 100% among the four defined roles of *Teacher of Knowledge*, *Educator*, *Consultant* and *Contributor promoting educational participation*. The description of roles (see Figure 2) included in the questionnaire are the essence of the intercultural subject discourse among the project researchers about teacher roles. The explanations helped to overcome differing linguistic and cultural connotations, e.g. of the term *Educator*.

Description of roles
Teacher of Knowledge: I see myself as a classroom teacher tasked with teaching content knowledge.
Educator: I educate students in the field of personal and social development, e.g. lifelong learning, dealing with criticism, cooperating with others etc.
Consultant: I consult with (especially) students as well as their parents on issues regarding their schooling and on questions concerning their further educational career.
Contributor promoting educational participation: I see myself as supporting the educational network of a student, including, for example, classroom teachers, parents and peers. The focus is on specific questions such as how to prepare classes for learners with visual impairment or blindness, how to teach them, how to choose media, and how to set up rooms and individual aids, by realizing the Expanded Core Curriculum.

Figure 2: Description of roles used in questionnaire

Furthermore, the participants completed a weighting on a scale of 1 to 5 (1= none; 2= low proportion; 3= moderate proportion; 4= high proportion; 5= very high proportion) of their ECC working areas (Sensory Efficiency; Compensatory Skills; Orientation & Mobility / Daily Living Skills; Assistive Technology; Leisure; Self Determination & Social Interaction). A five-step scale was chosen because it is a widely accepted standard considering reliability for quantitative research. Linked to the aim of a weighting, it is appropriate to detect the nuances (Döring & Bortz, 2016, pp. 245-249).

Overall, 202 participants from the three countries completed the questionnaire (Germany: $N = 87$; Japan: $N = 68$; USA: $N = 50$). With 81.2%, the majority of participants were female. The

teaching profession is a predominantly female domain (European Commission/EACEA/Eurydice, 2015, p. 19) which explains the high percentage of female participants in the study. The average duration of employment with a full teaching licence was 17.37 years. The majority of participants (61.4%) worked in the itinerant teaching model. 21.3% work either in Special Day Class, Special Class or Resource Rooms (pull-out), 11.4% worked in pull-out and itinerant teaching, whereas 2.5% belonged to other school types, e.g. short term programmes.

The study was conducted at Universität Hamburg (UHH) and partly in cooperation with the University of Tsukuba (UT). It was carried out according to the research standards set by the Faculty of Education at the UHH and the UT ethics committee.

3. Results

The analysis of the quantitative data considering the four different roles was driven by the hypothesis that variables such as the duration of occupation in the field of inclusion or the practised school model may influence the TVIs' understanding of certain roles. As Degenhardt (2003) and Sapp & Hatlen (2010) stated: direct teaching is no longer a core task of TVIs. Nevertheless, the special education teacher training in Germany has not yet been adapted. Universities still run qualification programmes, which are based on the traditional structure and tasks of segregating special schools (Kaiser, Seitz & Slodczyk, 2020). A similar situation exists in Japan. Especially in inclusive settings like resource rooms, the Japanese system is lacking in qualified TVIs (Leonhardt & Miyauchi, 2019). Considering these circumstances for TVI qualification models at least in Germany and Japan lead to the assumption that especially novice TVIs still identify more with the role *Teacher of Knowledge* because the teacher training emphasises direct teaching skills rather than consulting methods.

For the analysis, the agreement was reached to include cases, which allocated one to four roles because the participants were asked about their perception – their feelings about their professional role. With this aim, it seemed inappropriate to exclude cases, which chose 100% for one role, despite the fact that this led to some extreme values. A frequency check of the data showed that only five respondents chose 100% for one role. The comparison of different data analysis sets (three/four roles allocated) also proved that significances and effect sizes were stable. Therefore, the following results consider all cases, which attributed at least one role.

For a first overview, the descriptive analysis shows that TVIs from the whole sample ($N = 195$) associated with an average of 24.03% to the role *Teacher of Knowledge*, an average of 17.14% to the role of *Educator*, an average of 31.35% to the role of *Consultant* and an average of 28.48% to the role of *Contributor*. The table shows that the average and median values differ slightly between the three countries.

3.1. Variable: country

The analysis comparing the countries only showed significant differences between Germany and Japan. Japanese TVIs identified (with an average of 20.97%) more to the role of *Educator* ($t = 6.506$, $df = 145$, $0.000 p < 0.05$) than German TVIs (with an average of 10%). With Cohen's d : 1.081 and r : 0.478, there is a strong effect size.

In contrast, German TVIs saw themselves (with an average of 38.53%) more in the role of *Consultant*; here, the Japanese TVIs allocated an average of 26.13% ($t = 4.324$, $df = 145$, $0.000 p < 0.05$). For the role of *Contributor*, the German TVIs allocated an average of 30.75% and the Japanese TVIs of 23.47% ($t = 2.233$, $df = 145$, $0.027 p < 0.05$). For these values, medium and small effect sizes were also determined.

Role	Country	Statistics in %	
Teacher of knowledge	USA	Average	22,90
		Median	22,50
	Germany	Average	20,72
		Median	20,00
	Japan	Average	29,44
		Median	30,00
Educator	USA	Average	24,85
		Median	25,00
	Germany	Average	10,00
		Median	10,00
	Japan	Average	20,97
		Median	20,00
Consultant	USA	Average	25,40
		Median	25,00
	Germany	Average	38,53
		Median	40,00
	Japan	Average	26,13
		Median	25,00
Contributor promoting educational participation	USA	Average	26,85
		Median	27,50
	Germany	Average	30,75
		Median	28,00
	Japan	Average	23,47
		Median	20,00

Table 1: Average and median values for four roles of the variable country

The reason for these significant differences (especially for the roles of *Consultant* and *Contributor*, which are crucial in inclusive settings) may derive from the extent of experience in inclusive schooling. Japan ratified the CRPD in 2014; Germany in 2008. Therefore, inclusive school development has officially been progressing in Japan for a shorter period than in Germany.

3.2. Variable: duration of occupation in inclusive settings

Significant differences were identified for the duration of occupation in inclusive settings. After dividing the data into the groups of “working in inclusion for more than 10 years” and “working in inclusion for less than 10 years”, significant differences were detected for all four roles. TVIs who have worked in inclusive settings for more than ten years allocated (with an average of 18.72%) the role of *Teacher of Knowledge* less than TVIs who have worked less than ten years (average of 28.01%) in this field ($t = 2.993$, $df = 147$, $0.003 p < 0,05$). A small effect size was determined (Cohen's d : 0.494 and r : 0.240). Here, it is interesting that the duration of occupation with a full teaching license (average of 17 years) has not generated any significant differences. This underlines firstly that the occupation in the inclusive setting makes the difference. Secondly, it shows that qualification programmes for TVIs need adjustment, especially regarding consulting skills. The results for the roles of *Consultant* and *Contributor* support this conclusion. TVIs with more than ten years of experience in inclusion identify more with these roles than TVIs less experienced in inclusion. TVIs with more than ten years of occupation in inclusive settings

allocated with an average of 34.37% compared to 28.77% of the other group to the role of *Consultant* ($t = 1.917$, $df = 147$, $0.057 p < 0.05$). For the role of *Contributor*, the more experienced group allocated an average of 32.58% compared to 22.09% of the other group ($t = 3.322$, $df = 147$, $0.001 p < 0.005$). Moreover, TVIs with more experience in inclusion attributed the role of *Educator* less ($t = 3.033$, $df = 147$, $0.003 p < 0.05$), which links to less direct support for students by TVIs.

3.3. Variable: inclusive school type

The comparison of TVIs' understanding of roles working in different inclusive school types also showed significant differences. The grouping of the values *Itinerant Teaching* and *Pull-out* revealed significant differences for all four roles. In this case, TVIs working in the *Itinerant Teaching* model see themselves (average of 19.10%) less in the role of *Teacher of Knowledge* than the TVIs in *pull-out* settings (average of 34.92%) ($t = 4.462$, $df = 160$, $0.000 p < 0.05$). The same applies to the role of *Educator*: itinerant TVIs allocated an average of 14.75% and TVIs in *Pull-out* settings 21.95% ($t = 3.013$, $df = 160$, $0.003 p < 0.05$). In contrast, itinerant TVIs felt that they identified more with the roles of *Consultant* (average of 34.8%) ($t = 2.911$, $df = 160$, $0.004 p < 0.05$) and *Contributor* (average of 31.27%) ($t = 3.523$, $df = 160$, $0.000 p < 0.05$) than TVIs working in *pull-out* settings (averages of 25.25% for *Consultant* and 18.78% for *Contributor*). At first glance, this finding may not appear surprising. The direct teaching tasks of TVIs in *pull-out* settings are definitely closer to the traditional teacher roles. However, with regard to the idea of implementing ECC-related skills taught in a *pull-out* setting into the general class of a pupil with VI, the identification with the roles of *Consultant* and *Contributor* should be a lot higher. The description by Smith *et al.* (2016) of the supportive function of SETs in inclusive settings such as *Resource Rooms* supports this assumption. The authors state that a key role of SETs in inclusive settings is to collaborate with general education teachers so as to work on specific areas relevant for the student with disabilities (Smith *et al.*, 2016, p. 23). In this respect, the findings for this variable also underline the need to develop a teacher qualification programme emphasising the new role of being a contributor who promotes educational participation, which is characterised by collaboration and consulting skills.

3.4. Weighting of ECC working areas

The data from the last section of the questionnaire provides information about the relevance of the ECC areas for TVIs working in inclusive settings.

First of all, for the whole sample ($N = 201$), it turned out that all ECC areas are relevant for TVIs working in inclusion. With an average of 4 (high proportion), the areas of Sensory Efficiency and Assistive Technology were rated most relevant, followed by an average of 3 (moderate proportion) for the areas of Self Determination & Social Interaction, Compensatory Skills, and Career Education. The areas of O&M / DLS and Leisure were weighed with an average of 2 (very low proportion).

Independent sample T-tests were conducted to detect the influence of different variables on the weighting. Chi Square tests were performed to investigate the correlations between selected variables.

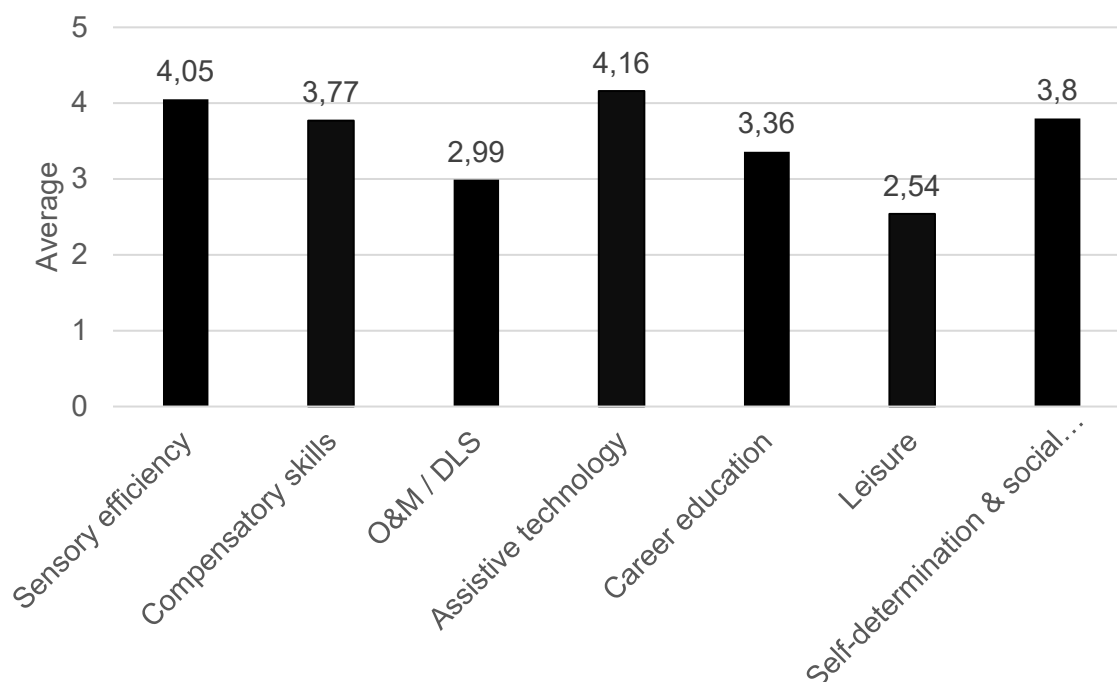


Figure 3: Average of ECC-area weighting

3.5. Variable: country

Significant differences were detected after grouping the data of all countries in all possible combinations for all areas except Self-Determination & Social Interaction. Overall, the results indicate that Japanese TVIs always weighed each area slightly higher than their German or American counterparts. Sensory Efficiency was rated with an average of 4 by Japanese participants and 3 by Germans and Americans, for example. Finally, the results show major parallels. The areas of O&M / DLS and Leisure were less relevant in all countries. This has to do with the fact that in all three countries, there are other qualified professionals focusing on O&M / DLS. The fact that the area of Leisure is less relevant than the other areas reflects that school education is a priority, but Leisure is not neglected as a work area. In conclusion, all results confirm the importance of the ECC as a relevant framework for TVIs working in inclusive education and show a big difference than the older studies by Wolffe *et al.* (2002) and Griffin-Shirley *et al.* (2004). It can be assumed that the national and regional versions of the ECC, which are applied in the TVI qualification programmes in all three countries, have had a positive influence on its relevance.

3.6. Variable: percentage of allocation to roles

T-tests to check whether the percentage allocation regarding the averages to a role affected weighting the ECC areas, showed significant differences in several areas.

TVIs who allocated 17% or more to the role of *Educator* weighed the area of Self Determination higher than those who allocated less than 17% to this role ($t = 2,902$, $df = 191,24$, $0,004 p < 0,05$). TVIs with less than 17% on the role of *Educator* rated Sensory Efficiency higher ($t = 2,902$, $df = 179,48$, $0,025 p < 0,05$). With $\chi^2 = 0,01$, $df = 4$, $p < 0,05$ a correlation exists.

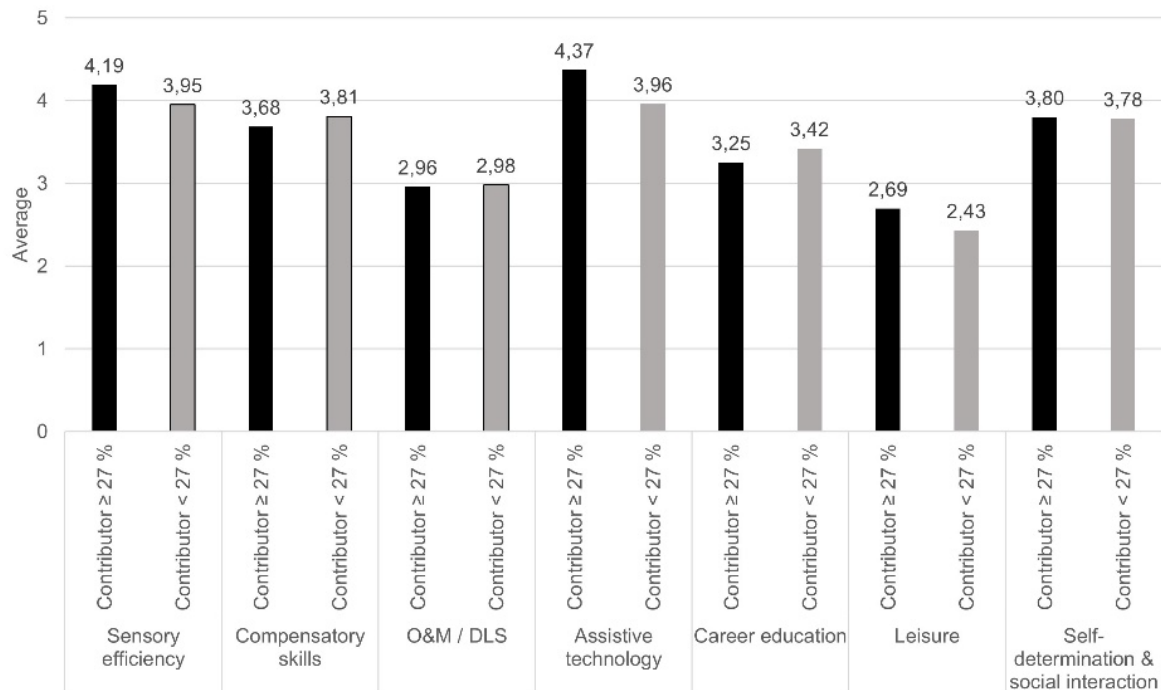


Figure 4: Average of ECC-area weighting for < 17 % and ≥ 17 % allocation to the role Educator

TVIs who see themselves as *Consultants* with 31% and above considered Social Interaction to be less relevant ($t = 2.103$, $df = 154.41$, $0.037 p < 0.05$). $\chi^2 = 0.462$, $df = 8$, $p < 0.05$ shows a correlation.

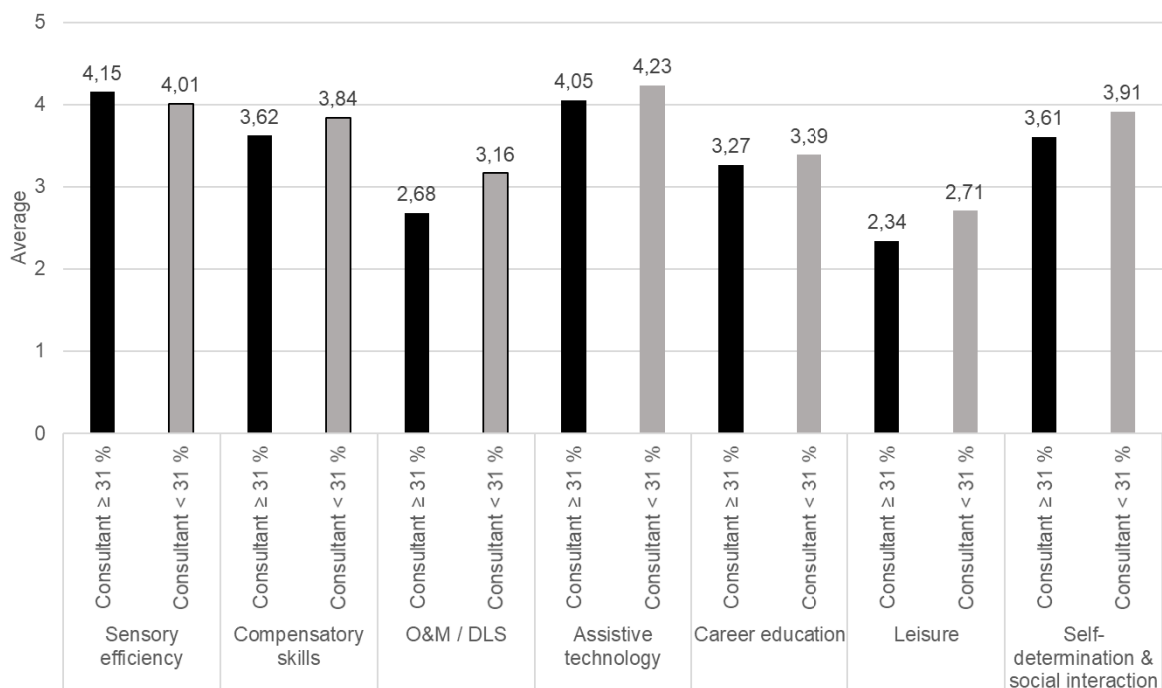


Figure 5: Average of ECC-area weighting for < 31 % and ≥ 31 % allocation to the role Consultant

TVIs who allocated 27% and above to the role of *Contributor* ranked the area of Assistive Technology higher than those with less than 27% allocated to this role ($t = 3.038$, $df = 193$, $0.003 p < 0.05$). $\chi^2 = 0.022$, $df = 4$, $p < 0.05$ displays a correlation.

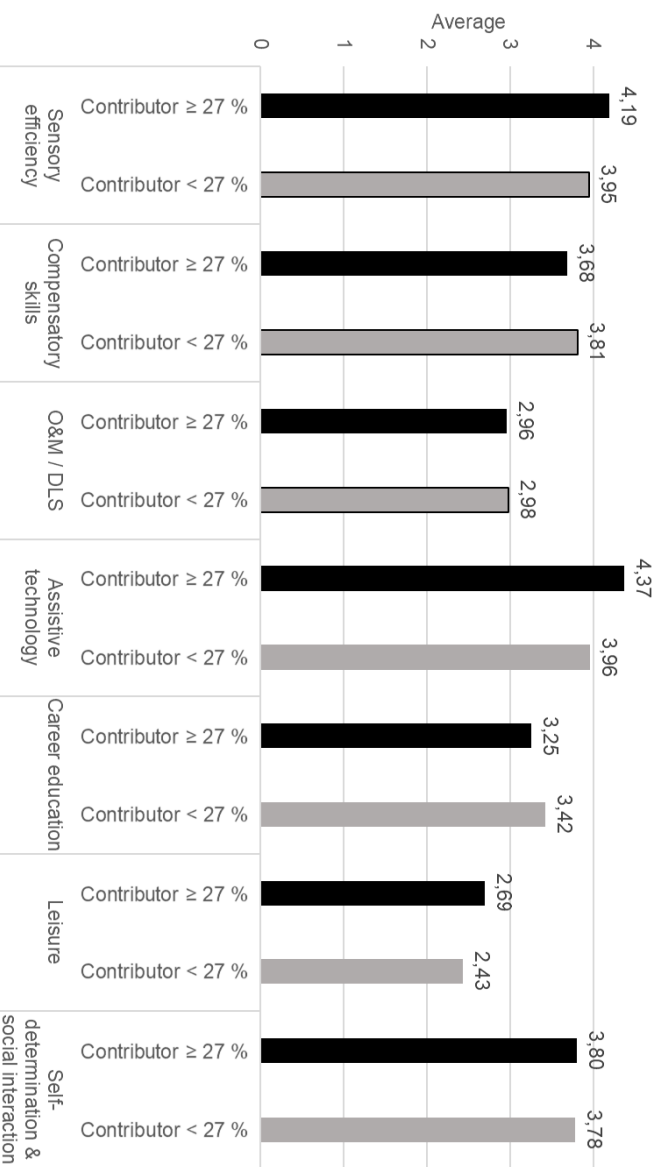


Figure 6: Average of ECC-area weighting for $< 27\%$ and $\geq 27\%$ allocation to the role Contributor

In conclusion, these findings may suggest that the rating of ECC areas by TVIs is connected to their understanding of roles. There are however other aspects, which may influence how TVIs decide to emphasise certain ECC areas. Considering the adaptation of TVI qualification programmes, this reveals the need to intensify the discussion on the professional role in connection with tasks for inclusive schooling to ensure that ECC areas are emphasised according to objective goals rather than one's own perception of a certain role.

4. Discussion

Some of the study results indicate great potential for improving inclusive teacher training, especially in the field of VI. Collaboration between TVIs with expert knowledge and general education teachers with basic competencies in inclusive education are the key points needing further implementation in teacher qualification programmes. Reich (2014) suggests curriculum workshops as a basic pillar of inclusive school development, which includes collaboration between different professions regarding several dimensions of an educational process, e.g. accessible class preparation and curriculum design. In this respect, the characteristics of the new role for TVIs, being a *Contributor* promoting educational participation, needs to become transparent and concrete in any stage of a TVI qualification programme.

Lindmeier stresses that inclusive school development requires adjustment of the content, structure and self-perception of the discipline and profession in special education (2019, p. 410). Regarding the special education qualification programmes, he refers to the international discourse in which *twin track* teacher training models are being considered. This dual approach aims to change education systems to facilitate broad accessibility taking Universal Design into account and to focus on implementing support structures for individuals vulnerable to marginalisation and exclusion (Stubbs, 2008, p. 79).

For the future of TVI qualification programmes, the present study exposes applicable suggestions. As general education teachers feel ill-equipped to teach students with VI (Kahn & Lewis; Koehler & Wild), the ECC framework needs further recognition and development regarding the alignment of disability-related skills and subject curricula. The study shows that TVIs in the sample already fill general education teachers' VI-specific expertise gaps, as they rated all ECC areas to be relevant working areas. These results show a clear difference to older studies

mentioned, e.g. Griffin-Shirley *et al.* (2004), which underlined that TVIs spend more time teaching academic skills. This is a positive change towards inclusive education.

The results on the TVIs' understanding of roles clarify that longer occupation in inclusive settings leads to a higher identification with the roles necessary to facilitate inclusive teaching. Being a *Consultant* and *Contributor* promoting educational participation combine the skills needed of TVIs to fit the paradigm of inclusive education. Therefore, there are good reasons to implement collaboration and consulting methods in an impairment-specific qualification track, rather than focusing on traditional teaching skills. Consequently, the question of whether a parallel special education teacher qualification programme in different areas of special education will target the needs of inclusive school development requires further investigation. Different proportions will always appear among the group of special education teachers between direct teaching, team-teaching, consulting and the role of *Contributor* promoting educational participation. However, for the TVIs' qualification programmes, the shift in the role profile seems to be obvious, which leads to the question of the current qualification goal to educate TVIs primarily for direct teaching tasks. There may be differences between the competences to perceive, plan, conduct and evaluate classes. Especially the competence to perceive the structures for prepared classes is a requirement to identify barriers that hinder the access and participation of students with VI. Therefore, teacher training must reflect these differences and create space for different subjects, including the ECC content and related concepts of counselling and support.

¹ Development of inclusive education systems. Comparison of theoretical concepts and practical work in Japan and Germany (Universität Hamburg – University of Tsukuba, 2018–2019)

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