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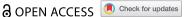
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ARTICLE



Austrian teachers' attitudes and self-efficacy beliefs regarding at-risk students during home learning due to COVID-19

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ABSTRACT

The lockdown of schools in Austria and many other countries due to COVID-19 posed challenges to the school system and especially for teachers of at-risk students. Within the INCL-LEA (INCLusive Home LEArning) study, 3,467 teachers (2,839 females) from all nine Federal States in Austria participated in an online survey after the first school lockdown in early 2020. The main aim of the study was to investigate teachers' attitudes and their self-efficacy beliefs about at-risk students during the first home learning period. Results indicate that teachers' attitudes towards students with a low socio-economic background are more negative compared to attitudes towards students with low skills in the language of instruction (LLS) and students with special educational needs. According to teachers' self-efficacy beliefs, the lowest scores were found for teaching students with LLS.

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Attitudes; self-efficacy; atrisk students; home learning; COVID-19; inclusion

Introduction

Educational systems all over Europe are implementing inclusive education (Schwab 2020) to ensure equal educational opportunities for all students by removing learning barriers. However, for Austria, it was shown that providing equal educational opportunities for marginalised students - students with special educational needs (SEN), students with a lower socio-economic background (SES) and students with low language skills (LSS)¹ – is still an ongoing process (see e.g. Breit et al. 2019). Due to the COVID-19 pandemic, schools in Austria were closed twice, once from March until May 2020 and the second time from the middle of November to early December 2020. This paper/research focuses on the first lockdown in early 2020. During this time of home learning,² teachers had to give instructions to students via digital tools (e.g. email or learning platforms) (BMBWF 2020). Referring to Schwab and Lindner (2020), existing inadequacies and inequities in Austrian's education system were revealed during this special time. Focusing on the first school lockdown in Austria, there are concerns that it may widen the educational gap between students and increase social inequity (Forsa 2020).

Insufficient resources (e.g. lack of teaching staff, specific teaching material or assistive technology) are generally seen as a barrier for learning (see e.g. Gitschthaler et al. 2020). For



Austria especially, it was shown that the first school lockdown due to COVID-19 led to an unequal distribution of resources (e.g. students from lower SES or LLS often did not have the same digital tools compared to other students). Further, teachers could not reach out to all their students. Especially in consideration of students at risk, teachers reported less or no contact with them (or their parents) (see e.g. Schwab and Lindner 2020).

In addition, during the home learning period, teachers struggled with addressing students' specific needs, especially for students from lower-income homes (e.g., Letzel, Pozas, and Schneider 2020). This represents a major problem, as according to the review of Lindner and Schwab (2020), individualised teaching and learning would be a starting point for educational equity. The beforehand mentioned barriers to inclusive education are linked with teachers' attitudes and their self-efficacy beliefs. Generally, teachers' attitudes towards inclusion, as well as teachers' self-efficacy beliefs (see, e.g. Savolainen, Malinen, and Schwab 2020), are known to be highly important for the successful implementation of inclusion. Attitudes (e.g. Glock and Böhmer 2018; Jordan, Schwartz, and McGhie-Richmond 2009) and self-efficacy (e.g. Sawyer et al. 2020; Schwab and Alnahdi 2020; Zee and Koomen 2016a) also influence teachers' teaching practices. For the COVID-19 period in spring 2020, teachers' self-efficacy was significant for providing differentiated learning material for their students during the home learning period (König, Jäger-Biela, and Glutsch 2020).

Teachers' attitudes towards inclusive education

The most cited model of attitudes is the ABC-model (Eagly and Chaiken 1998). Each letter stands for one component of attitudes: A-Affective component, B-Behavioural component and C-Cognitive component. The affective component refers to someone's feelings about an object, the behavioural component is related to an individual's intentions and the cognitive component denotes their believes about an object.

In this context, attitudes are associated with student-related variables – like the students' level of need (Avramidis and Norwich 2002) or the form of disability. These findings revealed that teachers' attitudes towards students with behaviour problems are more negative compared to, for example, the inclusion of students with learning disabilities (see also e.g. De Boer, Pijl, and Minnaert 2011). Further, teachers' attitudes towards students with LLS (Kast and Schwab 2020) or low SES (Auwarter and Aruguette 2008) are more negative compared to teachers' attitudes towards regular students. However, not only student-related factors influence teachers' attitudes, but they are also influenced by environment-related factors like the setting, the school type (Kozleski et al. 2007) and the grade level (Leyser, Kapperman, and Keller 2006). Referring to this, teachers may find it more difficult to motivate older students and to cope with their behaviour. Focussing on the educational setting, Saloviita (2020) showed that special education teachers held more positive attitudes towards inclusion compared to classroom or subject teachers. In general, those teachers who worked in inclusive classrooms (in our case with varying at-risk students) possess more positive attitudes towards inclusion compared to teachers without the respective experience (De Boer, Pijl, and Minnaert 2011).

Teachers' self-efficacy beliefs towards inclusive education

Two foundational principles of self-efficacy beliefs stem from the theory of locus of control (Rotter 1966) and the social cognitive theory of Bandura (1997). Rotter (1966) in his theory differentiated between locus of control in someone's perceptions whether outcomes are caused by luck or fate (external control) or by their own action (internal control). Last-named perceptions strengthen someone's actions because they are determined as person-environment transactions and influence future behaviour. Bandura's theory indicates that the teachers' self-efficacy influences their actions in the classroom (in our context, their actions and belief during home learning) and impacts their way of acting to produce preferred outcomes for students. The construct is defined as 'people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performance' (Bandura 1986, 391). According to Bandura (2006), teachers' self-efficacy can be influenced by aspects that are beyond the control of the teacher and influence, in further consequence, their performance in the classrooms (Bandura 1997). Focussing on environmental-related factors, previous results indicate that inter alia the school type in which the teachers are employed can be linked with their self-efficacy. Hence, elementary school teachers showed higher levels of self-efficacy to students in general than teachers in middle or high school (Klassen and Chui 2010; Wolters and Daugherty 2007). These results lead to the assumption that for teachers it is easier to engage younger students and to manage their behaviour. On the contrary, no significant differences were observed regarding their teaching setting (self-contained, resource or inclusion; Viel-Ruma et al. 2010). Moreover, the teachers' training affects their self-efficacy believes as well. Hence, Schwab (2019) showed a higher level of self-efficacy of special-needs teachers (teaching in inclusive settings) compared to regular teachers (teaching in inclusive settings). It was also shown that regular teachers often feel uncertain in teaching students with SEN (Gebhardt et al. 2015). Also, student-related characteristics (e.g., having a disability, SEN or behavioural problems) influence teachers' self-efficacy (Zee, de Jong, and Koomen 2016a; Sawyer 2020; Schwab 2019). Teaching students with different language abilities (Geerlings, Thijs, and Verkuyten 2018) or students with a low SES (Auwarter and Aruguette 2008) result in lower self-efficacy believes. Elementary school teachers tend to feel differentially efficacious with individual students (e.g. disability status, learning behaviour) (Tschannen-Moran and Hoy 2001; Sawyer et al. 2020).

The current study

As the lockdown of schools worldwide due to COVID-19 was a new situation for all teachers and students, the new challenging circumstances during the pandemic might have affected teachers' attitudes and their self-efficacy beliefs. As previous research has already shown, teachers' attitudes and self-efficacy beliefs differ in student and environmental-related factors, and it seems crucial to find out if these differences still appear during a time when teachers have to provide their instructions via home learning. The paper aims to focus on student characteristics (different groups of at-risk) and different school characteristics (school level, school setting) in depth.

Therefore, the first research questions refer to teachers' attitudes and self-efficacy beliefs towards at-risk students during home learning:

(1) Are teachers' attitudes and self-efficacy beliefs towards the home learning period associated by

- (1a) Student characteristics (students with SEN, students with low SES, students with an outstanding success in school (OS), students with LLS) or
- (1b) School characteristics (school setting: regular class, integration class, special-needs class; school type: elementary school, middle school, academic secondary school or special needs school)?

The following hypotheses are proposed:

Hypothesis (1): Teachers' attitudes and self-efficacy beliefs differ regarding the different groups of at-risk students.

Hypothesis (2): Teachers' attitudes and self-efficacy beliefs differ regarding the students' school setting and the school type.

The third research question refers to the correlation between teachers' attitudes and their subjectively perceived self-efficacy towards different at-risk students during home learning. In this line, the paper analyses if the correlation will be similarly high or maybe higher than in previous research (see the meta-study of Yada et al. forthcoming). The following hypothesis was proposed:

Hypothesis (3): The higher teachers' self-efficacy beliefs, the more positive are teachers' attitudes about at-risk students during home learning.

Methods and materials

Research instruments

Preliminary work of Schwab et al. (2012) and Schwab (2018a) showed that it is important to use case vignettes to specifically assess for different settings (e.g., different kinds of disabilities of students). In our context, a similar approach was applied to assess teachers' attitudes and self-efficacy regarding at-risk students during home learning (see Appendix A and B). Each item referred to five different groups of students (where three students belong to the group of at-risk students and two students, which are not belonging to the at-risk students, were used as control groups):

- Student with special educational needs (SEN)
- Student with a low socio-economic background (SES)
- Student with an outstanding success in school (OS)
- Student with low language skills in the language of instruction (LLS)
- Student without special characteristics (control cases)

To calculate the mean scores for the different types of at-risk students, the items measuring attitudes and those measuring self-efficacy were summed up for each at-risk student and were divided by the number of items.

Attitudes towards different at-risk students during home learning

To assess teachers' attitudes towards different at-risk students, four items of the 'Attitudes towards Inclusion Scale' (Schwab et al. 2012) were adapted to the present survey. Each of the four items (e.g., 'I think that this child feels alone during home learning.') was rated on a four-point Likert scale from not at all true (1) to certainly true (4). (See Appendix A).

Schwab et al. (2012) showed high reliability for the original scale (Cronbach's alpha = .82). Regarding the internal consistency for the different types of at-risk students for the present sample, Cronbach's alpha ranged from .71 to .79.

Self-efficacy beliefs regarding at-risk students during home learning

The teachers' student-specific self-efficacy belief was captured using a three-items short form of an adapted version of the Tschannen-Moran and Woolfolk Hoy (2001) Teachers' Sense of Efficacy Scale (Zee and Kommen 2016b; for the German version, see Schwab 2019). The items were translated and adapted to the situation of at-risk students during home learning (e.g., 'Despite home-teaching, I can provide appropriate challenges for this student, see Appendix B). All items were rated on a four-point Likert scale from not at all true (1) to certainly true (4). Schwab (2019) showed a good internal consistency (Cronbach's alpha = .88). Regarding the reliability in the current sample for the different types of at-risk students, Cronbach's alpha ranged from .77 to .81.

Participants and setting

The data collection for the present sample was carried out in April and May 2020, in Austria online using lime survey.³ In total, 3467 teachers (82.7% female, 16.9% male and 0.4% diverse) participated in the study. The age varied from 22 to 65 years (M = 45.20; SD = 11.45) and 36.3% of them were teaching in an elementary school, 25.1% in a middle school, 14.9% in an academic secondary school, 12.4% were teaching in special schools and 11.4% in other or mixed types of school. The sample is not representative, as teachers from special schools are overrepresented. Moreover, some school types (e.g., vocational schools) were underrepresented. 50.7% were teaching in a regular class (in which only students without SEN are taught), 17.9% in different classes, 12.4% in an inclusive class (in which students without SEN are taught together with students with SEN), 6.3% in a special class (in which only students with SEN are taught) and from 11.9%, data concerning this question was missing. Further, 0.8% taught German language tuition and support courses or classes. Due to the small sample size of teachers working in these settings, further analyses were done without this variable.

Statistical analyses

To answer the research questions descriptive statistics, t-tests, Pearson's correlation and univariate analyses of variance were used. Cohen's d and eta square (Eta^2) were used to interpret the effect sizes. According to Cohen (1988), values around d = .2 or Eta^2 = .01 can be interpreted as a weak effect. Values around d = .5 or Eta^2 = .06 can be interpreted as a medium effect. If Cohen's d is around .8 and Eta^2 around .14 the effect size is high. Eta^2 is

the commonly used effect size for the ANOVA. For post-hoc comparisons, t-tests were calculated. As SPSS does not report Cohen's d, it was calculated manually (Cohen 1988).

Results

Teachers' attitudes towards different at-risk students during home learning

Table 1 provides the mean scores of the attitudes towards different groups of students during the home learning period. Results indicate that teachers have the most positive attitudes towards the student with an OS. The lowest scores can be found for a student with a low SES.

To examine whether the type of the different groups of students (students with SEN, students with allow SES, students with an OS, students with LLS and students without special characteristics) influenced the attitudes of teachers during the home learning period, a variance analysis for repeated measurements (between subject factors: class and school type; within subject factors: mean scores of the types of students) was computed. Results indicate a significant main effect for the different types of students ($F_{4.000} = 36.16$, p < .01, partial Eta² = .07). The teachers' attitudes towards students with a low SES were the most negative compared to all other types of at-risk students (SEN: p < .01, d = 0.34; OS: p < .01, d = -1.65; LLS: p < .01, d = -0.23; without special characteristics: p < .01, d = -1.44). The attitudes towards students with SEN were more positive compared to students with LLS (p < .01, d = 0.13). Furthermore, teachers' attitudes towards students with SEN were more negative compared to students with OS (p < .01, d = -1.39) and students without special characteristics (p < .01, d = -1.12). The attitudes for students with LLS were more negative compared to students without special characteristics (p < .01, d = 1.27) and students with an OS (p < .01, d = 1.56). Further, teachers' attitudes towards students without special characteristics were more negative compared to students with an OS (p < .01, d = -0.75).

No interaction effects between the different types of at-risk students and the class $(F_{5.000} = 1.50, \text{ n.s})$ and the school type $(F_{4.000} = 1.26, \text{ n.s})$, where the teachers were employed, were found.

Moreover, no significant main effect for the class ($F_5 = .579$, n.s.) and the school type $(F_3 = 1.113, n.s)$ was found.

Teachers' self-efficacy beliefs towards at-risk students during home learning

Table 2 provides the mean scores of the teachers' self-efficacy beliefs towards different groups of students during the home learning period. Results indicate that teachers have the highest self-efficacy beliefs towards students with an OS. The lowest score can be found for students with LLS.

To determine whether the type of the different group of students (student with SEN, student with low SES, student with an OS, student with LLS, student without special characteristics) influenced the teachers' self-efficacy beliefs during the home learning period, again a variance analysis for repeated measurements with the aforementioned between and within subject factors was computed. Results indicate a significant main effect for the different types of students ($F_{4.000} = 24.09$, p < .01, partial Eta² = .05). The teachers' self-efficacy beliefs towards students with LLS were more negative compared to all other types of at-risk students (SEN: p < .01, d = 0.12; OS: p < .01, d = 1.18; low SES: p < .01, d = 0.13; without special characteristics: p < .01, d = 1.04). Furthermore, the self-efficacy beliefs of teachers towards students with SEN was more negative compared to students without special characteristics (p < .01, d = -0.89) and students with an OS (p < .01, d = -1.07). The self-efficacy beliefs of teachers towards students with a low SES were, as well, more negative compared to students without special characteristics (p < .01, d = -1.05) and to students with an OS (p < .01, d = -1.14). Teachers' self-efficacy beliefs towards students with an OS were more positive compared to students without special characteristics (p < .01, d = 0.46). No significant effect between the teachers' self-efficacy beliefs towards students with SEN compared to students with a low SES was found (n.s.).

No interaction effects between the different types of students and the class ($F_{5.000}$ = 2.18, n.s) and the school type were found ($F_{4.000}$ = 1.19, n.s). Moreover, no significant main effect for the class (F_5 = .83, n.s.) and the school type (F_3 = 1.02, n.s) was found.

Correlations between teachers' attitudes and self-efficacy beliefs

Results of Pearson's correlation analyses indicated that attitudes and self-efficacy beliefs for every type of student correlate between each other (see Table 3).

Discussion

The purpose of the current study was to determine teachers' attitudes and self-efficacy beliefs during the home learning situation in Austria in early 2020 traceable to the COVID-19 pandemic. Regarding teachers' attitudes towards the development of at-risk students during home learning, differences considering specific target groups were found. Results show that teachers have fewer concerns about at-risk students during the home learning period when it comes to students with OS, followed by students without special characteristics. Additionally, teachers show the most negative attitudes towards students with a low SES, followed by students with LLS. These findings are in line with previous studies (Schwab 2018a; De Boer, Pijl, and Minnaert 2011) that revealed that teachers' attitudes differ depending on student characteristics (like the type of disability).

The results about the more negative attitudes towards specific at-risk students is in line with the finding that home learning is a disadvantage, especially for students with low SES and students from lower educational backgrounds (see Schwab and Linder 2020b). A possible explanation why teachers have more negative attitudes towards students with a low SES or LLS students is that they do not feel self-efficacious enough to teach these students. This assumption can be underpinned by the findings of Savolainen, Malinen, and Schwab (2020), who found out that teachers' self-efficacy influences their attitudes, and an increase of the teachers' self-efficacy would lead to more positive attitudes towards students with diverse needs. Results of the present study indicate that teachers have the highest self-efficacy beliefs towards teaching students with OS, followed by students without declared special characteristics. Considering students with LLS, low SES and SEN, teachers' beliefs in their own skills when teaching these groups of students were the lowest. This outcome is consistent with the results from previous studies (Zee and Kommen 2016b; Geerlings, Thijs, and Verkuyten 2018). Due to the shifted way of teaching

and learning from face-to-face practice to home learning, teachers may perceive their teaching practice as more effective for students who feel comfortable with self-regulated learning phases and are able to organise support from family members (Huber et al. 2020).

Referring to the results of the current study, a positive correlation was found between attitudes and teachers' self-efficacy beliefs for teaching at-risk-students during the home learning period. The correlation coefficients were somewhat higher compared to other studies (e.g., meta-study of Yada et al. forthcoming). Possibly, the fact that self-efficacy was assessed towards specific cases might be the reason for this result. As Yada et al. (forthcoming) have already shown – the more specific the self-efficacy is assessed (e.g., self-efficacy towards specific kinds of SEN), the higher the correlation between the two constructs. Additionally, it is noteworthy that correlation coefficients in the present study do not deviate much for different cases (e.g., students with SEN, LLS, OS).

In contrast to the state of research, neither the school setting (regular, integrative, special class) nor the school type (elementary, middle, academic secondary, special needs school) influenced teachers' attitudes or self-efficacy beliefs towards the support of at-risk students. These unexpected results may be explained by the sudden change of face-toface teaching in the classroom to home learning for all students (BMBWF 2020). Despite the different general institutional framework conditions of teaching and learning, all teachers and students faced similar unexpected challenges and were primarily concerned with coping with the new situation as best they could.

The reproduction of problems and learning barriers rooting in the general educational conditions regarding several target groups (e.g., students with LLS, SEN and low SES) shows that regardless of the pandemic, changes must be made within the school system in general, especially when it comes to educational equity for at-risk students (OECD 2016; Dreer and Kracke 2020; Huber et al. 2020). This underlines the importance of focussing on the training of pre- and in-service teachers. Teachers need to develop a feeling of preparedness or readiness for a special situation like unexpected school closures, but generally need adequate strategies for dealing with at-risk students and organising the best possible support.

Furthermore, it is noteworthy that the need for external support, such as parents or older siblings, should be reflected critically as not every student has such a network. In this context, an allegedly positive effect or chance of homeschooling can turn upside down and become a challenge that reproduces inequality and widens the educational gap (Teach for Austria 2020; Huber et al. 2020).

Conclusion

The findings of the present study show that teachers see the most challenges in home learning for students with a low SES and LLS. As attitudes and self-efficacy beliefs affect each other (see e.g. Schwab and Alnahdi 2020) a possible explanation for the negative attitudes towards students with low SES and LLS can be that teachers do not feel selfefficacious enough to teach these students. The positive correlation of the present study underpins this relationship.

Regarding these findings, home learning for the aforementioned groups of at-risk students seems to be most difficult because they have to perform tasks on their own and are mostly dependent on the support of their families. A differentiated focus in



teacher training in supporting different groups of students at-risk seems to be essential so that social inequities do not increase more – not only during phases of home learning, but also during 'normal' school life.

Regarding the results of the present study, it can be assumed that these effects may have long-term consequences on the educational development and the job opportunities of at-risk students.

Limitations

Regarding the interpretation of the study, it should be noted that the sample is not representative. Likewise, as in other online surveys, especially when they are based on a convenience sample, there might be a large bias concerning representativeness. As mentioned already, some teachers are overrepresented in the sample (especially those from special schools as well as those teaching in inclusive education). Another limitation is that we have to keep in mind that vignettes only provide an extract of a given situation.

The results of this study are limited to a rather narrow picture. For further research we advise to use the same vignettes during 'normal' school life and not during a phase of home learning to compare if differences evolve.

Notes

- 1. Within this paper LLS means students with low language skills in the language of instruction. The authors are aware that having low language skills in German (which is the language of instruction in Austria) does not obligatory mean that students have low language skills in general, especially not in the students' first languages. Rather, students with LLS may have different linguistic backgrounds; they are learning the language of instruction as an additional language.
- 2. There are currently synonymous terms referring to school education during a lockdown like home-schooling, distance-learning/teaching, home learning or online-learning/teaching.
- 3. LimeSurvey: An Open Source survey tool. LimeSurvey GmbH, Hamburg: Germany. http:// www.limesurvey.org

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix A Attitudes towards the development of at-risk students during home learning

The following items (adapted based on preliminary work of Schwab et al. 2012) were presented:

- (1) I believe that this child feels alone and isolated during home learning.
- (2) I believe that this child's performance motivation decreases during home learning.
- (3) I believe that this child learns and practices a lot during home learning.
- (4) I believe that the quality of learning the child experiences during home learning is very good.

Appendix B

Teachers' self-efficacy believes regarding at-risk students during home learning
The following items were used (based on preliminary work of Tschannen-Moran and Woolfolk
Hoy; 2001; Zee et al. 2016b; for the German version see Schwab 2019).

- (1) Despite home learning, I can provide appropriate challenges for this students.
- (2) Despite home learning, I can motivate this student for schoolwork.
- (3) Despite home learning, I can adjust learning tasks to this students' needs and interests.

Each item were followed by the following case descriptions:

not at	t		
all	somewhat	somewhat	certainly
true	not true	true	true

- 1. Student with special educational needs
- 2. Student with a low socioeconomic background
- 3. Student with an outstanding success in school
- Student who visits a German language tuition and support class or a German language tuition and support course
- 5. Student without specific characteristics



Table 1. Mean scores and standard deviations of the teachers' attitudes towards the development of different groups of students during home learning.

	М	SD
Student with SEN	2.04	0.60
Student with a low SES	1.86	0.54
Student with an OS	3.12	0.60
Student with LLS	1.97	0.55
Student without special characteristics (control case)	2.76	0.53

Table 2. Mean scores and standard deviations of the teachers' self-efficacy believes towards different groups of students during home learning.

	M	SD
Student with SEN	2.57	0.69
Student with a low SES	2.56	0.64
Student with an OS	3.34	0.56
Student with LLS	2.50	0.67
Student without special characteristics (control case)	3.16	0.56

Table 3. Correlations between teachers' attitudes and their self-efficacy believe for the different types of students.

	r
Student with SEN	0.54 *
Student with a low SES	0.48 *
Student with an OS	0.54 *
Student with LLS	0.52 *
Student without special characteristics (control case)	0.54 *

^{*} p < .01; ** p < .05