

Job Demands, Job Resources and Well-Being of Staff in Extended Education Services in Switzerland: A Longitudinal Study

Regula Windlinger, Laura Züger

Abstract: Extended education services are expanding in Switzerland. Their quality depends on the working conditions and well-being of staff. This study examined the relationships between job demands, job resources and well-being using the job demands-resources (JD-R) model. 655 staff members from 113 extended education services from three Swiss cantons participated in the three-wave study. Overall, staff reported low levels of job demands and high levels of resources except for autonomy. Results provided support for the motivational and health impairment processes proposed by the JD-R model, although not consistently for both measurement intervals. The findings highlight the importance of focussing on working conditions, especially when extended education services expand in the future.

Keywords: Job Demands-Resources model, job characteristics, staff well-being, extended education

Introduction

High quality extended education depends largely on skills and competencies of staff (Schüpbach, 2016; Vandell & Lao, 2016). To work professionally, apply these skills and competencies, engage with the children, and provide a supportive environment, staff must be in a workplace that fosters their motivation and well-being. Working conditions influence the perception of job demands and resources at work and these in turn are connected to staff well-being (Viernickel, Voss, Mauz, Gerstenberg, & Schumann, 2013). Staff well-being is seen as “individuals’ positive evaluations of and healthy functioning in their work environment” (Collie, Shapka, Perry, & Martin, 2015, p. 746). Healthy and satisfied employees perform better, have a higher commitment and less turnover intentions (Rudow, 2017). This is good for the children, as they benefit from lasting and trusting relationships with staff (Bloechliger & Bauer, 2016). Furthermore, research in schools shows that teachers’ well-being is related to student outcomes (e.g. Arens & Morin, 2016).

So far, we do not have any substantive knowledge about levels of job demands and resources in Swiss extended education. Moreover, studies investigating effects of job demands and resources with a longitudinal design are lacking. The present study aims to fill that gap. To better understand and to investigate how aspects of the working environment have an impact on the well-being of employees in extended education, we use the Job demands-

resources (JD-R) model (Bakker & Demerouti, 2017, see Figure 1). This model explains how job demands and job resources affect outcomes by combining a health impairment and a motivational process. The motivational process is driven by resources, which lead to work engagement. Work engagement, in turn, is related to positive personal and organisational outcomes, such as commitment or job satisfaction (Lesener, Gusy, & Wolter, 2019). Job demands on the other hand can have a negative effect on health-related outcomes, especially when resources are low. Being exposed to high job demands over time depletes employees' resources, which leads to emotional exhaustion. Emotional exhaustion is the core component of burnout and is related to negative health-related outcomes over time (Bakker & Demerouti, 2017).

Therefore, understanding the working conditions of extended education staff and their connection with staff well-being helps to improve the quality of these services. Hence, this study aims to analyse (1) the perceptions of extended education staff in three Swiss cantons regarding the levels of a range of relevant job demands and job resources and (2) the relationships between job demands, job resources and positive and negative indicators of well-being over time.

Context of the Study: Extended Education in Switzerland

In Switzerland, many extended education services have been established and/or expanded their services in recent years (Schüpbach, 2014). These extended education services are workplaces of teachers and other educational staff with a range of different qualifications in education plus a large proportion of staff with a background outside education. To date, little is known about their characteristics and working conditions.

In the Swiss federal system, the cantons have primary responsibility for education (Swiss Conference of Cantonal Ministers of Education, 2018). Accordingly, the organization of Swiss extended education services (and thereby the extent to which they are integrated into schools) depends on the regulations of cantons but also on the initiative of the municipalities. This means that services are very heterogeneous even within the country (Schüpbach, 2019). The services are open to children and adolescents from the age of 4 (school entry) to the age of 16 (end of compulsory schooling), but not all services provide for all age groups. The extent of services offered by different providers varies greatly. All services offer at least lunchtime care (which includes lunch) on some days. Some also offer after-school and/or before-school care. The focus of the extended education services is mostly on social competencies and supervised recreation. Many also offer homework support. The services are often located within the school but can also be located elsewhere, depending on the infrastructure of the school, the municipality, but also on who the provider is (Schüpbach, 2019).

Review of the Literature

Research on working conditions in extended education – especially with a longitudinal design – is limited. There are studies that investigate aspects of working conditions, like infrastructure (Boström, Hörnel, & Frykland, 2015), or staff development (Vandell & Lao, 2016), mostly as part extended education quality. As research connecting working conditions and well-being of staff in extended education is rare (e.g. Rudow, 2017), we also draw on studies from early childhood education and care.

Job Demands and Resources of Staff in Extended Education

Staff in extended education value the contact with the children and cooperating with team members (Forrer & Schuler, 2010). Studies from early childhood education and care in Switzerland and Germany (Bloechliger & Bauer, 2016; Schreyer, Krause, Brandl, & Nicko, 2014; Viernickel et al., 2013) corroborate this and show that relevant job resources include having interesting and varied tasks and the interaction with the children in general. Having a discretion over when and how to fulfil the work tasks (autonomy or control) is another resource connected to staff well-being in early childhood education and care (Blöchliger & Bauer, 2018; Koch, Stranzinger, Nienhaus, & Kozak, 2015). Additionally, staff benefit from receiving social support in their daily work, therefore team social resources and leadership quality are essential. Knowing one's duties and responsibilities, i.e. role clarity, is another important resource, as a lack of this can contribute to burnout (Goelman & Guo, 1998).

Rudow (2017) investigated working conditions of educational professionals in all-day schools in Berlin, where extended education and instruction time are integrated into an all-day schedule. The study showed that time pressure and workload, e.g. due to inadequate staffing, qualitative demands (such as complex work tasks), environmental factors such as noise, non-ergonomic working conditions and unsatisfactory infrastructure are the main job demands. These demands can lead to the experience of stress and fatigue and a higher risk of burnout (Rudow, 2017).

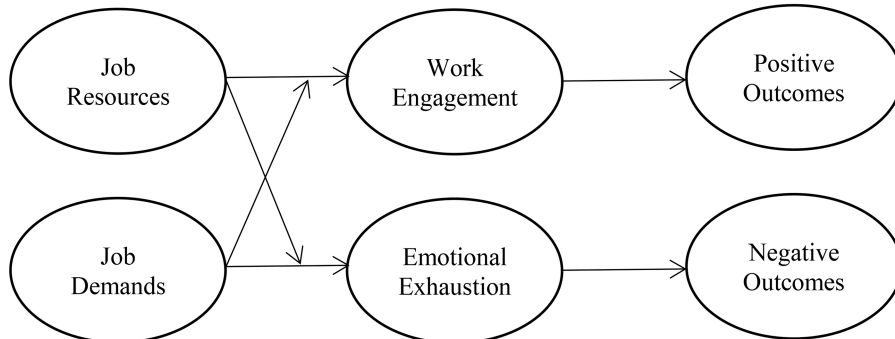
Job Characteristics and Staff Well-Being

Job resources have a motivating effect and help to successfully deal with job demands (Bakker & Demerouti, 2017). Working in a resourceful environment fuels work engagement, “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Hakanen, Schaufeli, & Alohja, 2008, p. 225). In the second step of this motivational process, work engagement relates to positive outcomes such as commitment. In contrast, being exposed to job demands for longer periods can lead to emotional exhaustion, and further to negative health-related outcomes, such as psychosomatic complaints (health impairment process). These two processes – motivational and health impairment – are the core of the JD-R model (see Figure 1), which has been a frequently used model in research in the field of occupational health psychology (Bakker & Demerouti, 2017). Nevertheless, longitudinal research of this model is limited but necessary to assume causal relations (Lesener et al., 2019). In a meta-analytic review of longitudinal studies, Lesener et al. (2019) confirmed

the assumptions that job demands predict burnout and job resources predict work engagement. They conclude that “the JD-R model is an excellent theoretical basis to assess employee well-being for a broad range of organisations” (Lesener et al., 2019, p. 76). We are not aware of any studies using the JD-R model with a longitudinal design in extended education, but there are studies from school contexts which mostly provide strong empirical support for the model (e. g. Dicke, Stebner, Linninger, Kunter, & Leutner, 2018). There is one cross-sectional study that applied the JD-R model to staff in after school programs which showed that increased job demands predicted increased job stress (Affrunti, Mehta, Rusch, & Frazier, 2018). Other studies from the area of early childhood education and care connect job characteristics with staff motivation and well-being, e. g. showing that staff working under good conditions report higher commitment (Schreyer & Krause, 2016) and that job resources are related to health and job satisfaction (Vincent-Höper, Gude, & Kersten, 2016). Conversely, job demands, such as noise-exposure (Koch et al., 2015), low control and reward and a high workload (Blöchliger & Bauer, 2018) were associated with increased risk of burnout. Overall, the studies show that staff in childcare report comparably high levels of burnout (Rudow, 2017; Schreyer et al., 2014), but at the same time they are relatively satisfied with their work (Schreyer & Krause, 2016).

Figure 1. The Job Demands-Resources Model (Bakker & Demerouti, 2017; Lesener et al., 2019)

Motivational Process



Health Impairment Process

Research Questions and Hypotheses

This study aims to answer the following two questions:

1. What are the perceptions of extended education staff in Switzerland regarding the levels of a range of relevant job demands and job resources?
2. What are the relationships between job demands, job resources and positive and negative indicators of well-being over time?

Based on results of research into early childhood education and care as well as extended education, we assume to find high levels of job demands. Other than that, it is hard to presume which job resources and job demands are the important ones in extended education in Switzerland. To that effect, the first research question is an explorative one.

For the second research question, we expect a confirmation of the relationships over time between job demands, job resources and indicators of well-being consistent with the JD-R model, that is the health impairment process (hypotheses a and b) and the motivational process (c and d):

Hypotheses: There are positive time-lagged relationships between

- a) job demands and emotional exhaustion,
- b) emotional exhaustion and psychosomatic complaints,
- c) job resources and work engagement,
- d) work engagement and affective commitment.

Methods

Study Design

A longitudinal design was used with three measurement points, each separated by 6 months. Participants received a link to an online questionnaire via E-Mail or if preferred a paper and pencil questionnaire in the post. Each participant was assigned a personal ID code to pseudo-anonymize the data. Data was collected between October 2017 and December 2018.

Participants

Data stem from a sample of 655 staff members in 113 extended education services in three Swiss cantons. We started the sampling with a list of all services in the three cantons and stratified it by type of service and canton. Each stratum was put into random order and we contacted the heads of the services to ask if they wanted to participate in the study together with their staff members. In total we had to contact 202 services to reach our goal of sampling at least 25 % of each stratum. The 113 services correspond to 28 % of all the existing services in the three cantons (as of Summer 2017). 50 services provide a full-time service, which includes before-school care, lunchtime care and after-school care from Monday to Friday. The others provide at the least lunch-time care on two days a week and a varying range of before-school, lunchtime and/or after-school care on 1 to 5 days a week.

Of the 655 staff members 88 % are female and 11 % male (1 % didn't indicate their gender). The ages range from 16 to 74 years ($M=43.25$, $SD=13.42$). 25 % are qualified teachers, 28 % have another educational qualification (e.g. a vocational level diploma in childcare), 42 % have a qualification outside education and 4 % hold no formal qualification. Only 16.4 % of the staff members work more than 30 hours per week, 13.3 % work between 20–30 hours, 25.9 % work between 10–20 hours and 37.1 % of the staff members work less than 10 hours per week in the extended education service. 43 % have another job/employment (15 % as teachers).

Sample Attrition

Of the 655 participants from the first wave, 528 (81 %) also participated in the second and 441 (67 %) in the third wave. Compared to participants who participated in all three measurement waves, those who participated only in wave 1 or waves 1 and 2 were slightly younger, reported less affective commitment, skill variety, and work engagement. A higher proportion of men dropped out. There were no differences between the two groups regarding the other job demands, job resources or outcome variables.

Measures

This study was part of a larger project on staff and working conditions in extended education funded by the Bern University of Teacher Education (PHBern, see Windlinger & Züger, 2020). All constructs were measured at each measurement point and all measures were in German.

Job Demands

Task-related uncertainty was assessed with 3 items (example item: “How often do you get contradictory orders?”; T1 $\alpha=.79$, T2 $\alpha=.80$, T3 $\alpha=.82$) and time pressure with 4 items (“How often does it happen that you go home late because of too much work?”; T1 $\alpha=.79$, T2 $\alpha=.80$, T3 $\alpha=.80$) from Semmer, Zapf & Dunckel (1995); Qualitative overload was measured with 3 items from Udris & Riemann (1999; “I have to do things for which I am not adequately qualified or prepared”; T1 $\alpha=.76$, T2 $\alpha=.77$, T3 $\alpha=.76$). The answer scale for these job demands ranged from *never/very rarely* (1) to *very often* (5). Environmental factors were assessed with 6 items that were adapted from Vincent-Höper, Gude & Kersten (2016; e.g. “How strongly do you feel burdened by noise?”; T1 $\alpha=.76$, T2 $\alpha=.73$, T3 $\alpha=.79$), the answer scale ranged from *very little* (1) to *a great extent* (5). For the longitudinal analyses the means of the four scales served as manifest indicators for the latent variable job demands. Reliability was acceptable with T1 $\omega=.74$; T2 $\omega=.75$; T3 $\omega=.75$.

Job Resources

All job resources were assessed on scales ranging from *not at all* (1) to *very much* (5). Autonomy was measured with 6 items from Bond, Flaxmann & Loivette (2006; “I can decide when to take a break”; T1 $\alpha=.80$, T2 $\alpha=.80$, T3 $\alpha=.79$); Skill variety was assessed with 2 items from Morgeson & Humphrey (2006; “The job involves a great deal of task variety”; T1 $\alpha=.81$, T2 $\alpha=.84$, T3 $\alpha=.83$). Scale means of these two resources were used as indicators for the latent variable task-related resources.

Role clarity was measured with 5 items from Bond, Flaxmann & Loivette (2006; “I am clear what my duties and responsibilities are”; T1 $\alpha=.84$, T2 $\alpha=.80$, T3 $\alpha=.80$); Leadership was assessed with 3 items from Udris & Riemann (1999) and 2 items from Grebner et al. (2010; “The leader is interested in the well-being of his/her subordinates”; T1 $\alpha=.87$, T2 $\alpha=.90$, T3 $\alpha=.89$); Participation was measured with 3 items from Doden et al. (2014; “I can participate in organisational decisions”; T1 $\alpha=.78$, T2 $\alpha=.84$, T3 $\alpha=.84$); Team social resources were measured with 7 items from Schreyer et al. (2014; “We collaborate effectively as a team”; T1

$\alpha=.88$, T2 $\alpha=.91$, T3 $\alpha=.91$). Means of these four variables were used as indicators for the latent variable social resources. Reliability was acceptable with T1 $\omega=.77$; T2 $\omega=.80$; T3 $\omega=.80$.

Health Impairment and Motivational Process:

Work engagement was measured with 9 items from the Utrecht work engagement scale (Schaufeli & Bakker, 2003; “I feel happy when I am working intensely”), the answer scale ranged from *never* (0) to *always* (6). Means of the three subscales (vigour, dedication, and absorption) served as indicators for the latent variable. Reliability was high with T1 $\omega=.93$; T2 $\omega=.94$; T3 $\omega=.94$.

Emotional exhaustion was measured with 8 items from the Oldenburg Burnout Inventory (Demerouti & Bakker, 2008; “After my work, I regularly feel worn out and weary”), the answer scale ranged from *strongly disagree* (1) to *strongly agree* (4). To serve as indicators for the latent variable the items were combined into 3 random parcels. Reliability was good with T1 $\omega=.84$; T2 $\omega=.83$; T3 $\omega=.84$.

Outcomes

Psychosomatic complaints were assessed on a scale from *never* (1) to *constantly* (5) with 10 items (adapted from Igic et al., 2017; Vincent-Höper et al., 2016; “How often did you suffer from the following in the last 6 months: headaches”). The 10 items were combined into 3 random parcels that served as indicators for the latent variable. Reliability was acceptable with T1 $\omega=.73$; T2 $\omega=.77$; T3 $\omega=.76$.

Affective commitment was measured with 3 items from Allen & Meyer (1990; “I enjoy discussing my organization with people outside it”), the answer scale ranged from *strongly disagree* (1) to *strongly agree* (7). Reliability was good with T1 $\omega=.83$; T2 $\omega=.87$; T3 $\omega=.82$.

Control Variable

Working hours at T1 (average working hours per week) was used as a control variable, as most staff members worked part-time with varied working hours.

Strategy of Analysis

To answer the first research question, descriptive statistics for the individual job demands and job resources were calculated. For the second research question, data was analysed by means of longitudinal structural equation modelling (SEM). This latent variable approach allows to control for measurement error and to test for longitudinal measurement invariance to ensure that measurement properties of latent variables are stable over time (Newsom, 2015). By including autoregressive paths in the model, a latent variable at T2 is predicted by the same variable at T1, therefore, a cross-lagged path (effect of another variable at T1 on the variable at T2) indicates the effect of the predictor controlling for the prior level of the construct being predicted (Selig & Little, 2012). Analyses were done in Mplus 8, using a robust maximum likelihood estimator (MLR) to deal with missing data and non-normal indicators. The clus-

tering of the data (persons nested within services) was taken into account by using the “type=complex” option (Muthén & Muthén, 1998–2017). We started by calculating a series of confirmatory factor analyses for the latent variables and then for each measurement model. Scalar longitudinal invariance was achieved for all constructs (not reported here, available from first author). As indicators of model fit we used the comparative fit index (CFI) and the Tucker-Lewis index (TLI), both with values $\geq .95$ ($\geq .90$), and the root mean square error of approximation (RMSEA) with values $\leq .06$ ($\leq .08$) indicating good (adequate) fit (Hu & Bentler, 1999).

To test for the longitudinal relationships as proposed by the JD-R model, we followed a stepwise approach by calculating and comparing a series of nested models, this allows to compare the hypothesized model with alternative models with different directions of effects : (1) stability models with autoregressive paths for each construct from T1 to T2 and T2 to T3 and synchronous correlations between the variables at each time point (2) direct effect models that included the stability model plus additional cross-lagged paths representing the hypothesized relationships e.g. paths from job demands to exhaustion and from exhaustion to psychosomatic complaints, (3) reversed causation models that included the stability model plus additional cross-lagged paths which were the opposite of those in the model before (e.g. paths from exhaustion to job resources and from psychosomatic complaints to exhaustion) and (4) reciprocal models that combined the structural model with the additional paths from the direct effect and the reversed causation models. To compare the fit of the nested models, we calculated the Satorra-Bentler-scale chi-square difference statistic (see Newsom, 2015).

Results

Research Question 1: Job Demands and Resources

Descriptive statistics from the three measurement waves (see Table 1) show that staff perceived the job demands consistently as relatively low. On average, staff experienced task-related uncertainty, time pressure, qualitative overload and environmental factors between *very rarely* and *rarely*. The highest mean was found for time pressure. Compared to a representative sample of Swiss employees from various professions, in our sample time pressure, qualitative overload and task-related uncertainty are lower (Galliker et al., 2018).

On average, staff rated the levels of resources at all three waves as quite high, with means > 4 on 5-point scales, except for autonomy. Skill variety and role clarity were high, and staff reported good team social resources and a high leadership quality. Participation was rated higher than in a sample of Swiss employees from various professions (Grebner et al., 2010).

Table 1. Job Demands and Job Resources: Descriptive Statistics

Variables	T1		T2		T3	
	M	SD	M	SD	M	SD
Job demands						
Task-related uncertainty	1.86	.69	1.90	.71	1.95	.75

Variables	T1		T2		T3	
	M	SD	M	SD	M	SD
Job demands						
Time pressure	2.32	.84	2.36	.82	2.46	.85
Qualitative overload	1.54	.57	1.57	.59	1.62	.62
Environmental factors	2.01	.69	2.05	.63	2.14	.74
Job resources						
Autonomy	3.20	.82	3.18	.79	3.21	.78
Skill variety	4.14	.83	4.04	.86	4.02	.80
Role clarity	4.54	.50	4.52	.50	4.50	.52
Leadership	4.26	.70	4.13	.79	4.09	.79
Participation	4.02	.74	3.93	.82	3.88	.80
Team social resources	4.25	.58	4.12	.70	4.07	.73

Note. T1: N = 628 – 637; T2: N = 488 – 498; T3: N = 412 – 414.

Table 2. Means, Standard Deviations, Reliabilities and Correlations between the Study Variables

	M	SD	ω	1	2	3	4	5	6	7	8	9
1. job demands T1	1.93	0.52	.74									
2. task-related resources T1	3.67	0.67	^a	-.32**								
3. social resources T1	4.27	0.48	.77	-.56**	.42**							
4. work engagement T1	4.24	1.02	.93	-.34**	.51**	.45**						
5. emotional exhaustion T1	1.84	0.49	.84	.53**	-.28**	-.35**	-.44**					
6. psy-som complaints T1	1.99	0.57	.73	.35**	-.16**	-.17**	-.25**	.51**				
7. commitment T1	5.69	1.10	.83	-.29**	.43**	.44**	.56**	-.34**	-.15**			
8. job demands T2	1.96	0.52	.75	.75**	-.25**	-.51**	-.33**	.47**	.37**	-.29**		
9. task-related resources T2	3.61	0.68	^a	-.23**	.72**	.37**	.49**	-.24**	-.13**	.36**	-.31**	
10. social resources T2	4.17	0.55	.80	-.48**	.32**	.72**	.38**	-.36**	-.20**	.36**	-.63**	.40**
11. work engagement T2	4.19	1.02	.94	-.32**	.46**	.38**	.78**	-.39**	-.22**	.44**	-.36**	.54**
12. emotional exhaustion T2	1.86	0.51	.83	.44**	-.26**	-.32**	-.37**	.66**	.42**	-.31**	.49**	-.29**
13. psy-som complaints T2	1.97	0.61	.77	.31**	-.11*	-.12**	-.19**	.41**	.75**	-.12**	.31**	-.10*

	<i>M</i>	<i>SD</i>	ω	1	2	3	4	5	6	7	8	9
14. commitment T2	5.49	1.25	.87	-.28**	.33**	.37**	.46**	-.30**	-.13**	.57**	-.33**	.44**
15. job demands T3	2.03	0.56	.75	.69**	-.18**	-.46**	-.30**	.43**	.32**	-.25**	.75**	-.22**
16. task-related resources T3	3.62	0.65	^a	-.23**	.64**	.38**	.47**	-.22**	-.16**	.34**	-.28**	.74**
17. social resources T3	4.14	0.56	.80	-.44**	.33**	.70**	.37**	-.31**	-.13*	.34**	-.51**	.39**
18. work engagement T3	4.11	1.04	.94	-.31**	.42**	.38**	.75**	-.39**	-.26**	.43**	-.33**	.47**
19. emotional exhaustion T3	1.94	0.53	.84	.50**	-.20**	-.30**	-.33**	.61**	.42**	-.26**	.48**	-.23**
20. psy-som complaints T3	1.97	0.62	.76	.34**	-.08	-.12*	-.21**	.46**	.79**	-.16**	.35**	-.14**
21. commitment T3	5.35	1.27	.82	-.25**	.34**	.38**	.39**	-.29**	-.14**	.50**	-.28**	.41**
22. working hours T1	16.21	12.72		.23**	.15**	-.15**	.09*	.18**	.13**	.09*	.34**	.10*
	10	11	12	13	14	15	16	17	18	19	20	21
10. social resources T2												
11. work engagement T2	.42**											
12. emotional exhaustion T2	-.40**	-.43**										
13. psy-som complaints T2	-.19**	-.22**	.47**									
14. commitment T2	.46**	.52**	-.32**	-.15**								
15. job demands T3	-.51**	-.27**	.43**	.29**	-.29**							
16. task-related resources T3	.38**	.48**	-.25**	-.14**	.37**	-.32**						
17. social resources T3	.77**	.38**	-.31**	-.11*	.40**	-.58**	.47**					
18. work engagement T3	.38**	.81**	-.44**	-.29**	.47**	-.37**	.55**	.48**				
19. emotional exhaustion T3	-.32**	-.36**	.71**	.46**	-.30**	.56**	-.24**	-.34**	-.48**			
20. psy-som complaints T3	-.16**	-.23**	.46**	.81**	-.17**	.36**	-.17**	-.16**	-.31**	.53**		

	<i>M</i>	<i>SD</i>	ω	1	2	3	4	5	6	7	8	9
21. commitment. T3	.36**	.42**	-.30**	-.16**	.60**	-.31**	.41**	.44**	.50**	-.34**	-.19**	
22. working hours T1	-.20**	.06	.26**	.21**	.01	.28**	.06	-.14**	.02	.30**	.20**	-.01

Note. psy-som=psychosomatic; ω =McDonalds Omega; ^a ω cannot be calculated for latent variable with two indicators, but the modelling of resources as two factors (social resources, task-related resources) was supported by comparing different models (not reported here, available from first author).

* $p < .05$; ** $p < .01$.

Research Question 2: Longitudinal Analyses

Longitudinal Analyses: Health Impairment Process

To investigate the health impairment process, relationships between job demands, emotional exhaustion and psychosomatic complaints were analysed. Descriptive statistics (Table 2) show that the staff, on average, reported low levels of job demands, exhaustion and psychosomatic complaints.

The stability model (M1) showed a good data fit (Table 3). Rank order stabilities over time were high for all three variables ($.79 < \beta < .90$; $p < .001$). For the cross-lagged relationships between the three measurements, the direct effect model (M2), the reversed effect model (M3) and the reciprocal model (M4) all showed a better fit with the data than the stability model (M1). Comparing the two models with the best fit (M4 and M2) revealed that the reciprocal model did not fit better than the direct effect model (M2), hence the direct effect model was the best fitting model (as it is more parsimonious and within the models the same significant effects were found). Figure 2 shows the direct effect model (M2) with the cross-lagged effects – as expected in the health impairment process – of job demands at T2 on emotional exhaustion at T3 and of emotional exhaustion at T2 on psychosomatic complaints at T3. No significant effects were found between T1 and T2 though. Therefore, results provide partial support for hypotheses a and b.

When including working hours at T1 as a control variable, the cross-lagged effects of the direct effect model remained significant and the model fitted the data well: $\chi^2(415)=602.58$, $p < .001$, CFI=.976, TLI=.973, RMSEA=.027. Working hours was significantly related to T1 job demands ($\beta=.31$, $p < .01$), T1 emotional exhaustion ($\beta=.20$, $p < .01$) and T1 psychosomatic complaints ($\beta=.18$, $p < .01$).

Table 3. Goodness of Fit Statistics for the Longitudinal SEM Models

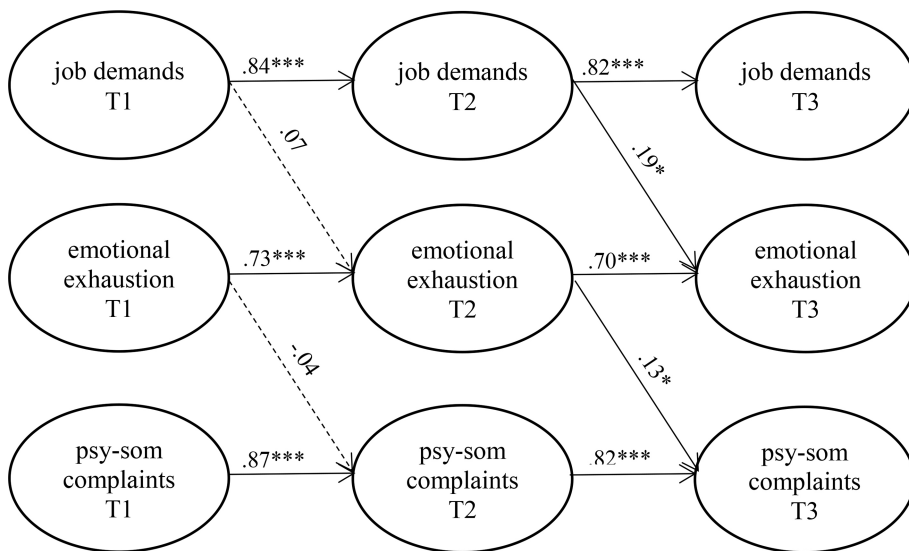
Structural models	Model fit				Model comparison ^a	
	χ^2 (df)	CFI	TLI	RMSEA	Model	$\Delta\chi^2$ (df)
Health impairment process						
M1: Stability model	551.52 (392)	.980	.978	.025		
M2: Direct effect model	534.53 (388)	.982	.980	.024	M2 vs M1	15.42 (4)**
M3: Reversed effect model	540.81 (388)	.981	.979	.025	M3 vs M1	10.62 (4)*
M4: Reciprocal model	526.74 (384)	.982	.980	.024	M4 vs M1	23.83 (8)**

Structural models	Model fit				Model comparison ^a	
	χ^2 (df)	CFI	TLI	RMSEA	Model	$\Delta\chi^2$ (df)
Motivational process: task-related resources					M4 vs M2	7.81 (4)
M1: Stability model	366.31 (234)	.984	.981	.029		
M2: Direct effect model	349.54 (230)	.985	.982	.028	M2 vs M1	12.79 (4)*
M3: Reversed effect model	358.52 (230)	.984	.981	.029	M3 vs M1	7.83 (4)
M4: Reciprocal model ^b						
Motivational process: social resources						
M1: Stability model	572.30 (388)	.981	.978	.027		
M2: Direct effect model	556.97 (384)	.982	.980	.026	M2 vs M1	12.73 (4)*
M3: Reversed effect model	570.28 (384)	.981	.978	.027	M3 vs M1	1.96 (4)
M4: Reciprocal model	556.08 (380)	.982	.979	.027	M4 vs M1	15.60 (8)*
					M4 vs M2	0.63 (4)

Note. ^a Models were compared using the Satorra-Bentler-Scaled chi-square difference statistic. ^b due to convergence issues there are no fit indices for the reciprocal model. CFI = comparative fit index, TLI = Tucker-Lewis index, RMSEA = root mean square error of approximation.

* $p < .05$; ** $p < .01$.

Figure 2. Health Impairment Process, Direct Effect Model (M2).



Note. N=655. Standardized estimates shown. Dashed lines indicate non-significant paths. For clarity of presentation, manifest indicators, synchronous covariances between variables and autocorrelations between identical manifest indicators are not shown.

psy-som=psychosomatic.

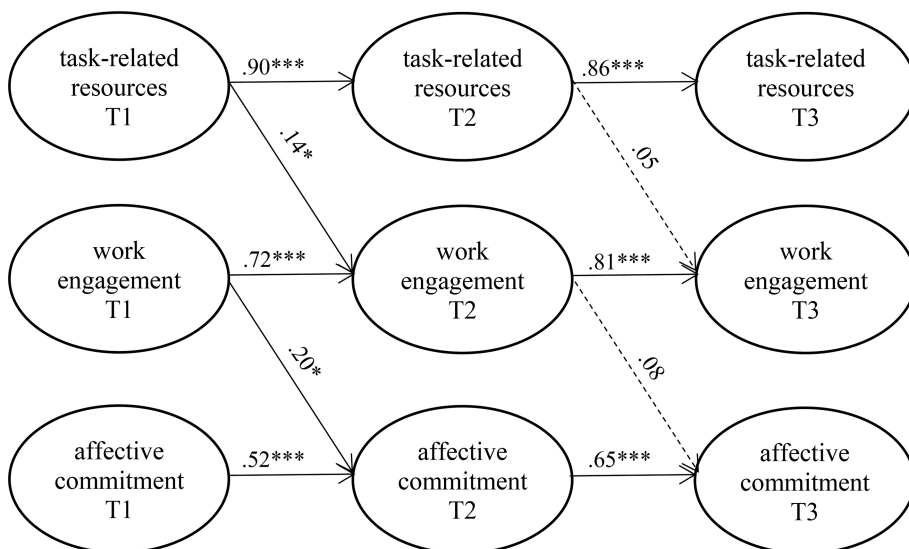
* $p < .05$; *** $p < .001$.

Longitudinal Analyses: Motivational Process

To investigate the motivational process, relationships between job resources, work engagement and commitment were analysed. Descriptive statistics (Table 2) show that staff reported higher levels of *social resources* than *task-related resources*. On average, staff reported to often feel engaged at work and to feel committed to their organisation, although there is a lot of variability in these measures, as indicated by the relatively high standard deviations. The stability models (M1 for the model with task-related and for the model with social resources) fitted well with the data (Table 3). All variables had high rank-order stabilities over time ($.65 < \beta < .88$; $p < .001$), indicating that individuals' relative standings on the construct has hardly changed over time (Selig & Little, 2012). Comparison of models showed that the direct effect model (M2) was the best fitting model. In the model with *social resources* there was only one significant cross-lagged effect, namely the effect of work engagement at T1 on affective commitment at T2 ($\beta = .20$, $p < .05$). Figure 3 shows the direct effect model (M2) with *task-related resources*: task-related job resources at T1 predicted work engagement at T2 and work engagement T1 predicted affective commitment at T2. No significant effects were found between T2 and T3. Hence, we found partial support for hypotheses c (for task-related resources) and d.

When including working hours as a control variable, the model showed acceptable fit with the data: $\chi^2(256) = 846.60$, $p < .001$, CFI = .927, TLI = .914, RMSEA = .060. Working hours was significantly related to T1 task-related job resources ($\beta = .25$, $p < .01$) and T1 work engagement ($\beta = .11$, $p < .05$).

Figure 3. Motivational Process, Direct Effect Model (M2).



Note. N=655; Standardized estimates shown. Dashed lines indicate non-significant paths. For clarity of presentation, manifest indicators, synchronous covariances between variables and autocorrelations between identical manifest indicators are not shown.

* $p < .05$, *** $p < .001$.

Discussion

Knowing that quality of extended education depends on staff well-being, we examined job demands and resources in extended education and investigated the relationships between these job characteristics and positive and negative indicators of well-being over time. This study is the first to provide knowledge about levels of job demands and resources of staff in extended education services in Switzerland and evidence for longitudinal effects on staff well-being.

Job Demands and Resources

Results consistently show – over the three measurement waves – relatively low job demands and relatively high job resources of staff in extended education services in Switzerland. Staff reported to rarely experience task-related uncertainty, time pressure or qualitative overload and a low impact of environmental factors such as noise. At the same time, perceived levels of most job resources (skill variety, role clarity, leadership, team social resources and participation) were high. The results concerning levels of demands and resources are therefore not consistent with our expectations based on previous research. As previous research stems from all-day schools in Germany and from early childhood education and care, we could assume that working conditions in Swiss extended education services are comparably better. This is a premature conclusion, as other factors may play a part, such as working hours of staff. Indeed, our results show that experienced levels of job demands depend on the working hours, that is staff who work longer also report higher job demands. It is plausible that staff who only work for a few hours at a time, such as during lunchtime care, do not perceive demands as high, because they can deal with them easily during a relatively short period of time. Similarly, they might rate resources such as leadership or team social resources high, because they enjoy the company of the others and conflicts rarely arise during such short working hours. Currently a large proportion of staff in Swiss extended education services work part-time, often with low hours, which could serve as a protection against strain.

In contrast to the high levels of most other resources, autonomy was rated lower, especially time-related autonomy (e. g. deciding when to take a break), a result that is not uncommon in childcare work (Bloechliger & Bauer, 2016). Working hours are largely set by the opening hours of the service and the presence of the children. Also, there is a certain amount of routine work and staff often have to react flexibly depending on the situation and the needs of the children.

Health Impairment and Motivational Processes

Currently, job demands, as well as emotional exhaustion and psychosomatic complaints are at low levels for most staff in extended education in our sample from three Swiss cantons. It is important to try and keep these levels low, as our results showed that job demands can lead to emotional exhaustion and emotional exhaustion can lead to psychosomatic complaints over time. The results of the longitudinal analyses confirmed (although not for all possible paths) the relationships that we expected and that were proposed by the JD-R model for the health impairment process. Staff who experienced more demands at T2 reported a higher level of

emotional exhaustion six months later, controlling for the level of exhaustion at T2. Likewise, experiencing more exhaustion at T2 predicted more psychosomatic complaints six months later.

Regarding the motivational process, our results show that staff in extended education are engaged at work and have a high affective commitment overall. Further, there was a prospective effect of work engagement on affective commitment: people who reported higher levels of work engagement at the first measurement showed higher affective commitment six months later. Work engagement was influenced by the level of job resources (in the first, but not the second time lag), though here we only found evidence for *task-related resources* (and not for social resources) to be connected to work engagement over time. Staff in extended education who have more autonomy regarding their work and a greater skill variety at T1 were more engaged in their work six months later. This points to the fact that it is important to try and find ways to increase the autonomy and skill variety of extended education staff (see also Sonnentag, 2017). Developments in the field, such as bringing extended education services and schools closer together, could be helpful. If formal, non-formal and informal learning, that is teaching and extended education offerings are connected, e.g. in all-day schools, then this opens new opportunities for extended education staff to take on new and different tasks (Böhm-Kasper, Dizinger, & Gausling, 2016).

Overall, we found evidence for the motivational and health-impairment processes, but not consistently for both measurement intervals. This could be due to differences in the time lags. While the lags both lasted 6 months, the first interval (T1 to T2) is situated within the school year (autumn to spring) when things probably run fairly smoothly. The second interval (T2 to T3, spring to autumn) includes the end of one and start of the next school year, which involves re-organizing schedules and processes and integrating new children into the services. This difference might make the first interval more suitable to detect the motivational process and the second to detect the health impairment process.

Limitations and Future Research

It is important to understand the limitations of the current study. First, dropouts (compared to participants who participated in all three waves) reported less affective commitment, skill variety and work engagement. It is therefore possible that our results are slightly positively biased. Second, our data was self-reported and may therefore be susceptible to common method bias. However, the specific effects (direct but not reverse effects) in the longitudinal models are not likely due to common method variance. Additionally, using latent variables allowed to analyse the relationships between the constructs free of measurement error and the confirmatory factor analyses for the measurement models showed that the constructs were distinct (Schumacker & Lomax, 2010). Nevertheless, future studies should try and include more objective measures such as number of children present as an indicator of a job demand (see also Bakker & Demerouti, 2017). Third, even though we included a range of job demands and resources based on the literature reviewed, other factors might play a role for staff well-being, such as salary levels or appreciation (from parents, the society), both of which are low in childcare (Bloechliger & Bauer, 2016). Fourth, generalizability of our results are limited, as the field of extended education is heterogenous in different countries and even within Swit-

zerland, so more research into job characteristics and well-being of staff in extended education in other Swiss cantons and other countries is needed.

Conclusion

While the situation regarding job demands and resources of staff in extended education services in the three observed Swiss cantons is currently quite good, an increase of staff working hours can lead to a higher perception of demands which can lead to health impairment over time. It is therefore important to continuously assess and improve working conditions and ascertain that job demands do not rise and resources stay high when extended education services expand and need more full-time staff. Apart from the focus on quantitative expansion, extended education needs a focus on qualitative expansion (Schüpbach, 2014) for the benefit of the children but also for the benefit of the staff.

References

- Affrunti, N. W., Mehta, T., Rusch, D., & Frazier, S. (2018). Job demands, resources, and stress among staff in after school programs: Neighborhood characteristics influence associations in the job demands-resources model. *Children and Youth Services Review*, 88, 366–374. <https://doi.org/10.1016/j.childyouth.2018.03.031>
- Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology*, 63(1), 1–18. <https://doi.org/10.1111/j.2044-8325.1990.tb00506.x>
- Arens, A. K., & Morin, A. J. S. (2016). Relations between teachers' emotional exhaustion and students' educational outcomes. *Journal of Educational Psychology*, 108(6), 800–813. <https://doi.org/10.1037/edu0000105>
- Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, 22(3), 273–285. <https://doi.org/10.1037/ocp0000056>
- Blöchliger, O. R., & Bauer, G. F. (2018). Correlates of burnout symptoms among child care teachers. A multilevel modeling approach. *European Early Childhood Education Research Journal*, 26(1), 7–25. <https://doi.org/10.1080/1350293X.2018.1412012>
- Bloechliger, O. R., & Bauer, G. F. (2016). Demands and job resources in the child care workforce: Swiss lead teacher and assistant teacher assessments. *Early Education and Development*, 27(7), 1040–1059. <https://doi.org/10.1080/10409289.2016.1154419>
- Böhm-Kasper, O., Dizinger, V., & Gausling, P. (2016). Multiprofessional collaboration between teachers and other educational staff at German all-day schools as a characteristic of today's professionalism. *International Journal for Research on Extended Education*, 4(1), 29–51. <https://doi.org/10.3224/ijree.v4i1.24774>
- Bond, F. W., Flaxman, P. E., & Loivette, S. (2006). *A business case for the management standards for stress*. Sudbury: Health and Safety Executive. Retrieved from <http://www.hse.gov.uk/research/rrpdf/rr431.pdf>
- Boström, L., Hörnel, A., & Frykland, M. (2015). Learning Environments at Leisure-Time Centres in Sweden: A Comprehensive Survey of Staff Perceptions. *International Journal for Research on Extended Education*, 3(1), 5–23. <https://doi.org/10.3224/ijree.v3i1.19578>

- Collie, R. J., Shapka, J. D., Perry, N. E., & Martin, A. J. (2015). Teacher well-being. *Journal of Psychoeducational Assessment*, 33(8), 744–756. <https://doi.org/10.1177/0734282915587990>
- Demerouti, E., & Bakker, A. B. (2008). Measurement of Burnout. In J. R.B. Halbesleben (Ed.), *Handbook of stress and burnout in health care* (pp. 65–78). New York: Nova Science Publishers.
- Dicke, T., Stebner, F., Linninger, C., Kunter, M., & Leutner, D. (2018). A longitudinal study of teachers' occupational well-being: Applying the job demands-resources model. *Journal of Occupational Health Psychology*, 23(2), 262–277. <https://doi.org/10.1037/ocp0000070>
- Doden, W., Grote, G., Staffelbach, B., Morf, M., Arnold, A., & Feierabend, A. (2014). *Schweizer HR-Barometer 2014: Arbeiterleben und Job Crafting*. Zürich: Universität Zürich; ETH Zürich.
- Forrer, E., & Schuler, P. (2010). *Evaluation "Schülerclubs und Tagesschulen in der Stadt Zürich": Schlussbericht*. Zürich: ZHAW & PHZH.
- Galliker, S., Igic, I., Elfering, A., Semmer, N. K., Brunner, B., & Wieser, S. (2018). *Job-Stress-Index 2018. Erhebung von Kennzahlen zu psychischer Gesundheit und Stress bei Erwerbstätigen in der Schweiz: Kommentierter Tabellenband*. Bern: Universität Bern.
- Goelman, H., & Guo, H. (1998). What we know and what we don't know about burnout among early childhood care providers. *Child & Youth Care Forum*, 27(3), 175–199. <https://doi.org/10.1007/BF02589564>
- Grebner, S., Graf, M., Alvarado, V., Berlowitz, I., & Cassina, M. (2010). *Stressstudie 2010. Stress bei Schweizer Erwerbstätigen: Zusammenhänge zwischen Arbeitsbedingungen, Personenmerkmalen, Befinden und Gesundheit*. Bern: Staatssekretariat für Wirtschaft, SECO.
- Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The Job Demands-Resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress*, 22(3), 224–241. <https://doi.org/10.1080/02678370802379432>
- Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Igic, I., Elfering, A., Semmer, N. K., Brunner, B., Wieser, S., Gehring, K., & Krause, K. (2017). *Job-Stress-Index 2014 bis 2016. Kennzahlen zu psychischer Gesundheit und Stress bei Erwerbstätigen in der Schweiz. Theoretische Grundlagen, Methodik und Ergebnisse für die Jahre 2014 bis 2016 in Quer- und Längsschnitt*. Arbeitspapier 43. Bern und Lausanne: Gesundheitsförderung Schweiz.
- Koch, P., Stranzinger, J., Nienhaus, A., & Kozak, A. (2015). Musculoskeletal symptoms and risk of burnout in child care workers – A Cross-Sectional Study. *PloS One*, 10(10), e0140980. <https://doi.org/10.1371/journal.pone.0140980>
- Lesener, T., Gussy, B., & Wolter, C. (2019). The job demands-resources model: A meta-analytic review of longitudinal studies. *Work & Stress*, 33(1), 76–103. <https://doi.org/10.1080/02678373.2018.1529065>
- Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): developing and validating a comprehensive measure for assessing job design and the nature of work. *The Journal of Applied Psychology*, 91(6), 1321–1339. <https://doi.org/10.1037/0021-9010.91.6.1321>
- Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus User's Guide*. (8th ed.). Los Angeles, California: Muthén & Muthén.
- Newsom, J. T. (2015). *Longitudinal structural equation modeling: A comprehensive introduction. Multivariate applications series*. Routledge.
- Rudow, B. (2017). *Beruf Erzieherin/Erzieher – mehr als Spielen und Basteln: Arbeits- und organisationspsychologische Aspekte. Ein Fach- und Lehrbuch*. Münster: Waxmann.
- Schaufeli, W. B., & Bakker, A. B. (2003). *The Utrecht Work Engagement Scale (UWES). Test manual*. Utrecht.
- Schreyer, I., & Krause, M. (2016). Pedagogical staff in children's day care centres in Germany – links between working conditions, job satisfaction, commitment and work-related stress. *Early Years*, 36(2), 132–147. <https://doi.org/10.1080/09575146.2015.1115390>

- Schreyer, I., Krause, M., Brandl, M., & Nicko, O. (2014). *AQUA. Arbeitsplatz und Qualität in Kitas: Ergebnisse einer bundesweiten Befragung*. München: Staatsinstitut für Frühpädagogik.
- Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling* (3. ed.). New York, NY: Routledge.
- Schüpbach, M. (2014). Extended education in Switzerland: Values in past, present, and future. *International Journal for Research on Extended Education*, (2), 104–118.
- Schüpbach, M. (2016). Extended Education: Professionalization and professionalism of staff. *International Journal for Research on Extended Education*, 4(1), 5–8.
- Schüpbach, M. (2019). Useful terms in English for the field of extended education and a characterization of the field from a Swiss perspective. *International Journal for Research on Extended Education*, 6(2–2018), 132–143. <https://doi.org/10.3224/ijree.v6i2.04>
- Selig, J. P., & Little, T. D. (2012). Autoregressive and cross-lagged panel analysis for longitudinal data. In B. P. Laursen, T. D. Little, & N. A. Card (Eds.), *Handbook of developmental research methods*. Guilford Press.
- Semmer, N. K., Zapf, D., & Dunckel, H. (1995). Assessing stress at work: A framework and an instrument. In O. Svane & C. Johansen (Eds.), *Work and health: Scientific basis of progress in the working environment* (pp. 105–113). Luxembourg: Office for Official Publications of the European Communities.
- Sonnentag, S. (2017). A task-level perspective on work engagement: A new approach that helps to differentiate the concepts of engagement and burnout. *Burnout Research*, 5, 12–20. <https://doi.org/10.1016/j.burn.2017.04.001>
- Swiss Conference of Cantonal Ministers of Education (2018). The Swiss education system. Retrieved from <https://www.edk.ch/dyn/16342.php>
- Udris, I., & Rimann, M. (1999). SAA und SALSA: Zwei Fragebogen zur subjektiven Arbeitsanalyse. In H. Dunckel (Ed.), *Handbuch psychologischer Arbeitsanalyseverfahren. Ein praxisorientierter Überblick* (pp. 397–419). Zürich: vdf Hochschulverlag.
- Vandell, D. L., & Lao, J. (2016). Building and retaining high quality professional staff for extended education programs. *International Journal for Research on Extended Education*, 4(1), 52–64.
- Viernickel, S., Voss, A., Mauz, E., Gerstenberg, F., & Schumann, M. (2013). *STEGE. Strukturqualität und Erzieher_innengesundheit in Kindertageseinrichtungen: Wissenschaftlicher Abschlussbericht*. Berlin: Alice Salomon Hochschule.
- Vincent-Höper, S., Gude, M., & Kersten, M. (2016). *Ergebnisbericht "VitaKita"-Studie. Ressourcen und Stressoren von ErzieherInnen*. Hamburg: Universität Hamburg.
- Windlinger, R., & Züger, L. (2020). *Arbeitsplatz Tägesschule. Zur Situation in Einrichtungen der schulergänzenden Bildung und Betreuung*. Bern: hep.