Students’ Perceived Changes of Learning Conditions During Covid-19: The Role of Internal Resource Management Strategies, Intrinsic Motivation, and Preferences for Lesson Formats

Jennifer Paetsch & Anne Schlosser
EARLI SIG 1&4 (29.06.2022)
Most face-to-face courses replaced by **online education/remote instruction** (Crawford et al., 2020, Marioni et al., 2020).

Many creative digital solutions for distance teaching quickly emerged in response to the pandemic.

Two different online learning formats:

- **asynchronous online learning**
  - independent of time and place

- **synchronous online learning**
  - independent of location, but at the same time
Students’ adaption to emergency remote learning

Students were required to plan, monitor, and control their learning processes more autonomously.

• adequate self-regulated learning (SRL) strategies (Zimmermann, 2002; Naujoks et al., 2021).
• Students noted significant obstacles to organizing their learning, keeping track of tasks, managing their time, adhering to deadlines, and regulating their attention and efforts (Pelikan, et al., 2021, Biwer et al., 2021).
• Students reported being less motivated by online than face-to-face education and also rated their general educational experience lower (Biwer et al., 2021).
Student’s perception of their learning conditions is a relevant influencing factor for their individual use of learning opportunities (Gruber et al., 2010; Seidel and Prenzel, 2004).

Prenzel et al. (2002) summarized, that students are supported in their needs if they perceive (a) relevance of content, (b) instructional quality, (c) teacher enthusiasm in teaching, (d) social relatedness, (e) support of competence, and (f) support of autonomy (Deci & Ryan, 2002).
Research Questions

1. Is there a relationship between participants’ internal regulation strategies and students’ perceived changes of learning conditions during online semester?

2. Is there a positive relationship between digital lesson format-preferences and students’ perceived changes of the learning conditions?

3. Is there a negative relationship between face-to-face lesson format-preferences and students’ perceived changes of the learning conditions?
Sample

- **330 student teachers** (85% female, 14% male, and 1% non-binary)
- University of Bamberg
- 49% intended to work in elementary school, 13% at secondary school/middle school, 22% at high school/gymnasium, and 17% at vocational schools.
- Mean age 22.5 years (SD = 3.1), mean study duration 5.3 semesters (SD = 2.8)
- Online survey administered **at the end of the first online semester, in July 2020.**
Measures

Perceived Changes of Learning Conditions During the Online Semester (cf., Dalehefte et al., 2021)

Subscales: Perceived relevance (3 items, $\alpha = .79$), Perceived quality (3 items, $\alpha = .72$), Perceived support (5 items, $\alpha = .82$), Perceived social relatedness (2 items, $\alpha = .77$)

Intrinsic Motivation (cf., Müller and Bierg, 2018)

Motivational Regulation for Learning in University Students scale (SMR-LS; 3 items, $\alpha = .70$)

Strategies for Managing Internal Resources (cf., Klingsiek, 2018)

Subscales: Attention (3 items, $\alpha = .89$), Effort (2 items, $\alpha = .62$), Time Management (3 items, $\alpha = .81$)

Preferences for Lesson Format

To what extent do you prefer the following types of instruction? – Synchronous, Asynchronous, Face-to-face (5-point-likert-scale)
Results

Please use the published version for citation:


## Descriptives


<table>
<thead>
<tr>
<th>Means</th>
<th>Relevance</th>
<th>Quality</th>
<th>Support</th>
<th>Social Related.</th>
<th>Intrinsic Motiva.</th>
<th>Attention</th>
<th>Effort</th>
<th>Time</th>
<th>Asynchronous</th>
<th>Synchronous</th>
<th>Face-to-Face</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.81</td>
<td>2.89</td>
<td>2.74</td>
<td>1.89</td>
<td>4.61</td>
<td>2.58</td>
<td>3.92</td>
<td>2.79</td>
<td>3.67</td>
<td>3.37</td>
<td>3.97</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>0.75</td>
<td>0.77</td>
<td>0.73</td>
<td>0.87</td>
<td>1.32</td>
<td>1.04</td>
<td>0.77</td>
<td>1.10</td>
<td>1.24</td>
<td>1.05</td>
<td>1.16</td>
</tr>
</tbody>
</table>

5-point-likert-scale
Structural Equation Modelling


Figure 2: Structural equation model. Only paths \( p < .05 \) are displayed. See Table 3 for direct and indirect effects among variables. Blue = direct effects.
Discussion

Highest mean preferences for the face-to-face format and the lowest for the synchronous format.

Students who reported higher levels of attention regulation and intrinsic motivation evaluated the changes in relevance, quality, and support during online instruction as being more positive (see also Biwer et al., 2021).

Neither the regulation of effort nor of time management strategies predicted the perceived changes of learning conditions during online semester.

Preferences for both digital formats had notable and significant positive impacts on student perceptions of relevance, quality, and support.

Preferences for the face-to-face format had significant negative effects.

For social relatedness, there was only a significant negative effect for the face-to-face preference.

- Students who rated face-to-face formats more positively reported less social relatedness during distance learning.
- Students who preferred face-to-face learning situations might have a lower readiness for digital learning which led to difficulties in the satisfaction of the need for social relatedness during distance education.
Conclusion

Students’ ability to concentrate and be attentive during learning without getting distracted and their learning enjoyment favored the adaption to the digital environment.

Findings support earlier research that highlights the connection between students’ readiness for digital learning and successful adaption to online learning (Händel et al., 2020; Flores et al., 2021).

Enhancing social interaction in distance education by providing opportunities for communication in virtual learning groups may promote distance learning success (Broadbent & Poon, 2015).
Limitations

- The sample was not representative of the student population in Germany.
- Cross-sectional study design
- Student teachers’ self-reports were compared with a pre-pandemic baseline, which means that the general level of perceptions of learning conditions was not considered.
- The perception of teacher enthusiasm, which is also an important factor in learning conditions (Prenzel et al., 2002), was not explored.
Thank you for your attention!

Please use the published version for citation:


Prof. Dr. Jennifer Paetsch
jennifer.paetsch@uni-bamberg.de


References


