Preadolescent EFL learners’ self-efficacy expectancies before and after completion of a grammar task: Multivariate analyses of grade level, gender, and performance effects

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Learners’ task-specific self-efficacy expectancies have gained increased attention in the EFL context. Across various competence areas they have been demonstrated to substantially affect learners’ motivation, learning approach, and performance. However, certain research gaps still exist – particularly concerning younger learners’ grammar self-efficacy. Furthermore, though conceptually assumed to play an essential role in learners’ self-efficacy formation and calibration accuracy, little is empirically known about task completion effects. The same applies to the role of grade level and gender differences in lower secondary EFL classrooms. Against this background, the present study addressed the effects on preadolescent learners’ self-efficacy expectancies before and after completion of a grammar task. In a sample of 212 preadolescent learners at secondary grade 5 and 6 their self-efficacy expectancies were analyzed before and after task completion. ANOVA results and post hoc analyses indicated task completion effects to exist in a most differentiated manner – and to substantially depend on an interaction between learners’ grade level, gender, and task performance. Fifth-graders’ but not sixth-graders’ self-efficacy expectancies were more accurate after task completion. Most remarkably, it was the male fifth-graders in the high performing group who initially overestimated their grammar performance and perceived their capabilities more realistically after task completion. Thus, it is a matter of careful differentiation for teachers to support effective self-efficacy cognitions of EFL learners during secondary grades. In research, repeated measurement of individual self-efficacy estimates before and after task completion can help to reveal more about the ongoing process of self-concept development.

Keywords: self-efficacy, grammar task performance, task completion effects, grade level, gender differences

1 Introduction

From the perspective of social cognitive theories, the development and elaboration of scholastic achievement is considered to be essentially regulated by learners’ individually emerging self-beliefs (Pintrich, 2003; Zimmerman, 1990). Across a wide range of educational systems and learner samples, relevant empirical
findings consistently lend support to this assumption (Hattie, 2009). These self-beliefs broadly represent learners’ subjective perceptions, appraisals, explanations, and values of their academic activities and outcomes (Wigfield & Eccles, 2002). Developmentally, they will operate both as consequences of previous academic experiences and as antecedents of future academic outcomes (Pintrich, 2003). Theoretically, they can be defined as expectancy-value constructs which predict to a large extent how an academic situation is being either approached or avoided. Therefore, they considerably contribute to regulate learners’ individual engagement and learning approach in the long term (Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006).

Among these self-beliefs, learners’ competence beliefs had been evidenced as cognitive-motivational key variables (Schunk & Zimmerman, 2006). They can manifest as domain- or subject-specific self-concepts and as task-specific self-efficacy expectancies (Pajares & Schunk, 2001). In particular, learners’ self-efficacy expectancies refer to their perceived capabilities to master educationally most situational requirements or tasks at a designated level (Bandura, 1997). In various academic domains and settings, self-efficacy expectancies have been widely proven to positively correlate with learners’ motivational orientations and engagement, learning approach and self-regulatory processes, skill development and performance outcomes (Ferla, Valcke, & Schuyten, 2010; Huang, 2012, 2016; Klassen & Usher, 2010; Olivier, Archambault, De Clercq, & Galand, 2019; Zuffianò et al., 2013).

Accordingly, the self-efficacy construct has gained increased conceptual attention and stimulated a broad range of empirical analyses in the EFL context (Gabillon, 2005; Lamb, 2017; Mills, 2014; Williams & Burden, 1997). Though numerous studies in the field mostly demonstrated foreign language learners’ self-efficacy expectancies to explain their acquisition processes and proficiency outcomes in a motivationally advanced and educationally meaningful manner (Raoofi, Tan, & Chan, 2012; Shi, 2017), relevant research gaps and methodological limitations still exist in some respects. In particular, instruments designated to assess EFL learners’ self-efficacy expectancies do not always reflect the construct in an appropriate way, because self-efficacy, self-concept and outcome expectations are often not clearly distinguished, and, thus, cannot claim construct validity (Marsh et al., 2019). With this reservation, learners’ self-efficacy expectancies to master requirements they typically encounter in the EFL classroom were analyzed in various competence areas. Most notably, self-efficacy expectancies to accomplish certain levels of grammar competencies in a given educational setting yet appear to be barely considered. Apart from these methodological and substantial shortcomings, self-efficacy research generally lacks empirical knowledge about the effects of task completion. Notwithstanding that theoretical conceptions already assume the completion of an academic task at hand to necessarily prompt specific cognitive processes and potentially affect learners’ self-efficacy expectancies (Bandura, 1997; Schunk, 1991; Zell & Krizan, 2014), pertinent studies are rare. Consequently, in the EFL context no substantial research activities are to be found. However, empirical analyses to reduce this particular research gap should provide important insights into the short-term responsiveness and variability of self-efficacy expectancies. Their results should yield useful information to elaborate assessment strategies and instructional formats.
Against this background, the aim of the present study was twofold: firstly, it aimed at analysing learners’ self-efficacy expectancies concerning their grammar capabilities. Secondly, it aimed at testing the effects of grammar task completion on learners’ self-efficacy expectancies. In particular, analyses should test self-efficacy differences before and after task completion. As self-efficacy research reported mixed results, effects of learners’ gender and grade level were additionally controlled in order to further differentiate the strength and direction of possible self-efficacy differences between pre- and post-task measures. These research questions were investigated in Germany, a country with early EFL education.

2 Self-efficacy expectancies in EFL research

2.1 Defining and measuring the construct

Following the theoretical framework of social cognitive theory (Bandura, 1986, 1997), EFL learners’ self-efficacy expectancies refer to their individually perceived capabilities to successfully perform a given language task or attain a competence goal at a well-defined level of accomplishment (Williams, Mercer, & Ryan, 2015). Thus, self-efficacy expectancies are prospective in nature and really concern a task- or situation-specific level of competence judgments (Bong & Skaalvik, 2003; Schunk & Pajares, 2009). They particularly reflect learners’ individually anticipated extent of “can do” a certain language task (e.g. to use appropriate vocabulary or to correctly pronounce English words in a certain situation). Accordingly, conceptually adequate instruments for measuring EFL learners’ self-efficacy expectancies should absolutely comprise items which represent distinct competence descriptions, task features, and contextual references (Bandura, 2006; Bong, 2006; Burrows, 2013). In the meantime, in EFL research various appropriate self-efficacy scales have been developed, psychometrically tested, and empirically validated – each assessing learners’ expectancies to master specific language requirements of speaking, listening, reading, writing (Chen, 2007; Hetthong & Teo, 2013; Wang & Bai, 2011; Yanar & Bümün, 2012) or vocabulary learning (Wu, Lowyck, Sercu, & Elen, 2013). However, there are also instruments in use which still fail to meet the conceptual criteria for measuring learners’ self-efficacy expectancies as they refer to an inappropriate level of specificity, include social comparison perspectives or assess emotional task values (Klassen & Usher, 2010; Schunk & Pajares, 2009). Hence, their results do not properly represent the construct and actually yield invalid information (Marsh et al., 2019).

2.2 Relations with learners’ proficiency, learning approach, and motivation

Provided that relevant studies had used proper measurements in each case, their results demonstrated learners’ self-efficacy expectancies being moderately correlated with EFL proficiency, learning approach, and motivation variables (Hsieh & Kang, 2010; Jungert, Hesser, & Träff, 2014; Raoofi et al., 2012). In particular, learners’ task-specific efficacy expectations were positively related to their task performance in pronunciation (Sardegna, Lee, & Kusey, 2018), in listening (Chen, 2007), and in writing (Hetthong & Teo, 2013; Woodrow, 2011). Similarly, empirical analyses revealed positive relations between learners’ self-efficacy expectations to master typical requirements in vocabulary learning and
listening competencies with their learning strategy use (Rahimi & Abedi, 2014; Wu et al., 2013). Furthermore, several studies found moderate negative relationships between learners’ self-efficacy expectancies and their foreign language anxiety (Çubukçu 2008; Piniel & Csizér, 2013) and writing anxiety (Cheng, 2004; Erkan & Saban, 2011; Woodrow, 2011). Learners’ self-efficacy expectancies were also substantially associated with their internal control beliefs (Hsieh & Kang, 2010). Moreover, within a more complex framework of construct relations, multivariate analyses provided evidence for learners’ self-efficacy expectancies not only to directly affect relevant proficiency, learning approach, and motivation variables but also to indirectly mediate the effects between them (Piniel & Csizér, 2013; Sardegna et al., 2018; Woodrow, 2011; Wu et al., 2013). Altogether, relevant research findings evidently substantiated EFL learners’ self-efficacy expectations to operate as a task-specific motivation variable which significantly contributes to either favorably or unfavorably affect the foreign language learning processes in a manifold manner (Klassen & Usher, 2010; Schunk & Pajares, 2009) – and, thus, must be considered essential to clarify as well as to modify learners’ agency experiences, self-regulated strategies, and competence development in the EFL context (Mills, 2014).

2.3 Self-efficacy expectancies in grammar

Though EFL research had analysed learners’ self-efficacy expectancies with regard to various language requirements and competencies, the area of grammar learning and performance appears comparatively neglected. This gap must be all the more surprising as the learning of forms is commonly considered to play an important and needful role in the foreign language classroom (Nassaji & Fotos, 2004). Correspondingly, various relevant survey results pointed out the majority of EFL learners to perceive the mastering of grammar as a useful, albeit demanding and not always enjoyable part of their language learning (Jean & Simard, 2011; Kang, 2017; Loewen et al., 2009; Schulz, 1996; Simon & Tanverniers, 2011). Likewise, several interview studies had illustrated that learners emphasize their grammatical competencies as a self-relevant issue of language acquisition (Iwaniec, 2014; Mercer, 2011; Ribas, 2009). Nevertheless, in a questionnaire with Japanese high school students, grammar was even listed among the potentially demotivating factors in the EFL classroom (Sakai & Kiuchi, 2009).

However, in the course of EFL instruction learners will incrementally develop subject- and task-specific competence beliefs concerning their grammar learning in the target language. Up to now only few studies focused on EFL learners’ self-efficacy expectancies to master a certain grammar task. In particular, most of them had investigated the construct at the tertiary or university level (Sadighi, Alavi, & Samani, 2004; Ghorbandardinejad & Afshar, 2017) – sometimes using one single item which cannot sufficiently yield content valid information (Oh, 2016; Uçar, 2016). At the secondary school level, Moumer (2017) had analyzed tenth-graders’ self-efficacy towards learning English grammar and administered a rating scale that measured the construct in a conceptually and psychometrically most appropriate manner. Compared with this, neither well-developed instruments nor adequate research findings exist for lower grade levels (Dörnyei, 2010).
2.4 Grade level and gender differences

Heretofore, EFL research mostly had analyzed learners’ self-efficacy expectancies at the tertiary or university level. Little is known about relevant grade level effects in school settings. Apart from single findings which can hardly be considered to represent generalizable information (Al Khamisi, Al Barwani, Al Mekhlafi, & Osman, 2016), no comprehensive research line exists. However, relevant analyses in other academic domains reported mixed results – demonstrating learners’ self-efficacy expectancies not to differ across grade levels (Diseth, Meland, & Breidablik, 2014; Usher & Pajares, 2008a) as well as to decrease or to increase at higher grade levels (Pajares & Valiante, 1999; Shell, Colvin, & Bruning, 1995; Zimmerman & Martinez-Pons, 1990). Hence, these findings do not allow for assumptions to unambiguously predict the strength and direction of grade level effects.

Similarly, EFL research lacks comprehensive results on the role of learners’ gender in school settings. Relevant analyses in other academic domains reveal diverse results which particularly depend on the subject under consideration. Indeed, there are consistent findings indicating female learners to report higher self-efficacy expectations in language arts – even when females’ and males’ actual language competencies do not differ (Huang, 2013; Skaalvik & Skaalvik, 2004). These findings immediately suggest biasing effects of gender stereotypes to operate (Ellemers, 2018). However, they do not specifically refer to relevant gender differences in the EFL classroom.

3 Effects of task completion

Following theoretical assumptions concerning the construct’s antecedents and determinants, learners’ self-efficacy expectancies should be affected by previous mastery experiences (Usher & Pajares, 2008b) and, most conceivably, by the process of task completion as well. When dealing with a certain academic task, learners will recall and utilize their specific knowledge and infer the task’s difficulty from the perspective of their specific mastery experiences. Thus, they will realize an initial sense of task-specific self-efficacy – which eventually will lead to a more or less appropriate problem-solving activity (Zimmerman, 1990). During task completion, learners will find their initial judgments and expectancies being confirmed or discounted (Schunk, 1989, 1991). Consequently, they will maintain or modify their self-efficacy expectancies during or after the task completion process. That way, learners’ perceptions of a certain task’s content, formal feature, and difficulty might potentially affect their self-efficacy expectancies. Hence, their self-efficacy expectancies before and after task completion might differ. Provided that a change in self-efficacy expectancies would come about, their post-test (rather than their initial pre-task) level should henceforth affect learners’ further motivation, learning approach, and performance in the specific language area.

Up to now, only few studies had analyzed the effects of task completion on learners’ self-efficacy expectancies. In particular, Lodewyk (2000) found in a study with high school students their self-efficacy for learning to significantly increase after task completion across six measurement times. However, scale items did not sufficiently represent the construct. Therefore, the results must be considered
with caution. Similarly, Ackerman and Wolman (2007) demonstrated participants’ self-estimates of verbal, numerical, and spatial abilities to be more accurate after respective test completion. Furthermore, Niemivirta and Tapola (2007) analyzed in a secondary school sample of ninth-graders how their efficacy judgments changed during a mathematics task. They proved students’ self-efficacy to increase after task completion. However, in a university setting the analyses of Barrows, Dunn and Lloyd (2013) revealed a contrary result, insofar students reported a higher level of academic self-efficacy expectancies before task-completion. Also in a university setting, Rosman, Mayer and Krampen (2015) showed the relationship between psychology students’ subjectively perceived ability and performance becoming stronger after completion of an information seeking task. Despite conceptual and methodological diversities, relevant studies mostly provided evidence for positive task completion effects on self-efficacy measures.

Though not concerning short-term effects of task completion, self-assessment studies in educational and foreign language research provided additional evidence for the modifiability of task-specific self-efficacy expectancies through learners’ repeated judgments of task-specific capabilities (Panadero, Jonsson, & Botella, 2017) – especially, when these self-assessment tools corresponded in form and content to self-efficacy measures (Brantmeier & Vanderplank, 2008). In particular, in an intervention study Coronado-Aliegro (2006) demonstrated adult Spanish learners’ self-efficacy scores to significantly increase after five weeks in a self-assessment group but not in a control group without having used the self-assessment procedure. Baleghizadeh and Masoun (2013) reported quite similar findings in a study with adult English learners at the university level.

In sum, the process of task completion as well as repeated self-assessments can evidently affect learners’ self-efficacy expectancies. Likewise, it should have a bearing on the calibration of learners’ self-perceptions to accurately gauge their task performance (Bandura, 1997; Klassen, 2002). After completion of a certain grammar task, foreign language learners should display over- or underestimating perceptions of their actual performance to a lesser extent (Talsma, Schütz, & Norris, 2019). In terms of most adaptive educational settings, self-efficacy measures only before task completion would disregard important diagnostic information about learners’ motivational responsiveness.

4 Purpose and research questions of the present study

Against this background of theoretical considerations and empirical findings, the issue of EFL learners’ self-efficacy expectancies in school settings, particularly in lower secondary grades, appears widely unexplored. Above all, the same applies to the analysis of potential task completion effects on learners’ self-efficacy expectancies to master a certain grammar task. Furthermore, little is known about the role of grade level and gender will play to explain differences in learners’ self-efficacy expectancies and related task completion effects. As demonstrated elsewhere (Faber, 2012, 2013), gender does not necessarily affect self-efficacy scores of all learners the same way. Rather it can operate in a differential manner – e.g. more strongly on a certain level of task performance. Furthermore, as learners’ self-efficacy expectancies should strongly reflect individually gained mastery experiences, previous performance on a given task should also affect
their self-efficacy expectancies. Therefore, the present study addressed the following research questions (RQ):

RQ 1: Is there an effect of task completion on learners’ self-efficacy?
RQ 2: Does task completion enhance learners’ self-efficacy calibration?
RQ 3: Does grade level moderate the effect of task completion on learners’ self-efficacy?
RQ 4: Does gender moderate the effect of task completion on learners’ self-efficacy?
RQ 5: Will individual differences in the level of task performance moderate the effects of task completion on learners’ self-efficacy?

5 Method

5.1 Participants

The study was conducted with a sample of 212 preadolescent students at secondary grade level 5 (70 female, 45 male) and 6 (71 female, 26 male) from a German grammar school. In the German tripartite system of strongly selective educational tracks, this school type (Gymnasium) is the highest track. The female-male ratio did not significantly differ between both grade levels ($\chi^2 = 3.695, df = 1, p = .08$) and appeared to be representative for this educational track (Blossfeldt et al., 2009). Learners’ average age was 11.1 years (SD = 0.4) at grade 5 and 12.1 years (SD = 0.5) at grade 6. At the time of data collection, fifth-graders had experienced formal EFL instruction about 6 months, sixth-graders about 17 months. Their participation was on a voluntary basis and only with explicit parental consent. As there were 250 learners in grades 5 and 6 in total, the participation rate was rather high at 85%, which seems sufficiently high to receive valid estimations (Kotaniemi et al., 2001).

5.2 Procedure

Self-efficacy and performance data were gathered class-wise during one lesson by two (advanced collegiate) test supervisors who had been instructed in detail prior to the beginning of the test. While testing, teachers were absent. First, learners got to see the grammar task they had to complete and to estimate the number of correct answers they expected to achieve. Then, they were asked to complete the grammar task and to immediately estimate the number of correct answers they expected a second time – without receiving any feedback information in between. That way, a self-efficacy measure before and after task completion was available for each learner.

5.3 Measurements

For assessing learners’ self-efficacy belief to master a certain grammar task one single item was used. Contrary to traditional self-efficacy measurements (Bandura, 2006), it addressed both the magnitude of an expected mastery level and the degree of confidence to accomplish this level. Therefore, this simplified scale format allowed for calculating a composite score (Maurer & Andrews, 2000). In particular, with regard to a given grammar task with ten gaps to complete, learners estimated the number of correct answers they expected to achieve
“I think that I will correctly solve __ of the gaps in the following exercise.” As this self-efficacy measure had been demonstrated to correlate most strongly with learners’ grammar task performance, grammar and English self-concept but not with their mathematics self-concept, it should claim construct validity for the time being (Faber, 2017).

Correspondingly, for assessing learners’ grammar competence a cloze test was administered (Jensen, 2013). It consisted of ten tasks dealing with the correct use of possessive pronouns (at grade level 5) and comparative adjectives (at grade level 6). For both tests, a sum score of correctly solved tasks was used. As learners’ results did not significantly differ between grade levels (independent t-test: t = 0.018, df = 210, p > .05), they could be considered to yield fully comparable performance measures for further analyses. Learners’ gender was included as a dummy variable (coding: male = 1, female = 2).

5.4 Data analyses

Initially, for self-efficacy and performance variables overall descriptive statistics were calculated. For detecting significant deviations from normal distribution, z-standardized skewness and kurtosis scores were used (Field, 2013).

To explore overall task completion effects the t-test for matched samples was run. In order to clarify possible grade level, task performance, and gender effects, three-way analyses of variance (ANOVA) with repeated self-efficacy measurements was conducted – using median split to generate a low vs. high performing subgroup. In this context, the calibration accuracy of learners’ self-efficacy expectancies was also examined by means of Pearson correlations. To additionally scrutinize relevant grade level effects on learners’ self-efficacy responses, analyses of variance (ANOVA), each separately conducted with grade level 5 and 6 data, further examined the role of gender. Accordingly, for each grade level an ANOVA with repeated self-efficacy measures and learners’ gender as independent factor variable was run. Furthermore, in order to detect possible task completion and gender effects depending on learners’ actual task performance (Faber, 2013), an ANOVA with self-efficacy expectancies as dependent variables included gender and task performance as independent factor variables. This analysis was conducted separately for each measurement time. For all main and interaction effects, partial eta squared ($\eta^2$) as effect size was calculated. Due to sample size and lack of variance homogeneity, the robust Brown-Forsythe test was used for post hoc comparisons between groups (Tomarken & Serlin, 1986). For post hoc comparisons within groups the t-test for matched pairs was used. To adequately control family-wise Type I error rate post hoc comparisons, the alpha level of determining statistical significance was adjusted with Bonferroni correction (Abdi, 2007). For pairwise comparisons within groups, Cohen’s d (1988), for pairwise comparisons between groups Hedges’ g (1982) was calculated as effect size which pools the n-weighted standard deviations of each group under consideration.

Among both self-efficacy items, there were missing data to a certain extent. Their amount ranged from 1.4 to 2.4%. As these missing values did not produce any systematic pattern (Little, 1988), they could still be treated as “missing completely at random” (MCAR test: $\chi^2 = 3.243, df = 5, p = .663$). Missing data were estimated by means of the two-step iterative EM algorithm (Enders, 2010). For the grammar task performance, there were no missing values.
6 Results

6.1 Descriptive statistics and overall differences

Whilst learners’ self-efficacy scores before task completion were nearly normally distributed, their self-efficacy scores after task completion significantly deviated from normal distribution assumption and were negatively skewed (Table 1). All learners apparently perceived their task performance to be higher after task completion. Similarly, grammar task scores appeared to be distributed in a negatively skewed manner – demonstrating that most learners had achieved a higher level of task performance. Compared with that, all variables’ kurtosis values were in line with the normal distribution assumption.

Table 1. Descriptive statistics.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Range</th>
<th>M</th>
<th>SD</th>
<th>z Skewness</th>
<th>z Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Efficacy Before Task Completion</td>
<td>1-10</td>
<td>6.4</td>
<td>1.9</td>
<td>-1.04</td>
<td>-1.29</td>
</tr>
<tr>
<td>Self-Efficacy After Task Completion</td>
<td>1-10</td>
<td>6.7</td>
<td>2.1</td>
<td>-2.53*</td>
<td>-1.19</td>
</tr>
<tr>
<td>Task Performance</td>
<td>0-10</td>
<td>6.6</td>
<td>2.3</td>
<td>-3.74***</td>
<td>-0.47</td>
</tr>
</tbody>
</table>

Significance: *p < .05, ***p < .001

Overall, the difference between learners’ self-efficacy scores before and after task completion was statistically significant (t = -2.624, df = 211, p < .01), indicating higher self-efficacy estimates after the grammar task. However, in terms of practical significance it indicated a negligibly small effect (d = -0.134).

6.2 Grade level and gender differences

Controlling for grade level and gender differences, results of an ANOVA with repeated self-efficacy measures drew a more detailed picture. Differences in learners’ self-efficacy scores before and after task completion were significantly explained by an interaction effect between measurement time and grade level. Learners’ gender did not significantly contribute to self-efficacy differences (Table 2).

Table 2. Grade level and gender differences in self-efficacy expectancies before and after task completion.

<table>
<thead>
<tr>
<th>Within Subjects</th>
<th>Wilks λ</th>
<th>F</th>
<th>df1, df2</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT</td>
<td>0.970</td>
<td>6.419</td>
<td>1, 208</td>
<td>.012</td>
<td>.030</td>
</tr>
<tr>
<td>MT X Grade Level</td>
<td>0.940</td>
<td>13.255</td>
<td>1, 208</td>
<td>.000</td>
<td>.060</td>
</tr>
<tr>
<td>MT X Gender</td>
<td>0.993</td>
<td>1.442</td>
<td>1, 208</td>
<td>.231</td>
<td>.007</td>
</tr>
<tr>
<td>MT X Grade Level X Gender</td>
<td>0.991</td>
<td>1.793</td>
<td>1, 208</td>
<td>.182</td>
<td>.009</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Between Subjects</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Level</td>
<td>0.106</td>
<td>1, 208</td>
<td>.745</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.613</td>
<td>1, 208</td>
<td>.434</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>Grade Level X Gender</td>
<td>0.066</td>
<td>1, 208</td>
<td>.797</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

MT = Measurement Time
However, self-efficacy differences appeared to work in opposite at each grade level. Across both gender groups, fifth-graders’ self-efficacy expectancies decreased, whereas sixth-graders’ self-efficacy expectancies increased. Indeed, self-efficacy scores before and after task completion appeared to differ more strongly for male learners at grade level 5 (Figure 1).

![Figure 1. Mean self-efficacy scores before and after task completion depending on learners’ grade level and gender.](image)

### 6.3 Grade level, task performance, and self-efficacy calibration

To further specify grade level effects, the role of learners’ task performance was examined. An ANOVA with repeated self-efficacy measures including grade level and task performance as factor variables demonstrated two interaction effects being significant (Table 3). Hence, task completion effects substantially depended on task performance at each grade level in a different manner.

<table>
<thead>
<tr>
<th>Table 3. Grade level and task performance differences in self-efficacy expectancies before and after task completion.</th>
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</thead>
<tbody>
<tr>
<td><strong>Within Subjects</strong></td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>MT</td>
</tr>
<tr>
<td>MT X Grade Level</td>
</tr>
<tr>
<td>MT X Task Performance</td>
</tr>
<tr>
<td>MT X Grade Level X Task Performance</td>
</tr>
<tr>
<td><strong>Between Subjects</strong></td>
</tr>
<tr>
<td>Grade Level</td>
</tr>
<tr>
<td>Task Performance</td>
</tr>
<tr>
<td>Grade Level X Task Performance</td>
</tr>
<tr>
<td>MT</td>
</tr>
</tbody>
</table>

As post hoc comparisons showed (Figure 2), at grade level 5 low performing learners reported a significantly decreased sense of self-efficacy after task completion ($t = 4.294$, df = 44, $p < .001$, $d = 0.52$). High performing learners’ self-efficacy expectancies did not significantly change ($t = -0.113$, df = 69, $p > .05$, $d = 0.01$). At grade level 6, low performing learners’ self-efficacy expectancies did not significantly change ($t = -1.137$, df = 43, $p > .05$, $d = 0.18$) but their high performing classmates reported a significantly increased sense of self-efficacy after task completion ($t = -2.426$, df = 52, $p < .05$, $d = 0.32$).
Additionally calculated correlations between learners’ task performance and self-efficacy scores before and after task completion demonstrated considerable differences in the accuracy of self-efficacy calibration. At grade level 5, self-efficacy scores before task completion correlated $r = .48$ ($p < .001$) and after task completion $r = .71$ ($p < .001$) with task performance scores. Using Steiger’s modified procedure for testing differences among correlation coefficients (Hoerger, 2013; Steiger, 1980), this difference was highly significant ($Z = -4.458, p < .001$). Thus, fifth-graders’ self-efficacy estimations became more accurate after task completion. Obviously, this effect mostly originated to low performing learners’ self-efficacy decrease (Figure 2). At grade level 6, self-efficacy scores before task completion correlated $r = .50$ ($p < .001$) and after task completion $r = .58$ ($p < .001$) with task performance scores. This difference was not significant ($Z = -1.293, p > .05$). Accordingly, sixth-graders’ moderate self-efficacy calibration did not substantially change.

6.4 Further analysing gender differences

Though learners’ gender did not significantly affect their self-efficacy expectancies across both grade levels (Table 2), differences before and after task completion apparently suggested the male fifth-graders to more strongly alter their task-specific competence perceptions (Figure 1). To further clarify this issue, an ANOVA with self-efficacy repeated measures and gender as independent factor variable was run separately for each grade level. As results demonstrated, there was a significant interaction effect of measurement time and gender at grade level 5 (Table 4). Male fifth-graders reported higher self-efficacy expectancies before task completion than their female classmates. However, their self-efficacy expectancies considerably decreased after task completion – whereas female fifth-graders’ self-efficacy expectancies slightly increased. At sixth grade, both male and female learners’ self-efficacy expectancies increased after task completion nearly the same way (Figure 3). As there was no significant interaction effect between measurement time and gender, apparently existing differences between male and female learners did not reach statistical significance (Table 4).
Table 4. Gender effects on self-efficacy expectancies before and after task completion: Results of two-way analyses of variance with repeated measurement at grade levels 5 and 6.

<table>
<thead>
<tr>
<th>Within Subjects</th>
<th>Grade</th>
<th>Wilks λ</th>
<th>F</th>
<th>df1, df2</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT X Gender</td>
<td>5</td>
<td>0.920</td>
<td>9.837</td>
<td>1, 113</td>
<td>.002</td>
<td>.080</td>
</tr>
<tr>
<td>MT X Gender</td>
<td>6</td>
<td>0.947</td>
<td>5.290</td>
<td>1, 95</td>
<td>.024</td>
<td>.053</td>
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<tr>
<td>Between Subjects</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gender</td>
<td>5</td>
<td>0.301</td>
<td></td>
<td>1, 114</td>
<td>.585</td>
<td>.003</td>
</tr>
<tr>
<td>Gender</td>
<td>6</td>
<td>0.424</td>
<td></td>
<td>1, 95</td>
<td>.517</td>
<td>.004</td>
</tr>
</tbody>
</table>

MT = Measurement Time

6.5 Task completion effects, gender, and task performance

As task completion and gender effects only occurred at grade level 5, subsequent analyses were run in the subsample of fifth-graders. To further scrutinize the role of gender, the effect of learners’ task performance level and gender was additionally considered. As ANOVA results showed, before task completion learners’ self-efficacy expectancies were substantially explained by both a significant main effect of gender and task performance (Table 4). Within the high performing subgroup, male learners reported a considerably higher sense of self-efficacy to master the grammar task at hand. In the low performance subgroup, this gender difference turned out to be much smaller (Figure 3).

Table 5. Gender and performance differences in self-efficacy expectancies before and after task completion: Results of two-way analyses of variance at grade level 5.

<table>
<thead>
<tr>
<th></th>
<th>Grade</th>
<th>F</th>
<th>df1, df2</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Task Completion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>5</td>
<td>4.504</td>
<td>1, 114</td>
<td>.036</td>
<td>.039</td>
</tr>
<tr>
<td>Task Performance</td>
<td>5</td>
<td>26.236</td>
<td>1, 114</td>
<td>.000</td>
<td>.191</td>
</tr>
<tr>
<td>Gender X Task Performance</td>
<td>5</td>
<td>1.919</td>
<td>1, 114</td>
<td>.169</td>
<td>.017</td>
</tr>
<tr>
<td>After Task Completion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>5</td>
<td>1.253</td>
<td>1, 114</td>
<td>.265</td>
<td>.011</td>
</tr>
<tr>
<td>Task Performance</td>
<td>5</td>
<td>65.835</td>
<td>1, 114</td>
<td>.000</td>
<td>.372</td>
</tr>
<tr>
<td>Gender X Task Performance</td>
<td>5</td>
<td>0.201</td>
<td>1, 114</td>
<td>.655</td>
<td>.002</td>
</tr>
</tbody>
</table>

In contrast, after task completion this gender effect disappeared. Differences in learners’ self-efficacy expectancies were solely explained by a significant effect of performance (Table 5). Low performing learners reported a correspondingly lower sense of self-efficacy than their high performing classmates did. Gender differences had apparently diminished (Figure 3).
Figure 3. Mean self-efficacy scores before and after task completion depending on fifth-graders’ gender and task performance.

To further differentiate this effect pattern, post hoc comparisons between female and male learners at each performance level were conducted. Using the Brown-Forsythe test, self-efficacy scores before task completion substantially differed in the high performance subgroup – inasmuch as their statistical significance distinctly fell below the alpha-adjusted probability level. This particular difference reflected a moderate effect size and, thus, was interpreted to reach practical significance. While self-efficacy scores significantly decreased after task completion in the low performing subgroup, gender differences were not significant (Table 6).

Hence, it was the high performing male learners who considerably overestimated their grammar mastery before task completion. After task completion, after having experienced the tasks’ actual requirements, they obviously regulated their self-efficacy expectancies downwards. Accordingly, their self-efficacy scores became largely comparable to their female counterparts’ self-efficacy scores (Figure 3).

Table 6. Mean gender differences of fifth-graders’ self-efficacy expectancies before and after task completion at grade level 5.

<table>
<thead>
<tr>
<th></th>
<th>Self-Efficacy Before Task Completion</th>
<th>Self-Efficacy After Task Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Female</td>
<td>-0.393</td>
<td>0.231</td>
</tr>
<tr>
<td>Male</td>
<td>-0.269</td>
<td>0.817</td>
</tr>
<tr>
<td>F</td>
<td>0.200</td>
<td>9.529</td>
</tr>
<tr>
<td>df 1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>df 2</td>
<td>42</td>
<td>49</td>
</tr>
<tr>
<td>p</td>
<td>.657</td>
<td>.003</td>
</tr>
<tr>
<td>α’</td>
<td>.013</td>
<td>.013</td>
</tr>
<tr>
<td>g</td>
<td>0.13</td>
<td>0.74</td>
</tr>
</tbody>
</table>

F = t-value, df = degree of freedom, p = probability, α’ = adjusted alpha level, g = Hedges’ effect size (unsigned absolute value)
7 Discussion and conclusions

7.1 Task completion effects

Against the background of relevant conceptual considerations (Bandura, 1997; Schunk, 1989, 1991) and empirical findings (Lodewyk, 2000; Niemivirta & Tapola, 2007), the present study addressed the effects of task completion on preadolescent EFL learners’ self-efficacy expectancies to master a certain grammar task. Its findings indicated task completion effects to exist in a most differentiated manner – and to substantially depend on an interaction between learners’ grade level, gender, and task performance.

At both grade levels, learners’ self-efficacy expectancies before and after task completion did not operate the same way. As fifth-graders self-efficacy scores decreased after task completion, sixth-graders self-efficacy scores increased. This contrariness in the direction of effects might reflect differences in learners’ language learning experience. Their grammar competencies and self-efficacy expectancies are just emerging at grade level 5 and developing up to grade level 6. Fifth-graders had just entered secondary school level and experienced EFL instruction, especially the learning of grammar forms, only for a reasonable period. In comparison to sixth-graders, their self-efficacy expectancies should be not yet established but more responsive to certain task requirements. Accordingly, their self-efficacy expectancies became more accurate after task completion.

However, this grade level effect did not work exclusively. Rather, it appeared to significantly interact with fifth-graders’ (but not with sixth-graders’) gender and task performance. Overall, low performing fifth-graders’ self-efficacy expectancies significantly decreased after task completion. However, male fifth-graders in the high performance group displayed a considerably higher sense of self-efficacy before than after task completion. Hence, male learners considerably overestimated their capabilities before completing the grammar task. Their completion of the grammar task at hand led to a significant reduction of initially miscalibrated self-efficacy expectancies. Most notably, similar task completion effects did not occur in the low performing subgroup. As this effect pattern cannot be explained by performance differences, it immediately suggests a certain gender stereotyping bias to operate (Faber, 2013; Ellemers, 2018). Even so, this bias appeared to be in opposite to well proven differences (Huang, 2013; Skaalvik & Skaalvik, 2004) which demonstrated females to have a higher sense of self-efficacy in language arts. However, these studies did not refer to EFL settings. In any case, the present findings demonstrated short-term task completion effects on male EFL fifth-graders in the high performing group and, thus, indicated the principal relevance of learners’ cognitive motivational task processing. Accordingly, self-efficacy research in the EFL context should pay more attention to analyses of repeated measurements.

7.2 Strengths, limitations, and perspectives

The present study had analyzed task completion effects on young EFL learners’ self-efficacy expectancies for the first time and, into the bargain, likewise considered the issue of grammar competencies in a school setting. Its results should partially contribute to reducing relevant research gaps and to promote a corresponding research line. Moreover, its results demonstrated task completion
to affect EFL learners’ self-efficacy expectancies in a most differentiated way. With regard to grade level, gender, and task performance, the study revealed a particular effect pattern which turned out to be more complex than conceptually expected (Bandura, 1997; Schunk, 1989, 1991). Thus, the study’s results should form a starting point to gradually extend and refine self-efficacy research in the EFL context.

However, the present study’s findings undoubtedly suffer from some conceptual and empirical limitations. First of all, they refer to preadolescent learners from one particular school setting. Future analyses should necessarily try to replicate them in other educational settings and, most importantly, also explore their generalizability to higher grades and longitudinally examine their impact on learners’ self-efficacy expectancies over time. In all this, they should further clarify the direction of gender and task performance effects. Not least, in the present study learners’ self-efficacy and performance measures had focused on grammar competencies in a curricular valid but very narrow manner. Though this procedure is most appropriate to detect relevant task completion effects, it should be embedded into a comprehensive measurement approach. In order to control and validate task-specific measurements’ content and curricular validity, further analyses in the field should additionally use more broadly operationalized self-efficacy measures which can represent requirements of EFL grammar learning in all relevant respects learners would typically encounter at each grade level. In that regard, it should be worthwhile to adapt instruments designated for higher grade levels (Moumer, 2017) or from other foreign language contexts – e.g. the psychometrically well proven and validated instrument Mustafa and Mustafa (2017) had presented. In addition, future research on self-efficacy in the context of language performance would benefit from including further and more specific variables such as linguistic skills.

7.3 Preliminary educational implications

Subject to that the present findings will be replicated and further clarified in all relevant respects, they recognisably suggest certain educational implications. In particular, assessment of EFL learners’ self-efficacy expectancies to master a language task should preferably rely on repeated measures in order to detect possible task completion effects. Individually existing self-efficacy differences before and after task completion should offer important opportunities to assess learners’ self-efficacy calibration and, consequently, to figure out feasible teaching methods or strategies to support and enhance their accuracy of competence perceptions – e.g. by visualizing and verbalizing task-specific strengths and difficulties as well as monitoring progress in task-specific self-efficacy expectancies, performance outcome, and judgment accuracy (Cleary, 2009; Schunk & Usher, 2011). If periodically conducted over time, self-efficacy assessments of this type should help to build learners’ adequate sense of mastery (even in the case of task failure) and to foster their self-regulated learning approach (Mills, 2014). Following the present findings more closely, self-efficacy measures before and after task completion should reveal important reference points to support beginning EFL learners’ motivation and competence development at the earliest phase possible. That way, they should also help to detect biasing effects of gender stereotypes in learners’ self-efficacy expectancies.
Endnote

1 Günter Faber passed away during the processing of this article. The article was subsequently finalised based on the reviewers’ and editors’ comments by Dr. Faber’s colleagues.

References


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Obituary

This is the final publication of Dr. Günter Faber, who passed away in April 2020 after a short and serious illness. Dr. Faber was an indefatigable researcher and educator in the area of Educational Sciences. His competence, collegiality, and warmth were appreciated and valued by students and colleagues both within and beyond our Institute of Psychology and the Faculty of Humanities at the Leibniz University Hannover. Dr. Faber dedicated the majority of his work to a better understanding of educational processes and evaluation research. In particular, he studied the role of the self-concept in various academic domains. Moreover, countless students and young researchers capitalized on his outstanding methodological and statistical expertise. We are thankful to have had the opportunity to work with Dr. Faber. We are very grateful to the editors of the journal for their support in completing this last scientific contribution of Dr. Faber.

Peter F. Titzmann, Head of the Psychological Institute at Leibniz University Hannover, on behalf of all colleagues.