

**Self-Efficacy Perceptions as Mediator on the Relationship between Students' Experience
with Presenting and Their Anxiety to Present**

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Abstract

Background

Many students from higher educational institutions report that they experience unpleasant levels of anxiety when having to speak publicly. A form of public speaking in which students often engage is giving presentations. However, research on which factors are associated with the anxiety that students face while giving presentations is still scarce. This study aims to find out whether students' self-efficacy perceptions mediate the relationship between their experience with presenting and the anxiety to present that they encounter.

Methods

A survey was conducted amongst 126 students from Dutch or German universities aged 17 to 31 years. The survey consisted of a slightly modified version of the Public Speaking Anxiety Scale (PSAS) to measure the dependent variable 'presentation anxiety', and the New General Self-Efficacy Scale (NGSES) to measure the independent variable 'self-efficacy'. Due to lack of an already existing scale, 4 additional items were created to assess the second independent variable called 'experience with presenting'. To test whether there were significant correlations between each of the variables, three Pearson correlation tests were performed. A mediation analysis composed of several steps was conducted to test whether self-efficacy functions as a mediator on the relationship between experience with presenting and presentation anxiety.

Results

Experience with presenting turned out to be negatively correlated with presentation anxiety ($p < .01$), as were self-efficacy and presentation anxiety ($p < 0.1$). Experience with presenting and self-efficacy turned out to be positively correlated ($p < 0.1$). Next to that, self-efficacy had a significant negative mediating effect on the relationship between experience with presenting and presentation anxiety ($p < .001$).

Conclusion

A majority of Dutch and German university students does seem to experience anxiety associated with giving presentations. Overall, more experience with presenting appears to lead to less anxiety, and this is partly explained by the stronger self-efficacy perceptions that are formed through the experiences with presenting. Therefore, incorporating the variable of experience with presenting into public speaking courses or training programs for students could be useful, since it will likely decrease presentation anxiety levels by strengthening their self-efficacy perceptions.

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Self-Efficacy Perceptions as Mediator on the Relationship between Students' Experience with Presenting and Their Anxiety to Present

“According to most studies, people's number one fear is public speaking. Number two is death. Death is number two? Does that seem right? To the average person that means that if they have to go to a funeral, they'd be better off in the casket than giving the eulogy.” —Jerry Seinfeld

As comically illustrated by Jerry Seinfeld (1993), many people consider public speaking to be one of their greatest fears. Research even shows that between 15 and 30 percent of the general population is so afraid of public speaking that they meet the criteria for a disorder called Public Speaking Anxiety (PSA) (Tejwani & Isada, 2016). Overall, public speaking anxiety seems to be more prevalent in women than in men (Stein et al., 1996; Behnke & Sawyer, 2000; Lucchetti et al., 2003), and one subgroup of the population that appears to be especially suffering from public speaking fears is students (Marinho et al., 2017). Namely, over 63 percent of European university students states to be afraid of public speaking (Marinho et al., 2017). These fears can be deemed problematic for this subgroup, since a majority of higher educational institutions currently include a public speaking course in their curriculum (Boromisza-Habashi et al., 2015). This means that students are nearly forced to perform an act for which they are afraid, in a high pressure environment in which they are also likely to receive a grade. The most common form of public speaking that is incorporated in the public speaking courses, and which students thus often encounter, is presenting (Boromisza-Habashi et al., 2015). Since presenting is used the most, public speaking training programs for students tend to centre around that specific public speaking form (Pribyl et al., 2001; Lucas & Stob, 2004).

Even though public speaking training programs all have their own unique approach to helping people develop their public speaking skills or even overcome their fears, one reoccurring aspect seems to be focused on letting people practice with giving a presentation multiple times (Shaw, 2001; Kurihara et al., 2007; Bodie, 2010). By having someone conduct multiple presentations, their number of experiences in this domain will increase. Moreover, practicing something, and thus increasing one's number of experiences in the domain, is generally associated with better performances and more positive self-efficacy perceptions (Fortune et al., 2007). This raises the question whether students' number of experiences with presenting can also be a predictor of their anxiety to present. The variable of self-efficacy could then too be interesting to examine, because of its positive association with one's

number of experiences. Self-efficacy refers to “the conviction that one can successfully execute the behaviour required to produce a desired outcome” (Lucchetti et al., 2003, p. 349). The finding by Fortune et al. (2007) indicates that it is likely that one’s number of experiences could impact their self-efficacy perception, which might even have an indirect influence on presentation anxiety.

Presentation anxiety

In order to define presentation anxiety, a closer look at the broader anxiety spectrum needs to be cast. The anxiety to present that some people experience can be traced back to public speaking anxiety (PSA), which is a specific subtype of social anxiety disorder (Blöte et al., 2009). People with PSA can suffer from physiological arousal, negative thoughts about the self, and behavioural side-effects (Bodie, 2009). These unpleasant effects can also be seen in people who experience anxiety to present, although those effects might be less severe on some occasions while being similar in nature. Regarding the consequences of PSA and presentation anxiety effects, a distinction can be made for consequences on the short-term or long-term. For instance, on the short-term, the physiological arousal and behavioural side-effects include a higher blood pressure and heart rate, as well as trembling and excessive sweating (Bodie, 2009; Beatty, 1988). Next to that, one’s verbal output can be decreased in the moment itself, which in turn can result in non-fluency (Beatty, 1988). On the long-term, indirect outcomes of these negative effects are a tendency to avoid public speaking situations, or communication with others in general (Beatty, 1988; Marinho et al., 2017). Taking all these effects into consideration, it can be noted that anxiety to speak publicly can negatively impact one’s social, personal, and emotional life in a major way (Marinho et al., 2017).

Surprisingly enough, even though numerous studies on PSA and its correlates can be found, the exact dynamic between the variables of experience with presenting, self-efficacy and PSA has not been investigated yet. However, in order to draw predictions about the dynamic between presentation anxiety, experience with presenting, and self-efficacy, different studies on PSA (or a similar framework) that include either experience with presenting or self-efficacy can be consulted. The findings of these studies can then be combined in order to come up with a theoretical model.

Experience with presenting and PSA

Regarding research including one’s number of experiences with presenting and PSA, there are only a few studies who examined the association. The few that have been conducted however do all seem to agree on the overall findings. Namely, an association between

experience with presenting and PSA is present (Marinho et al., 2017; Beatty, 1988; Beatty & Friedland, 1990). Studies by Beatty (1988) and Beatty and Friedland (1990) show a moderate association between experience with presenting and PSA. Next to that, Marinho et al. (2017) even found a strong association between fear of public speaking and having limited experience in the domain. These findings suggest that people who do not have a lot of experience in public speaking are more likely to experience PSA and vice versa. Furthermore, research on state communication apprehension shows that when people have less experience in a form of communication, in this case public speaking, it often leads to increased feelings of uncertainty, resulting in more feelings of anxiety (McCroskey, 1984). Therefore, it appears plausible that little experience with presenting could result in higher levels of presentation anxiety, based on the combined findings of the aforementioned studies.

Self-efficacy and PSA

The concept of self-efficacy as well as its relation to public speaking anxiety has been investigated numerous times. Research on prediction of behaviour shows that weak self-efficacy perceptions are associated with avoidance behaviours and that strong self-efficacy perceptions are associated with initiation behaviours (Bandura, 1977; 1997; Bandura et al., 1977). Bandura (1977; 1997) argues that this is because people with strong efficacy perceptions are convinced that they are able to successfully reach their desired goal by behaving in a certain way, thus they will initiate the necessary behaviours and also behave in a persistent manner. Therefore, it is argued that self-efficacy perceptions and anxiety levels are inversely related, meaning that weak perceptions lead to higher anxiety levels and vice versa (Bandura, 1977; 1997; Bandura et al., 1977). These findings are confirmed by Haycock et al. (1998) and Okan (2021), who indeed both showed a negative correlation between self-efficacy perceptions and anxiety levels. Similar results were found by Lucchetti et al. (2003) on the relation between self-efficacy perceptions and PSA specifically. That is to say, they found a significant negative correlation between the two. Next to that, Anyadubalu (2010) found a negative correlation between self-efficacy and the anxiety experienced by students who had to speak publicly in a non-native language. Even though in this study the factor of a non-native language was added, the dynamic between self-efficacy and PSA remains similar in nature. Thus, it can be assumed that people who have weak self-efficacy perceptions are more likely to experience presentation anxiety than people who hold stronger self-efficacy perceptions.

Experience with presenting and self-efficacy

Regarding the dynamics of the relation between experience with presenting and self-efficacy, Bandura (1977), one of the most prominent researchers on self-efficacy, provides a clear theoretical framework. His research states that most human behaviour is based on different forms of experience, such as one's own experiences with executing a task, watching someone else do it, or even reading about how to do something. These experiences are then coded and retained in memory, and are consulted when needed. This way, one can determine which actions are necessary to reach a desired goal based on the retained experiences. Essentially, someone thus forms a perception of their own ability to successfully complete a certain goal based on their experience with presenting, which then impacts their behaviour.

Furthermore, according to Bandura (1977) more experience in a domain is associated with stronger self-efficacy perceptions. Different studies confirm this dynamic between experience with presenting and self-efficacy perceptions (Bandura, 1997; Steyn & Mynhardt, 2008; Maddux, 1995; 2013). For instance, an experimental study by Steyn and Mynhardt (2008) shows that self-referenced information (i.e. information gained through one's own experience) has a profound impact on self-efficacy perceptions. The study suggests that not only has one's own experience a larger impact than other information sources (e.g. social comparisons), more experience can even lead to stronger self-efficacy perceptions (Steyn & Mynhardt, 2008). Maddux (1995; 2013) found similar results, showing that people with more experience are likely to hold stronger self-efficacy perceptions than people who have very limited to no experience.

Taking the findings of these studies into consideration, it can be assumed that there is a positive relationship between experience with presenting and self-efficacy, meaning that people who have more experience in a domain will also hold stronger self-efficacy perceptions regarding that domain than people who have less experience.

Combining findings of literature on the three separate associations between experience with presenting, self-efficacy, and PSA, the theoretical model of this study can be developed (see Figure 1). The findings suggest that one's number of experiences with presenting has an effect on PSA, but that this effect is likely mediated by self-efficacy. Since presenting is a form of public speaking, it is to be expected that the relationships between experience with presenting and self-efficacy in relation to PSA, are similar in nature to the relationships between experience with presenting and self-efficacy in relation to presentation anxiety.

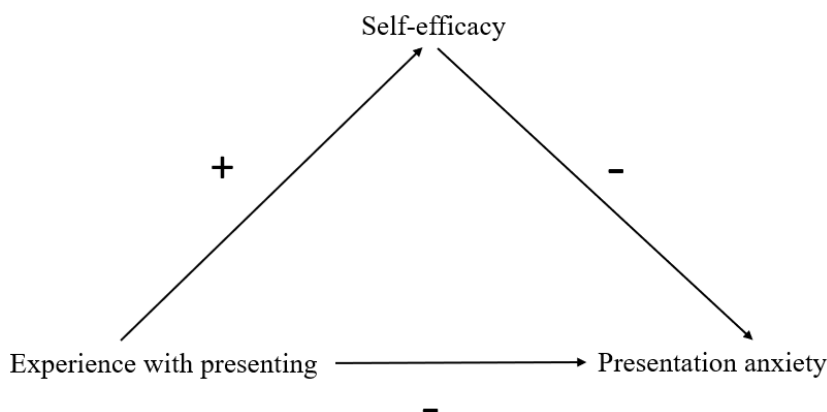
Present study

As mentioned before, a subgroup of the European population which suffers tremendously from public speaking related fears is students. Students would thus likely benefit most from new insights on presentation anxiety and its correlates, since these correlates could potentially be used in the future to help them overcome their fears. Therefore, the target group of this study will comprise students from Dutch and German universities.

This research aims to answer the question “To what extent are students’ experiences with presenting and their self-efficacy perceptions associated with their anxiety to present?”. In order to do so, two hypotheses will be tested. First, it is hypothesized that there is a negative relationship between experience with presenting and anxiety to present, meaning that more experience leads to less presentation anxiety. Second, it is hypothesized that the relationship between experience with presenting and presentation anxiety is mediated by self-efficacy.

Figure 1

Proposed Theoretical Model of Present Study



Methods

Study design

A questionnaire survey design was employed, with ‘presentation anxiety’ as dependent variable, and ‘experience with presenting’ as independent variable. The variable ‘self-efficacy’ was considered a mediator.

Participants

In this study, 165 participants were initially gathered through convenience sampling. The study was uploaded on SONA, a cloud-based research and participant management solution used by the University of Twente, to which students could participate in the study in

exchange for 0.25 credits. Moreover, a link to the survey was distributed via social media in an attempt to reach students from other Dutch and German universities as well. The inclusion criteria entailed that at the time of participating in the study, participants had to be a student at a university in the Netherlands or Germany. Moreover, the data was checked for participants who quit before finishing the entire survey, whose data was then deleted. After checking the criteria, data of 126 participants remained eligible for analysing. These participants were between 17 and 31 years old ($M_{\text{age}} = 21.5$, $SD_{\text{age}} = 2.1$), of which 88 identified as female (70%) and 38 as male (30%). There were 36 participants with a Dutch nationality, 73 with a German nationality, and 17 with another nationality.

Materials

Presentation anxiety

A slightly adapted version of the Public Speaking Anxiety Scale (PSAS) was used to measure anxiety to present in university students (see Appendix A). This scale originally consists of 17 statements, of which 13 were phrased in a way to portray a negative stance towards public speaking and related aspects, and 4 of which were phrased to portray a positive stance. In 11 out of 17 items, the word “speech” was replaced by “presentation”, to ensure that the scale was measuring anxiety to present specifically, instead of PSA. Participants had to answer across a 5 point Likert scale, ranging from ‘not at all’ (1) to ‘extremely’ (5). An example of a negatively phrased item is “Giving a presentation is terrifying.”. An example of a positively phrased item is “I am confident when I give a presentation.”. Research on the PSAS shows high internal consistency, as well as high concurrent, convergent, and discriminatory validity (Batholomay & Houlihan, 2016). Since only the word “speech” was replaced by “presentation”, the validity is still expected to be high, since both are forms of public speaking, and thus refer to the same overarching concept. A reliability analysis also shows excellent reliability for the presentation anxiety statements used in the survey ($\alpha = .93$). The final score was calculated by adding the scores of all items together, which left each participant with a score between 17 and 85. According to Batholomay and Houlihan (2016), a score between 64 and 72 depicts elevated levels of anxiety, and a score above 73 depicts a significant and impairing level of anxiety.

Self-efficacy

The New General Self-Efficacy Scale (NGSES) was used to measure students’ self-efficacy perception (see Appendix B). This scale consists of 8 statements, which were all phrased in a way to depict a strong self-efficacy stance. An example of such an item is “I will

be able to achieve most of the goals that I have set for myself". Participants had to answer across a 5 point Likert scale, ranging from 'strongly disagree' (1) to 'strongly agree' (5). Research on the NGSES shows high discriminant and content validity (Chen et al., 2001). Next to that, a reliability analysis shows good reliability for the self-efficacy statements used in the survey ($\alpha = .86$). The final score was calculated by adding the scores of all items together, which left each participant with a score between 8 and 40. A low score depicts (relatively) weak self-efficacy beliefs, and a higher score portrays (relatively) strong self-efficacy beliefs.

Experience with presenting

Due to lack of a definite scale to measure the variable of experience with presenting, a combination of 2 items developed by Beatty & Friedland (1990) and 2 items designed specifically for this study were used. All 4 items were phrased as statements, 2 of which portrayed only little experience with presenting, and 2 of which portrayed a lot of experience with presenting. The items of Beatty and Friedland (1990) were slightly altered, since the word "speech" was replaced with "presentation". The 2 final items were as follows: "Giving a presentation is a new experience for me" and "I have given few, if any, presentations". The 2 items designed to counteract the possible effect of using only items that hold a little experience stance were "I have a lot of experience presenting" and "I have given multiple presentations". The two items by Beatty and Friedland (1990) proved to have good internal consistency, which is also expected for the two additional items. Furthermore, all four items have shown to have good reliability ($\alpha = .77$). These items all had to be answered by a 5 point Likert scale, ranging from 'strongly disagree' (1) to 'strongly agree' (5). The final score was calculated by adding the scores of all items together, which left each participant with a score between 4 and 20. A low score depicts (relatively) little experience with presenting, and a higher score portrays substantial experience with presenting.

Procedure

This study only investigates presentation anxiety and its associations with experience with presenting and self-efficacy. However, since there were more studies on presentation anxiety and its correlates conducted at the time, four bachelor students decided to combine their surveys and gather data collectively. Only the data stemming from the section of the combined survey that is relevant for this study was analysed.

Approval for this study was given by the Ethics Committee of the Faculty of Behavioural, Management and Social Sciences at the University of Twente. All participants

were informed about the aim of the study, procedure, participant rights, potential risks or benefits, privacy and confidentiality, and their right to withdraw from the study at any time. It was stated that the survey would take approximately 20 minutes, and that they would have to answer items regarding multiple topics. The contact information of the researchers was also presented, in case participants had any questions or remarks about the study. Finally, participants had to give informed consent before they were able to proceed with the survey.

Depending on how the participants came into contact with the study, the survey could either be reached through SONA, or through a link on social media which directly redirected the participants to Qualtrics. First, they had to fill in demographic information, such as gender, age, and nationality. After, they were presented with the 17 items of the PSAS, followed by the 8 items of the NGSES and the 4 items related to experience with presenting. After filling in all items, they were presented with a message of gratitude for participating in the study.

Analyses

All analyses were conducted in IBS SPSS Statistics 25. However, before analysis of the collected data, the data was checked for specific threshold criteria. As a result, out of 165 cases initially gathered, 39 cases were removed since they were either not a current student at a university in the Netherlands or Germany, or because they did not finish the survey. All scales were standardized for comparison purposes, and an alpha level of .05 was used for all statistical tests in this study.

Regarding the sample characteristics, descriptive statistics were conducted. For age, the mean, minimum, maximum and standard deviation were calculated. For gender, nationality, and years enrolled as a student, the frequency numbers and percentages were computed.

To determine whether parametric or non-parametric tests should be used for the following analyses, the assumptions of linearity and normality were checked. Linearity was assessed by creating three scatterplots to present the associations between experience with presenting and presentation anxiety, experience with presenting and self-efficacy, and self-efficacy and presentation anxiety. The linearity assumption was met since there were linear relationships between all variables. Next, the normality of all three variables was assessed by applying the Shapiro-Wilk test. Since both of the assumptions were met, parametric tests were conducted. In order to test hypothesis one, a Pearson correlation was computed to assess the association between experience with presenting and presentation anxiety. Next, in order to test hypothesis two, the two associations between experience with presenting and self-

efficacy, and self-efficacy and presentation anxiety were assessed by using Pearson correlations as well. This was necessary in order to confirm that there are adequate associations between all variables proposed in the theoretical model of this study.

Before conducting the mediation analysis according to the steps described by Baron and Kenny (1986), the standard assumptions of linear regressions needed to be checked. Linearity and normality were already assessed using scatterplots and the Shapiro-Wilk test. To check the assumption of homoscedasticity, the predicted values and residuals per variable were plotted. The data appeared randomly distributed which suggests that the homoscedasticity assumption was met. To check the assumption of multicollinearity, variance inflation factor (VIF) values were calculated. Since the VIF values were below 10, the multicollinearity assumption was met. Since all assumptions were met, the mediation analysis could be conducted.

The first step of the mediation analysis comprised of conducting two bivariate regressions. One bivariate regression for the effect between experience with presenting and presentation anxiety, and one for the effect between experience with presenting and self-efficacy. Next, a multiple regression was run with experience with presenting as predictor and presentation anxiety as dependent variable to provide an estimate of the direct effect between the two. Another multiple regression was run with self-efficacy as a predictor and presentation anxiety as dependent variable, which computed the direct effect between self-efficacy and presentation anxiety. Lastly, the mediation effect of self-efficacy on the relationship between experience with presenting and presentation anxiety was estimated and tested for significance by conducting the Sobel test.

In the end, the influence of gender and age on the dependent variable was examined. A one-way ANOVA was run to assess the influence of gender on presentation anxiety. A simple regression was run to assess the influence of age on presentation anxiety.

Results

From the 165 participants that were initially gathered, 126 participants remained eligible for analysing after checking the specific threshold criteria and removal of participants who did not complete the survey. As can be seen in Table 1, the majority of participants were females between 17 and 31 years old, who had a German nationality (57.9%). Next to that, most participants were at the time of this study either enrolled as a university student for less than a year (20.6%), between 1 and 2 years (27%), or between 2 and 3 years (25.4%).

Table 1*Sample characteristics*

Variable	N (%)	<i>M</i>	<i>SD</i>	Range
Age	126 (100.0)	21.5	2.1	17-31
Gender				
Female	88 (70.0)			
Male	38 (30.0)			
Nationality				
Dutch	36 (28.6)			
German	73 (57.9)			
Others	17 (13.5)			
Years enrolled as a student				
Less than 1 year	26 (20.6)			
Between 1 and 2 years	34 (27.0)			
Between 2 and 3 years	32 (25.4)			
Between 3 and 4 years	20 (15.9)			
Between 4 and 5 years	4 (3.2)			
More than 5 years	10 (7.9)			

Descriptive statistics were run on both independent variables as well as the dependent variable (see Table 2). The participants scores on presentation anxiety ranged from 22 till 77, with a mean score of 49.5. Based on the cut-off scores mentioned by Batholomay and Houlihan (2016), the mean score shows that presentation anxiety on average is definitely experienced by the participants, but that most of them do not experience substantial impairment because of it. In total 23 participants (19.3%) scored between 64 and 72 on the PSAS, which depicts elevated levels of anxiety, and 4 participants (3.4%) scored higher than 72 which depicts a significant and impairing level of anxiety. The participants scores on experience with presenting ranged from 4 till 22, with a mean score of 15. Since the items used to assess experience with presenting were not derived from an already existing scale, no cut-off points have been established. Therefore, the higher one's score, the more experience they have with presenting. With the mean score being 15 in a scale ranging from 4 till 20, it can be concluded that participants on average have quite some experiences with presenting. The participants scores on self-efficacy ranged from 17 till 39, with a mean score of 29.5. For the NGSES, no cut-off points have been determined, simply meaning that the higher the score

is, the stronger one's self-efficacy perception is. With the maximum obtainable score of the NGSES being 40, a mean score of 29.5 can be considered quite high, meaning that a majority of participants hold relatively strong self-efficacy perceptions.

Table 2

Descriptive Statistics on Participants' Final Scores on Presentation Anxiety, Experience with Presenting, and Self-efficacy

Variable	<i>M</i>	<i>SD</i>	Range
Presentation anxiety	49.5	13.9	22-77
Experience with presenting	15.0	3.2	4-22
Self-efficacy	29.5	4.5	17-39

Note. Presentation anxiety: scores ranging from 17-85. Experience with presenting: scores ranging from 4-20. Self-efficacy: scores ranging from 8-40.

Correlations

Furthermore, Pearson correlations were used to assess three different relationships (see Table 3). First, experience with presenting and presentation anxiety were found to be moderately negatively correlated, $r(124) = -.51, p < .001$. Based on this correlation, the first hypothesis that experience with presenting and presentation anxiety are negatively correlated can be accepted. This suggests that people with more experiences with presenting tend to experience less anxiety while presenting than people with less experience. Second, self-efficacy was also moderately negatively correlated with presentation anxiety, $r(124) = -.52, p < .001$. This means that people with stronger self-efficacy perceptions tend to experience less anxiety while presenting than people with weaker self-efficacy perceptions. Third, experience with presenting and self-efficacy were found to be weakly positively correlated, $r(124) = .30, p < .001$. This suggests that people with more experiences with presenting tend to hold stronger self-efficacy perceptions than people with less experience. The results from the second and third correlation that were computed also point in the direction that self-efficacy could function as a mediator on the relationship between experience with presenting and presentation anxiety.

Table 3

Pearson Correlations between Variables Presentation Anxiety, Experience with Presenting, and Self-efficacy

Variable	Presentation anxiety	Experience with Presenting	Self-efficacy
Presentation anxiety	-	-.51*	-.52*
Experience with presenting	-.51*	-	.30*
Self-efficacy	-.52*	.30*	-

Note. *Significant p-value at .01 level (2-tailed).

Regression and mediation analyses

To investigate the mediating effect of self-efficacy on the relationship between experience with presenting and presentation anxiety, a mediation analysis was conducted. First, the bivariate regression for experience with presenting and presentation anxiety showed a statistical significant negative effect of the independent on the dependent variable ($\beta = -2.20$, $t(124) = -6.56$, $p < .001$). This confirms the dynamic between experience with presenting and presentation anxiety as proposed in the theoretical model of this study, meaning that more experience with presenting leads to lower presentation anxiety. A second bivariate regression for experience with presenting and self-efficacy showed a significant positive effect of the independent variable on the mediating variable ($\beta = .43$, $t(124) = 3.52$, $p < .001$). The direction of this effect also matches that of the one presented in the proposed theoretical model, meaning that more experience with presenting leads to stronger self-efficacy perceptions. Furthermore, a multiple regression was conducted to estimate the direct effect between experience with presenting and presentation anxiety after inclusion of self-efficacy as mediating variable. The multiple regression showed a decreased significant negative direct effect compared to the effect found when self-efficacy was not included in the model yet, which implies that a mediating effect is present ($\beta = -1.68$, $t(123) = -6.56$, $p < .001$). Based on this finding, hypothesis two can be accepted. To assess whether the mediation is statistically significant, the Sobel test was executed. The Sobel test showed a significant negative indirect effect of $-.52$ between experience with presenting and presentation anxiety through self-efficacy ($Z = -2.954$, $p < .001$).

For the model excluding the mediating variable (see Figure 2), the results of the regression indicated that the independent variable experience with presenting explained

25.7% of the variance ($R^2 = .26$, $F(1, 124) = 42.98$, $p < .001$). After including the mediating variable (see Figure 3), the results of the regression indicated that the model explained 40.3% of the variance ($R^2 = .40$, $F(2, 123) = 41.45$, $p < .001$).

Figure 2

Initial Model with Experience with Presenting as Independent Variable and Presentation Anxiety as Dependent Variable

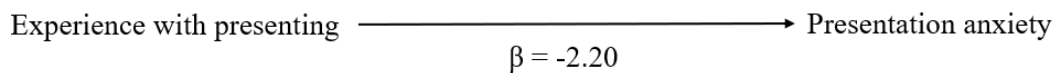
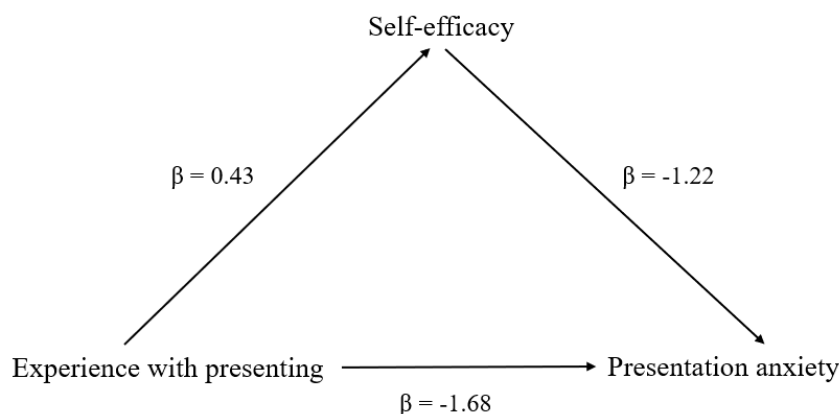


Figure 3

Model including Self-Efficacy as Moderating Variable on the Relationship between Experience with Presenting and Presentation Anxiety



Demographic variables

Lastly, the influence of the demographic variables gender, nationality, and age was assessed. An one-way ANOVA was conducted to assess the influence of gender on presentation anxiety, which showed a statistically significant difference [$F(1, 124) = 21.86$, $p < .001$]. Moreover, a simple linear regression was run to assess whether age has an effect on presentation anxiety. The regression shows that there is not a statistically significant difference for age on presentation anxiety [$F(1, 124) = 3.50$, $p = .06$].

Brief summary of key findings

To sum up, the direction of the correlations between all three variables were as expected and all proved to be significant. Self-efficacy functions as partial mediator in the relationship between experience with presenting and presentation anxiety, with the significant

mediating effect being negative. Gender was the only demographic variable that has an impact on presentation anxiety.

Discussion

This study explored the associations between experience with presenting, self-efficacy, and presentation anxiety in Dutch and German university students. Moreover, it examined whether self-efficacy functions as a mediator on the relationship between experience with presenting and presentation anxiety. Results showed that the three associations between experience with presenting and presentation anxiety, experience with presenting and self-efficacy, and self-efficacy and presentation anxiety were all significant as well as in the direction that was proposed by the theoretical model. Furthermore, self-efficacy turned out to function as a partial mediator on the relationship between experience with presenting and presentation anxiety.

Research shows that individuals tend to experience more anxiety associated with public speaking when they have no or only limited experience with public speaking (Beatty, 1988; Beatty & Friedland, 1990; Marinho et al., 2017), which is confirmed by the findings of this study. However, even though the direction of the association between experience with presenting and public speaking anxiety was the same for each study, the association did differ in strength, ranging from moderate to strong (Beatty, 1988; Beatty & Friedland, 1990; Marinho et al., 2017). A possible explanation for this is offered by Beatty (1988), who suggests that the emotional loading associated with one's experiences could influence the extent to which one experiences public speaking anxiety. Namely, if one's experiences are negatively loaded, e.g. in case a presentation did not go well, individuals could be likely to experience more anxiety when having to give a presentation in the future (Beatty, 1988). This explanation could have merit based on Bandura's (1977) theory on self-efficacy, since he claims that experiences are retained in memory, and that individuals base their self-efficacy perceptions on those memories. If such a memory would contain a negative experience of public speaking, it is likely that a weaker self-efficacy perception is created, which in turn could result in more anxiety when having to speak publicly. Since the findings of this study suggest that experience with presenting influences presentation anxiety through the variable of self-efficacy, the explanation offered by Beatty (1988) seems plausible.

Next to that, gender shows to have a significant impact on presentation anxiety, with women experiencing higher levels of presentation anxiety on average than men. Even though there are few studies in which it is claimed that there is no effect for gender (Gaibani & Elmenfi, 2014; Matsuda & Gobel, 2004), most research agrees that women are more likely to

report anxiety associated with public speaking (Stein et al., 1996; Behnke & Sawyer, 2000; Lucchetti et al., 2003; Marinho et al., 2017). The contradicting results found by Gaibani and Elmenfi (2014) and Matsuda and Gobel (2004) could perhaps be to an uneven distribution in the sample regarding gender. In both studies, women only represented around 40 percent of the sample, while men represented 60 percent.

Furthermore, as briefly mentioned before, self-efficacy appears to partially mediate the relationship between experience with presenting and presentation anxiety. This means that there is not only a significant relationship between self-efficacy and presentation anxiety, but also a direct significant relationship between experience with presenting and presentation anxiety. This direct significant relationship between experience with presenting and presentation anxiety has also been confirmed by this study, as well as other research (Beatty, 1988; Beatty & Friedland, 1990; Marinho et al., 2017). Moreover, the partial mediation gives room for an explanation in which other potential confounding variables are at play. For instance, one variable which is likely to have an impact on both self-efficacy perceptions as presentation anxiety is the emotional loading of an experience as described by Beatty (1988). Thus, even though there is evidence of a partial mediating effect of self-efficacy on the relationship between experience with presenting and presentation anxiety, the results of the mediation analysis should be interpreted with caution because of potentially unidentified confounding variables.

Implications

The practical implications of this study build on existing evidence of a negative association between experience with presenting and level of PSA. Since no research has yet been conducted on the PSA subcategory 'presentation anxiety' and its correlates specifically, a clearer understanding has been gained regarding its dynamic with experience with presenting as well as the impact of self-efficacy. The results suggest that it could be beneficial for training programs or seminars aimed at helping students overcome their anxiety to present to aim for increasing students' number of experiences, since this will automatically also increase self-efficacy. To optimize the effect of self-efficacy perceptions on presentation anxiety, an element could be added that directs students' attention during the training program towards their self-efficacy perceptions. An example of a study in which self-efficacy perceptions were strengthened through a training program was conducted by Earley (1994). Earley had students compare their own skills with skills that were considered beneficial to have for a certain task, which resulted in students not only being more aware of their abilities, but also made them strengthen their self-efficacy perceptions.

Although, it must be emphasized that it is important to make sure that the experiences gained are positive, since Beatty (1988) suggests that a negative emotional loading of an experience can actually have the opposite effect. This phenomenon has been confirmed by McCroskey (1984), who found that individuals who mostly have negative experiences with public speaking, on average experience more anxiety than individuals who have mostly positive experiences, regardless of how much experiences they have. This finding addresses the importance of the role that emotional loading plays within the concept of experiences, since individuals with more experiences, albeit being mostly negative, can still suffer from more anxiety than individuals who have less, but more positive experiences.

Limitations

This study has potential limitations which must be taken into consideration. First, it must be noted that this study only focused on the dynamic between the variables experience with presenting, self-efficacy and presentation anxiety. Literature shows that foreign language speaking anxiety could also have unknowingly impacted the results of this study, due to sample characteristics. Namely, presenting in a non-native language can influence the extent to which one experiences anxiety, since people are more likely to experience high levels of anxiety when engaging in an act of public speaking when having to do this in a foreign language (Mulyono et al., 2019; Hasibuan & Irzawati, 2020). Since the students at the Dutch and German universities that filled in the survey often have to present in English, which is not the native language of the majority of the students, foreign language speaking anxiety could have played a role. Next to that, all data stems from self-reports which can be subject to bias and limitations (Babbie, 2016). For instance, participants could have felt the need to give answers that are more socially desirable, or they could have simply been unable to assess themselves accurately (Babbie, 2016). In the context of this study, this could have resulted in participants downplaying the extent to which they experience presentation anxiety, as well as assessing their self-efficacy perception more strongly than how they actually feel. Furthermore, the sample used in this study was mainly gathered through convenience sampling, using the SONA platform, as well as social media. The SONA platform is mostly used by psychology students at the University of Twente, and the link to the survey was spread via social media to several groups consisting of mostly psychology students as well. There is thus reason to believe that a large proportion of the sample consisted of psychology students, which could mean that results found by this study are not representative for the general population of students. Moreover, there was not much variety regarding age range and nationality of the participants, which strengthens the assumptions that the sample is relatively

homogeneous, which means the generalisability of the findings compared to other subgroups in the general population is narrow.

Strengths

There are also several strengths to this study. First of all, even though students might be viewed as a quite homogenous group regarding age and nationality, it is an extremely fitting target group for research into presentation anxiety. Namely, due to public speaking being a popular course in university curricula, university students belong to an ideal target subgroup since they could provide insights into how they are experiencing anxiety regarding public speaking and presenting. Second, the choice for an online survey was especially beneficial for this study since it enabled gathering of a large number of participants within a relatively short amount of time. Third, the study was conducted in an interesting context. Namely, it was conducted in a time in which many educational institutes were switching back from mostly online education to offline, due to the Covid-19 pandemic. This provides interesting insights into how students, who are likely to have experienced between somewhere 6 months and 2.5 years of online education, are performing regarding presenting, and how they experience it. Fourth, even though there is very limited research on this topic as of now, the findings of this study are in accordance with literature on each separate association between the variables. Both hypotheses were accepted, and all findings were as initially expected. This suggests that the conceptual model of this study is likely an accurate representation of all literature on the separate variables combined.

Recommendations for future research

Evidently, further research on presentation anxiety is needed to evaluate the results of this study, and to check for other correlates that could enhance the predictive value of the model. One variable that unquestionably needs further examining is the emotional loading of the experiences people have with presenting, and how this emotional loading impacts their presentation anxiety and self-efficacy perceptions. In order to investigate the emotional loading of public speaking experiences, further studies should focus on developing a scale which measures how individuals experience their encounters with public speaking (e.g. positive or negative), since there is no existing scale as of now. Moreover, foreign language speaking anxiety should be taken into account to ensure that the results are not unknowingly influenced by another factor. This can be done by either examining a target group who is likely to give presentations in their native language, or by including a measurement instrument that assesses foreign language speaking anxiety specifically.

Conclusion

To conclude, although the findings seem to suggest that the relationship between experience with presenting and presentation anxiety is mediated by self-efficacy perceptions, further research is needed to validate these results as well as explore other potential correlates of presentation anxiety. Differing results regarding the strength of the association between experience with presenting and presentation anxiety call for further research into the impact of the emotional loading of individuals' experiences on presentation anxiety.

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Appendix A

Public Speaking Anxiety Scale (PSAS)

1. Giving a presentation is terrifying.
2. I am afraid that I will be at a loss for words while speaking.
3. I am nervous that I will embarrass myself in front of the audience.
4. If I make a mistake in my presentation, I am unable to re-focus.
5. I am worried that my audience will think I am a bad speaker
6. I am focused on what I am saying during my presentation.
7. I am confident when I give a presentation.
8. I feel satisfied after giving a presentation.
9. My hands shake when I give a presentation.
10. I feel sick before speaking in front of a group.
11. I feel tense before giving a presentation.
12. I fidget before speaking.
13. My heart pounds when I give a presentation.
14. I sweat during my presentation.
15. My voice trembles when I give a presentation.
16. I feel relaxed while giving a presentation.
17. I do not have problems making eye contact with my audience

Appendix B

New General Self-Efficacy Scale (NGSES)

1. I will be able to achieve most of the goals that I have set for myself.
2. When facing difficult tasks, I am certain that I will accomplish them.
3. In general, I think that I can obtain outcomes that are important to me.
4. I believe I can succeed at most any endeavour to which I set my mind.
5. I will be able to successfully overcome many challenges.
6. I am confident that I can perform effectively on many different tasks.
7. Compared to other people, I can do most tasks very well.
8. Even when things are tough, I can perform quite well.