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The Effects of Social Desirability on Students' Self-Reports in Two Social Contexts: Lectures vs. Lectures and Lab Classes

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Abstract: Attempts to detect socially desirable responding bias have mainly focused on studies that explore sensitive topics. However, researchers concur that the sensitive character of the survey could be affected by the social context within which the research is conducted. Little research has been reported worldwide investigating the potential effects of social desirability on students' self-reports, considering the social context within which the survey is conducted. In this paper, we investigate the potential effects of social desirability on students' self-reports in two social contexts within which the survey was conducted. More specifically, with a sample of 111 Greek students, we explored the effects of social desirability on students' attitudes towards statistics in two cases: when the questionnaire was administered to participating students after attending (a) lectures and (b) both lectures and laboratory classes. Only in the second case were the items' attitudes toward statistics associated with a score of socially desirable responding; moreover, social desirability accounted for the relationship between attitudes toward statistics and perceived competence in mathematics. Implications and limitations are also discussed.

Keywords: sensitive topics; measurement bias; common method biases; attitudes towards statistics; higher education; survey research

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1. Introduction

Socially desirable responding (SDR) can be interpreted in terms of measurement bias [1]. The SDR is defined as the predisposition of survey respondents to present themselves in the best possible light, giving answers that are usually perceived as socially desired [2–4]. This tendency to answer in a way that is viewed sympathetically may lead to inaccurate self-reports and, ultimately, incorrect conclusions because the data are potentially biased [1,5].

Research on SDR has been ongoing for several decades [1,6–9]. Researchers from various backgrounds have provided insights into the debate about the nature of the phenomenon (whether a property of the respondent or the instrument used) [4,5], the motives and psychological mechanisms that underlie it, the survey variables that seem to influence its manifestation, the improvement measures that can be taken in the survey design [1,7,10], and the methods that may be employed to mitigate its impact [1,10]. Irrespective of the debate as to whether SDR constitutes a form of response bias or a variable of interest in itself, it seems to affect more or less all types of self-reports across all social sciences [1,11]. As a result, SDR continues to be a source of concern and attracts research attention and efforts, particularly in those fields that rely heavily on self-reports as a source of data, and even more so when some of the results are mixed or controversial [12].

Attempts to detect SDR bias have mainly focused on surveys that contain sensitive topics—that is, those that potentially pose a substantial threat for those involved [13,14], such as health, sexual, and drug-related behaviours [1,4,10]. Sensitive questions tend to lead to higher measurement error responses than questions on other topics [15]. The data collection mode is considered to be essential in explaining misreporting in sensitive studies. The main distinction is whether the questions are interviewer- or self-reported surveys. Self-report surveys have been found to reduce participants' feelings of jeopardy and produce more honest answers to sensitive questions [10]. However, researchers argue that the sensitive character of research "seemingly inheres less in the topic itself and more in the relationship between that topic and the social context within which the research is conducted" [13] (p. 512). In this way, surveys about attitudes towards the teaching subject could transform the issue under research into a "sensitive topic".

Self-report surveys of university students are among the most frequently used data sources because these data play an essential role in evaluating universities' programs and affect the application of suitable policies [16]. Therefore, having valid and reliable data is vital for stakeholders such as faculty members and policymakers. However, although self-report surveys are frequently used in higher education, the presence of social desirability is rarely considered [16,17]. Recent studies on a broad spectrum of topics in higher education have found relationships between SDR and variables of interest [7,17,18]. Still, other studies in higher education have found no significant relationships with SDR [9], whereas others have found mixed results [12]. These controversial findings indicate the need further to explore the validity of surveys with university students, taking into account the social context within which the survey is conducted [13,16]. Moreover, to the best of the authors' knowledge, no previous attempt has been reported worldwide to investigate the potential effects of social desirability on students' self-reports considering the social context within which the research is conducted—the social contexts being (a) after lectures only or (b) after lectures combined with computer laboratory. This study explores whether students' survey responses regarding a common but non-sensitive topic—such as students' attitudes towards statistics—vary in terms of their susceptibility to SDR depending on the teaching setting employed (lecture only versus lecture and lab).

Subsequently, the theoretical background is presented, followed by the research objectives. Then, the method and the research procedure are presented. Lastly, this study's results, limitations, practical implications, and future potential are discussed.

2. Theoretical Background

The most widely used teaching methods are lectures to small and large groups. Lectures have been "accused" of being ineffective in engaging students and addressing the varying needs of a vast and diverse audience [19]. In contrast, studies suggest that students strongly prefer a lab component when offered [19], and that the "hands-on" lab time is very effective in learning—for example, with statistical software [20,21]. Regarding teaching statistics, one study suggested that the most significant impact on final grades was found when computer-assisted instruction was incorporated into several class meetings [21]. It has been suggested that computer instruction reduces students' anxiety and improves their general attitudes towards statistics [22].

Students' attitudes toward statistics are important because there is evidence that they are related to the learning process and influence the learning outcome [23,24]. Although attitudes towards statistics are not considered to be a sensitive topic, the attitudes towards various subjects are often studied in education. In addition, it has been found that the teacher's teaching approach often influences students' attitudes towards the subjects they are taught [25,26]. Especially in smaller classes, such as a computer laboratory, where students have more opportunities for interaction with the teacher and one another [20], students may develop a social context that could improve their attitudes towards the subjects taught [27]. A possible explanation is that, through their positive responses, students may want to influence the assessment score that the teacher will assign to them [28].

On the other hand, in a lecture class, the emphasis is placed on knowledge transmission, so interaction is poor compared to the computer lab. Hence, it is crucial to investigate whether the social context developed in these different classes explains SDR's effect on students' attitudes toward statistics.

2.1. Partialling Out Social Desirability

SDR's measurement error is a severe problem because it could provide an alternative explanation for the observed relationships between measures of different constructs [10]. Partialling out of measures of SDR is used to investigate their measurement error [1,14]. A high score on an SDR measure may indicate one of the following: (a) the respondents are engaged in socially desirable behaviours that influence their responses to what is being measured, (b) the respondents deliberately report a socially desirable behaviour to create an impression, or (c) the respondents are engaged in socially desirable behaviours, but their responses are sincere in terms of what is being measured [4,29]. Only the first two cases may influence the construct measured.

However, the total score of SDR by itself does not indicate the extent of the contamination [6,9]. A way to test the distortion of the scale of interest is by correlating the results with those from the scale used to measure SDR [1]. If no significant correlation is found, then the variables measured are probably not influenced by SDR [6], or the effect of SDR is insignificant if the correlation is negligible, i.e., less than $|0.2|$ [29]. If the correlation is non-negligible, this is an indication of possible contamination [6,30], in which case it is essential to check whether SDR influences the fundamental correlation between the independent and dependent variables of interest [6,9,29]. Ganster et al. [6] introduced three models to describe the effects of SDR on the results of organisational behaviour research: (a) SDR may produce spurious correlations between study variables, (b) it may hide authentic relationships (suppression), and (c) it may moderate relationships between two other variables.

2.2. Research Objectives

The aim of our work was twofold:

1. To investigate the possible effects of socially desirable responses on university students' attitudes towards statistics after attending an introductory course in statistics.
2. To highlight how the type of class that the students attend moderates the abovementioned effect.

We compared two different survey conditions: in the first condition, the survey was conducted with students who attended only the lectures, whereas in the second the survey was conducted with students who attended lectures combined with a computer laboratory.

In the following sections, we present the research procedure and analysis of our survey on whether university students' self-reports on attitudes towards statistics are susceptible to socially desirable responses, considering the administration of the questionnaire in the two previous conditions.

3. Method

3.1. Research Procedure

This study employed a cross-sectional quantitative research method [31] (conducted in December 2019). Notably, a questionnaire was administered to students after nine weeks of teaching so that the students had some exposure to statistics. To increase the students' participation in the research, we followed the guidelines suggested by Lavidas et al. [32]. The research protocol was approved by the Research Ethics Board designated by the University of Patras and, particularly, by the Department of Educational Science and Early Childhood Education. The participants gave their informed consent prior to the research. According to Tan et al. [33], web surveys are more likely to minimise SDB than offline surveys. Therefore, the data collection was conducted online using SurveyMonkey; the survey link was sent to each student via the learning management system that supported the lesson [34]. In a brief introduction, before the survey questions began, the students were informed that sincere answers were vital for the validity of the survey results. Moreover, ethical considerations concerning the privacy of individuals were carefully considered throughout the research process. Past studies have shown that the greater the degree of privacy and anonymity, the lower the level of SDR [10,35].

3.2. Participants and Teaching Settings

All students at the Department of Early Childhood Education at the University of Patras were enrolled in the statistics course and were asked to participate in the survey voluntarily. From them, 111 students were accepted to participate in the research and were randomly split into two groups. The first group (Lecture) comprised 61 students who attended only the class lectures. The second group (Lecture and Lab) consisted of 50 students who attended the lectures plus a two-hour computer laboratory per week. The participants ranged from 20 to 22 years old; they were at least in their third year of studies (juniors: 85%), and the vast majority were female students (96.4%).

In both cases, the course was a weekly compulsory introductory statistics course. The course content was identical for both groups and was taught by the same instructor (i.e., by the first author). The Lecture and Lab group, during the computer laboratory sessions, was divided into subgroups of 25 members. The students used spreadsheet software and worked independently (one student per computer). The lecturer gave them a list of tasks and demonstrated the solution on an interactive whiteboard. On the other hand, in the lecture group, the exercises were projected on a blackboard using presentation software or were solved manually by the instructor.

3.3. Research Instruments

A 41-item questionnaire was drawn up comprising closed-ended questions: a 28-item version of the Survey of Attitudes Toward Statistics (SATS-28) [36], 2 items for students' perceived competence in mathematics [24,37], and an 11-item adapted version [8] of the Marlowe–Crowne Social Desirability (MCSD) Scale [2,3]. In terms of demographic factors, the respondents were asked to indicate their age and gender.

SATS-28 is one of the most widely used instruments to measure attitudes toward statistics [23,24,38]. It takes into account a multidimensional model that conceptualises attitudes towards statistics as a combination of four major components: (a) affect (6 items), i.e., the way the students feel about statistics (e.g., "I like statistics"); (b) cognitive competence, i.e., how competent they feel about their knowledge and skills in statistics (e.g., "I can learn statistics"); (c) value (9 items), i.e., how useful, relevant, and valuable statistics is in their everyday and professional life (e.g., "I use statistics in my everyday life"); and (d) difficulty (7 items), i.e., how difficult they believe it is to learn statistics (e.g., "Most people have to learn a new way of thinking to do statistics"). Students answer each question on a 7-point Likert-type scale ranging from 1 (I strongly disagree) to 7 (I strongly agree), with 4 being the neutral value. According to the creators of SATS-28 [38], Cronbach's alpha coefficient appears to have high scores (>0.861) in the subscales "Affect", "Cognitive Competence", and "Value". The corresponding internal consistency factor for the "Difficulty" subscale is 0.671, but this level is considered marginally sufficient. The validity and reliability of this version have also been tested on a similar sample of Greek students by Lavidas et al. [24].

Apart from SATS-28, the questionnaire included two items on perceived competence in mathematics. This variable was deemed necessary because many studies report that it is the main factor behind attitudes towards statistics [24,37]. Two questions were used to measure perceived competence in mathematics: (a) *Were you good at high school maths?* (b) *How good are you at maths?* Students responded to a 7-point Likert-type scale ranging from 1 (not good at all) to 7 (excellent) [24,37].

The use of separate SD scales prevails among the various methods proposed to detect, measure, or reduce SDR. The MCSD Scale (Crowne and Marlowe, 1960) is the most frequently employed SDR instrument [29]. To measure social desirability bias, a short version of the 11-item MCSD Scale [3,8] was distributed, and the respondents were asked to report whether a statement was true or false. "True" responses to items 5, 7, 9, 10, and 13 were added to "False" responses to items 1, 2, 6, 8, 11, and 12 to calculate the total score. This scale version was administered to students in a similar context by Lavidas and Gialamas [8], and its validity and reliability were established.

3.4. Data Analysis Strategy

We followed a two-level procedure to individually detect a possible SDR bias in the questionnaire. First, we calculated the bivariate product–moment correlation coefficients of the SDR scale with each of the 28 items of SATS-28, the 2 items measuring perceived competence in mathematics, and the 5 variables derived from there: 4 variables from the SATS scale (affect, cognitive competence, value, and difficulty) and 1 from the perceived competence in mathematics (PCM). Then, to assess the SDR effect on the correlation between the reported PCM (the independent variable) and the four dimensions of students' attitudes towards statistics (the dependent variables), we used the techniques and the three models proposed by [6]. In more detail, we computed regressions for each of the four dimensions on both PCM and SDR. If the interaction between independent variable (X) and SDR (i.e., "X*SDR") was non-zero while the zero-order correlations between SDR and the other variables were zero (unrelated), then the moderator model applied. If the beta coefficient for the independent variable (X) was zero or just less than the zero-order correlation between the independent (X) and dependent (Y) variables, then the spuriousness model applied. Finally, if the beta for the independent variable (X) was greater than the zero-order correlation between the independent (X) and dependent (Y) variables, then the suppression model was correct [6].

4. Results

Initially, to identify the multivariate outliers of the 28 statements of SATS-28, we relied on the Mahalanobis distance [39]. Three cases were identified as multivariate outliers ($p < 0.001$): one case from the Lecture group and two cases from the Lecture and Lab group. They were eliminated, narrowing down the sample size to 108 students (60 students from the Lecture group and 48 from the Lecture and Lab group). Before the data analysis, 19 negatively worded items were reversed so that, for all items, a higher score corresponded to a more positive attitude toward statistics [36]. Regarding the reliability of the SATS-28 scale, the internal consistency coefficient (Cronbach's alpha) was satisfactory in the subscales affect (Total: 0.832. Lecture: 0.872, Lecture and Lab: 0.771), cognitive competence (Total: 0.804. Lecture: 0.876, Lecture and Lab: 0.699), and value (Total: 0.820. Lecture: 0.856, Lecture and Lab: 0.748), and marginally sufficient in the difficulty subscale (Total: 0.691. Lecture: 0.707, Lecture and Lab: 0.674). Regarding the reliability of the perceived competence in mathematics scale, the internal consistency coefficient (Cronbach's alpha) was satisfactory (Total: 0.919. Lecture: 0.950, Lecture and Lab: 0.882). The internal consistency reliability of the SDR scale was estimated using the "Kuder-Richardson Formula 20" and was found to be marginally sufficient (Total: 0.648. Lecture: 0.648, Lecture and Lab: 0.655).

Finally, a new component variable was calculated for each dimension measured by SATS-28. We constructed four new variables based on the items' scale (seven points). Similarly, a new variable for perceived competence in mathematics was derived. Lastly, an SDR variable was calculated. Initially, we present the correlations of the variables of interest with SDR; subsequently, the effects of SDR on the relationships between variables of interest are explored. Table 1 presents the descriptive statistics of the variables of interest in the two groups. In most cases, the mean scores of the variables in the two groups seemed similar, with a slight increase in the "Lecture" group.

Table 1. Descriptive statistics of the variables in the two groups.

	Lecture and Lab (N = 48)					Lecture (N = 60)				
	Min	**Max**	**Mdn**	**M**	**SD**	**Min**	**Max**	**Mdn**	**M**	**SD**
SDR	1.00	11.00	7.00	7.04	2.35	1.00	11.00	7.00	7.57	2.28
PCM	2.00	14.00	8.50	8.77	2.99	2.00	14.00	7.00	7.17	2.72
Affect	1.50	7.00	4.00	3.79	1.22	1.17	6.33	4.50	4.12	1.31
Cognitive competence	1.83	7.00	4.42	4.41	1.01	1.33	6.50	4.67	4.57	1.19
Difficulty	1.57	5.43	3.36	3.35	0.87	1.86	5.86	3.71	3.62	0.77
Value	3.35	6.56	4.68	4.79	0.84	2.89	7.00	5.22	5.03	1.01

Notes: Perceived competence in mathematics (PCM), socially desirable responding (SDR), median (Mdn), mean (M), standard deviation (SD).

Initially, we present the correlations of the variables of interest with SDR; subsequently, the effects of SDR on the relationships between variables of interest are explored.

4.1. Correlations between SDR and Variables of Interest

Following the analysis of the results from the Lecture and Lab group, SDR seemed to be significantly correlated with 11 statements on the SATS-28 scale and 2 statements on the perceived competence in mathematics scale (Table 2), and all of these cases were considered non-negligible ($|r|>0.2$). Non-negligible correlations were also observed with the component variables of the SATS-28 and the perceived competence in mathematics. The analysis of the Lecture group's results did not indicate statistically significant correlations between SDR bias and the variables of interest, but did indicate some (with three statements) non-negligible correlations.

Table 2. Product–moment correlation coefficients; variables of interest with SDR in the two groups.

		Lecture	**Lecture and Lab**
Affect items	1. I like statistics	0.099	0.382 **
	2. I feel insecure when I have to do statistics problems	0.231	0.104
	11. I get frustrated going over statistics tests in class	0.098	0.247
	14. I am under stress during statistics classes	−0.025	0.183
	15. I enjoy taking statistics courses	0.239	0.345 *
	21. I am scared by statistics	0.181	0.320 *
	Total Affect	0.171	0.383 **
Cognitive competence items	3. I have trouble understanding statistics because of how I think	0.020	0.238
	9. I have no idea of what is going on in statistics	0.253	0.305 *
	20. I make many math errors in statistics	0.080	0.051
	23. I can learn statistics	0.069	0.389 **
	24. I understand statistics equations	0.076	0.286 *
	27. I find it challenging to understand statistics concepts	0.027	0.403 **
	Total Cognitive Competence	0.112	0.446 **
Difficulty items	4. Statistics formulas are easy to understand.	0.104	0.484 **
	6. Statistics is a complicated subject	−0.107	−0.037
	17. Statistics is a subject quickly learned by most people	−0.119	0.187
	18. Learning statistics requires a great deal of discipline	−0.002	0.170
	22. Statistics involves massive computations	−0.008	−0.020
	26. Statistics is highly technical	−0.164	0.122
	28. Most people have to learn a new way of thinking to do statistics	−0.178	0.168
	Total Difficulty	−0.103	0.253

Table 2. *Cont.*

		Lecture	Lecture and Lab
Value items	5. Statistics are worthless	0.186	0.226
	7. Statistics should be a required part of my professional training	0.068	0.293 *
	8. Statistical skills will make me more employable	0.016	0.322 *
	10. Statistics is not helpful to the typical professional	−0.010	0.220
	12. Statistical thinking is not applicable in my life outside my job	0.026	0.260
	13. I use statistics in my everyday life	−0.247	0.120
	16. Statistics conclusions are rarely presented in everyday life	0.008	0.088
	19. I will have no application for statistics in my profession	0.133	0.182
	25. Statistics is irrelevant in my life	0.059	0.355 *
	Total Value	0.039	0.406 **
PCM	How good were you in high school maths?	0.050	0.409 **
	How good are you at maths?	−0.029	0.496 **
	Total PCM	0.012	0.476 **

Notes: perceived competence in mathematics (PCM), socially desirable responding (SDR), ** $p < 0.01$ and * $p < 0.05$.

4.2. The Effect of SDR on the Correlation between the Independent and Dependent Variables

The moderator model was not observed in any of the four dimensions of the SATS-28 scale under either testing condition (i.e., the "Lecture" and "Lecture and Lab" groups). No statistically significant correlation was found in any of the tests for interaction between perceived competence in mathematics and SDR for each of the four dimensions of the attitudes scale. The spuriousness model was observed only in three dimensions (affect, cognitive competence, and difficulty), and only for the Lecture and Lab group (Table 3). More specifically, in these cases, the simple beta was slightly reduced (close to 0.08) compared to the simple correlation between the variables of interest, but remained statistically significant.

Table 3. Beta and product–moment correlation coefficients among variables in the two groups.

		t		Beta		Simple Correlation r		Δ (r-Beta)	
Dependent Variables	Independent Variables	Lecture	Lecture and Lab	Lecture	Lecture and Lab	Lecture	Lecture and Lab	Lecture	Lecture and Lab
Affect	PCM	6.604 **	3.231 **	0.649	0.456	0.651 **	0.535 **	0.002	0.079
	SDR	1.667	1.178	0.164	0.166	. . . .	. . . .		
Cognitive competence	PCM	6.984 **	5.024 **	0.675	0.610	0.676 **	0.684 **	0.001	0.074
	SDR	1.078	1.278	0.104	0.155	. . . .	. . . .		
Difficulty	PCM	2.730 *	1.356	0.338	0.218	0.337 **	0.289 *	0.001	0.071
	SDR	−0.862	0.931	−0.107	0.150	. . . .	. . . .		
Value	PCM	1.216	−1.221	0.159	−0.186	0.159	0.049	. . . .	. . . .
	SDR	0.281	3.243 *	0.037	0.494	. . . .	. . . .		

Notes: perceived competence in mathematics (PCM), socially desirable responding (SDR), ** $p < 0.01$ and * $p < 0.05$.

5. Discussion and Conclusions

The first aim of this study was to investigate the presence of SDR bias in the responses given by undergraduate students to the 28-item Survey of Attitudes Toward Statistics (SATS-28). The second aim was to compare the results yielded from the two survey conditions: Lecture versus Lecture and Lab. In the latter condition, there was a statistically significant, non-negligible correlation between SDR and most statements on the scale of interest. Regarding this correlation, it seems possible that students state a "false" image to the teacher through the questionnaire [28] in statements that are considered non-sensitive [1,4], such as their attitudes toward statistics and their perceived competencies in mathematics. This may indicate that students "reward" the teacher's didactic intervention by expecting perhaps more leniency in the evaluation [28]. This "reward" might be because students develop an emotional climate through intense interaction with the teacher in the lab [27]. In addition, from the effects of SDR on the correlation between the four dimensions of the

SATS-28 scale and the variable "perceived competence in mathematics", we observed a slight variation of the effect (D (r-Beta): 7% to 8%) only in the case of three dimensions (affect, cognitive competence, and difficulty), which fits the spuriousness model. This means that the observed correlations between the independent and dependent variables are part of the shared variance of SDR. The effects of SDR on the relationships of variables of interest in higher education were also presented by Nauta [18], who found significant correlations of SDR with the variables that she examined (i.e., satisfaction and career decision self-efficacy). However, she did not observe a significant effect of SDR on the relationship between satisfaction and career decision self-efficacy [18].

In the case of the distribution of the questionnaire to students who attended only the lecture class, there was a non-negligible but statistically insignificant correlation of SDR bias with only three statements. Furthermore, the regression analysis did not indicate any alteration of the relationships between the variables in which we were interested that could be explained through SDR. Ferrari et al. [12] found similar results in higher education, finding no association between SDR and assessment of students' perceptions of their institution's values and mission.

Therefore, our findings suggest that SDR bias threatens the validity of student self-report responses to non-sensitive issues such as their attitudes toward statistics when the social context within which the survey is conducted could make it sensitive [13]. The effect of SDR on the correlation of the variables of interest was small but significant when the questionnaire was distributed to the Lecture and Lab group. The smaller group size and the more personal interaction with the teacher may have been more susceptible to socially desirable responses [28].

This study provides evidence that social desirability can influence students' self-report responses to a non-sensitive issue. In our research, this non-sensitive issue was the students' attitudes toward statistics, only for the students that attended the Lecture and Lab group. Considering that surveys worldwide are used to evaluate university programs' effectiveness (Porter, 2011), SDR in such contexts must be examined [17]. However, to decrease respondents' concerns about how their answers will be judged, questions should be presented in a neutral, inoffensive, and non-embarrassing way [1,10], and the privacy and the anonymity of the participants during the survey process should be ensured [35].

Future studies should evaluate the effects of social desirability on various survey instruments, considering the influence of social context, and propose methods to mitigate this form of bias. Thus, considering that SDR bias may be measured through well-documented instruments, we recommend administering a separate SDR scale along with the primary self-report scale in higher education. However, when SDR scales are applied, the potential contamination should not be assessed based only on the correlation between the SDR scale and the scale of interest. Rather, this should be coupled with analyses to detect the possible effects on the correlation between the variables of interest [6]. If SDR seems to affect the relationship between the dependent and independent variables under consideration, then SDR should be included as a covariate in further research [1].

Further empirical evidence is needed to relieve researchers' concerns about self-report measures and to assist them in defining whether incipient contamination occurs. Moreover, more research is needed on how existing instruments may be improved to overcome concerns about SDR bias. It should be noted that a variety of SDR measurement scales and techniques are progressing over time [1,8]. Therefore, future research using at least one different SDR scale could confirm the previous findings.

Regarding our study, the main limitation was that we did not investigate whether shared variance between the independent and dependent variables of interest and the SDR variable included in the study was shared with other variables. Other variables might explain the difference between zero-order and partial correlations [1]. Although the course (i.e., duration, content) and the sample features were very similar, we cannot ignore the fact that differences in the two survey conditions may be considered to be confounding factors. Moreover, the small number of male participants prevented us from investigating whether gender might be a predictive factor of perceived social desirability. Finally, the SDR scale and the subscale "difficulty" had marginally acceptable Cronbach's alphas. Therefore, a representative sample with students from different disciplines and universities including a more significant number of male students is necessary for future research.

Finally, despite the limitations of our study, we believe that our findings contribute to a better understanding of social desirability bias in responses to survey research and might be helpful for educators and researchers who investigate similar topics of interest in education.

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