

DIFFERENCES IN THE ASSERTIVENESS LEVEL OF FIRST YEAR PRE-SERVICE TEACHERS FROM A ROMANIAN UNIVERSITY OF LIFE SCIENCES

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Abstract: *Higher education represents a stage when undergraduates are required to communicate in an assertive manner. By being assertive, they are able to cope with stress in their relationships with teachers, colleagues and administrative staff. Teacher assertiveness represents a desirable interpersonal skill having positive influence on both students and teachers. The objective of the current study was to examine assertiveness levels in university students enrolled in the teacher training program (N = 284) who completed the Rathus Assertiveness Schedule (RAS). Urban respondents reported higher levels of assertiveness than rural respondents did. Male respondents reported higher levels of assertiveness than female participants in the study. Pre-service teachers from the Faculty of Agriculture reported the highest level of assertiveness and pre-service teachers from the Faculty of Food Engineering reported the lowest level. From the perspective of distribution on study programs, respondents from Horticulture reported the highest levels of assertiveness, while respondents from Animal Husbandry reported the lowest levels. Implications of the identified distribution patterns are also discussed, as well as their impact on academic curricula.*

Keywords: *assertiveness; pre-service teachers; interpersonal skills; higher education.*

1. Introduction

Teaching is considered by education researchers among the top most stressful professions (Carroll et al., 2021; Bermejo-Toro et al., 2016). Typically, this type of stress has very different consequences: teachers' exhaustion (Harmsen et al., 2018; Skaalvik & Skaalvik, 2015), fatigue, overload, decreasing ability to engage effectively (Roeser et al., 2012), teachers' absenteeism (Woods & Montagno, 1997), and more recently, teacher victimization (Sorrentino & Farrington, 2019). However, there are still teachers who refuse to admit they feel stressed or that they attend courses/workshops for stress management, for fear of stigmatization (M. Brown et al., 2002).

To help teachers manage the stress related to the teaching profession, it could be useful to help them, as pre-service teachers, to identify and, if necessary, to increase their level of assertiveness, because the fact that high assertiveness reduces stress levels in teachers has been well established (Bowers, 1995; M. Brown et al., 2002; Austin et al., 2005; Gelberg & Gelberg, 2005). It is known that undergraduate education could be a very stressful period for pre-service teachers (García-Martínez et al., 2021), and also for other educational categories (Quincho et al., 2021).

In view of these findings, teacher assertiveness represents a desirable interpersonal skill, as well as an important element of extraversion (Costa & McCrae, 1992). Therefore, as a highly relevant social skill, assertiveness plays a significant role in establishing and maintaining functional relationships (Carstensen & Klusmann, 2021), including teacher-student interactions. At the same time, assertiveness is considered a dominant value in a successful career across a large variety of professional domains (Ghosh, 2004). However, in a study conducted by Moultrie & De la Rey (2003) with women from higher education institutions, authors concluded that assertiveness does not represent an important skill in their career development.

Assertiveness in educational settings

Assertiveness has been defined as the ability of an individual to communicate personal opinions, beliefs, wishes and requirements, while taking into consideration and respecting the same aspects in others (Alberti & Emmons, 2017). Along a potential spectrum of assertiveness, timidity and aggression represent the extremes, with audacity positioned in the mid-range of the spectrum. Audacity represents a pattern of relationships ensuring that individuals defend their rights without denying the others' rights (Voltan-Acar, 2003 as cited in Dinçyürek et al., 2012). On the positive side, assertiveness may be learned at any age, because it is not an innate trait (Galinha & São-João, 2021). An assertive person displays specific behaviours – such individuals having the tendency to be direct, decisive, forceful, and outspoken (Hu et al., 2019).

In the classroom environment, assertive teachers show confidence when speaking, presenting, or teaching the lesson, are involved in effective classroom management, display a positive and authoritative image (Thomas-Maddox, 2008), and are less perceived as misbehaving teachers (Wanzer & McCroskey, 1998). Furthermore, it is highlighted that assertive teachers generate more positive outcomes than the less assertive ones, assertiveness being positively correlated with teachers' effectiveness and competence, in a research conducted by Carstensen & Klusmann (2021).

Moreover, assertiveness helps teachers protect themselves against students' manipulations (Sheinov, 2019). Teachers' assertiveness also has a positive influence on *developing social competence*, which leads to increased cohesion in the classroom, especially in manipulative students with a sense of superiority (Martínez et al., 2016). Regardless of students' inappropriate behaviours, teachers are required to act in an assertive manner and to explicitly establish a "guide" for behavioural expectations for the students (Brown, 2004). Also, Wooten and McCroskey (1996) have found strong correlations between increased teacher assertiveness and students' increased trust in their teachers. It is equally important to highlight that this correlation is mediated by the learners' assertiveness score. In the case of students with low levels of assertiveness, there appears to be no correlation. This aspect implies the need to increase the assertiveness in students as well, which would lead to many positive consequences (Eskin, 2003).

In addition, Sucan et al. (2016), in their research regarding a possible relationship between assertiveness and Leadership Styles, concluded that there is indeed a significant correlation between assertiveness and the leadership style (Laissez-Faire leadership and Transformational leadership of individualized consideration). The sample provided for the study consisted in physical education teachers.

Teacher assertiveness is part of the personal characteristics of a "good teacher", along with humour and empathy, as concluded by Raufelder et al. (2016). Their research also highlights the students' slight preference for interpersonal qualities regarding academic aspects (motivation, comprehensible teaching, and variety during lesson). However, assertive communication is not as easily attainable as it may seem upon superficial consideration. It can be really challenging for teachers, because it involves approaching students as equal human beings and treating them with respect, even if the students will not display respect in their turn on every occasion (Oana & Ona, 2019).

Teachers' assertiveness is important in relationships with the students' parents, too. The role of assertiveness is very well noticed when the negative emotions appear as a result of discussions with parents, related to students' behavioural or academic difficulties (Adams & Christenson, 2000). Even

though most individuals try to avoid them, negative emotions are important because they actually signal a violation of our needs (Hart & Hodson, 2004 as cited in Porter, 2008). An essential aspect of the teachers' assertiveness in their relationships with parents is just accepting the *responsibility for their own needs and feelings*; not blaming the parents for their own negative feelings (Porter, 2008). In developing assertiveness in teachers and students, an essential aspect is represented by the principals and their intentions to create an adequate environment for learning, which leads to the development of assertiveness in teachers and their students (Blackwell, 2003).

Given that it represents such an important trait for teachers, a larger number of recent studies would have been expected to address in-service teachers' assertiveness. But, the larger number of papers approaching this topic date back to the 70's-90's. This paper aims at covering this identified gap in the current research and to contribute an improvement to this situation. Next, we identified articles related to pre-service teachers' assertiveness, because it is an essential stage in helping them become more assertive.

Another purpose of teaching departments should be to help students *feel prepared* for the teaching career (Kantrovich, 2007, as cited in McIntosh, 2017). As shown in a research conducted by Dinçyürek et al. (2012) on a sample consisting of language pre-service teachers, there is no significant correlation between pre-service teachers' level of assertiveness and academic success. Another research conducted by Oana and Ona (2019) based on a sample of pre-service teachers at the Faculty of Music and the Faculty of Visual Arts and Design emphasizes that assertive didactic communication has a strong influence on the development of the democratic didactic style. The researchers concluded that the ability to establish boundaries or to say "no" appears to be underdeveloped in pre-service teachers.

As many teachers in the Departments of Teacher Education have reported, a large number of undergraduates have had positive experiences in facing challenges, having developed such abilities in high-school, secondary education or within their family contexts. Nonetheless, there are quite a few students with no experience in this area, and they face a number of problematic issues (Exner, 2002). In this context, we highlight the crucial role of adults, including both parents and educators, in individual's lives, especially in assisting them to become more assertive by developing emotional intelligence (Evans, 1959; Kolb & Handley-Maxwell, 2003). In achieving this goal, teachers and counsellors should systematically provide assertive situations (communication and discipline) and training for children in elementary school (Avşar & Alkaya, 2017; Kashani & Bayat, 2010), secondary school (Vatankhah et al., 2013), high school (Keliat et al., 2015), and tertiary education (wa Bofelo et al., 2013) or to adapt the curricula for pre-service teachers (Milovanović, 2016).

As a result of analysing the data provided by scientific studies regarding assertiveness in pre-service teachers', we recognise the need to develop assertive communication skills by the end of the teaching preparation program. In addition, some gaps have been identified in assessing assertiveness in pre-service teachers from life science universities, except for one study in the field of Veterinary Medicine (Gelberg & Gelberg, 2005) and the study conducted by Peneva and Yordzhev (2014) in the engineering domain, respectively.

Study rationale

1. The first aim of the research was to measure the level of assertiveness in the first year students enrolled in the program for the teaching career. The students enrolled in this module will also be awarded a teaching diploma, besides the qualifications in engineering, as biologists or veterinary physicians. This study is a continuation of the research conducted by Samfira (2020), supporting the studies which have assessed the level of assertiveness in pre-service teachers (Milovanović et al., 2016; Karagözoğlu et al., 2008; Rodriguez et al., 2001). The researchers have used the same Rathus Assertiveness Schedule and the students' ages ranged between 20-30 years old, very similar with our study.
2. The second aim is to identify differences in the mean assertiveness score from a socio-demographic perspective (gender, residence, age, faculty, study program).

Research questions

This paper seeks to address the following research questions:

- (RQ1) What is the students' mean assertiveness score?
- (RQ1a) Are there any differences between students, regarding gender?
- (RQ1b) Are there any differences between students, regarding their places of residence?
- (RQ1c) Are there any differences between the students, regarding age variability?
- (RQ2) Is there a correlation between the students' mean assertiveness score and the type of faculty / study program?
- (RQ2a) Which faculties have the highest and lowest mean assertiveness score?
- (RQ2b) Which study programs have the highest and lowest mean assertiveness score?

2. Methodology

Participants

For this research, we recruited 284 first year students from an agronomic and veterinary medicine university, who are enrolled in pre-service teacher preparation programs. Demographic data shows that most participants are

female (66.5%), coming from the urban environment (60.6%), and from the Faculty of Food Engineering (22.5%). The students' average age was 19.78 years ($SD = 1.65$). Additional details regarding the study sample are presented in Table 1.

Table 1. *Sample demographics*

Variable	N	Mean	SD	Min/Max	%
Age (Total)	284	19.78	1.65	18/28	100
Male	95	19.82	1.59	18/28	33.5
Female	189	19.76	1.68	18/27	66.5
Residence (Total)	284				100
Urban	172				60.6
Rural	112				39.4
Age (Total)	284				100
Agriculture	59	20.01	1.68	18/25	21.0
Horticulture & Forestry	33	19.75	1.56	18/27	11.6
Veterinary Medicine	59	19.25	1.04	18/26	20.2
Animal Husbandry & Biotechnologies	32	19.81	1.46	18/24	11.3
Management and Rural Tourism	37	20.51	2.26	18/28	13.5
Food Processing	64	19.62	1.67	18/27	22.4

Instrument

The Rathus Assertiveness Scale (RAS) developed by Rathus (1973) was used to measure the students' assertiveness level. The questionnaire, consisting in 30 items, (e.g. "I have hesitated to propose or accept dates because of "shyness"; "If a famed and respected lecturer makes a comment which I think is incorrect, I will have the audience hear my point of view as well") is suited for university students (Thompson & Berenbaum, 2011). The items are scored from *very characteristic for me* to *very uncharacteristic*. There are 17 reverse items. The total score of the scale is obtained by summing up the numerical response given for each item. Scores on RAS can vary from +90 (most assertive) to -90 (least assertive). Test-retest reliability of RAS is .78 which indicate a high stability, but Gustafson (1992) has found that the original RAS was more reliable ($r = .82$). Split-half reliability is .77 suggesting that RAS has moderate to high homogeneity (Thompson & Berenbaum, 2011).

Procedure

Participation was based on the students' voluntary consent and they were assured that could give up the study without any negative consequences. The students filled in the questionnaire at the end of the Educational psychology course. The questionnaire was administered individually, in a paper-and-pencil format, between November 2019 – January 2020. The pre-service

teachers who participated in this study had the opportunity to choose between receiving a bonus point in their exam score or to receive a written report of their results, after completing the research. There was no time limit for completion.

Data Analysis

Data processing was employed in analysing the research questions by using SPSS 19 (Statistical Package for Social Science) for Windows. Descriptive statistics, independent samples t-test, and correlations were performed.

3. Results

What is the students' mean assertiveness score?

We first examined the students' general level of assertiveness, to be able to answer the first research questions (1, 1a, 1b, and 1c), which aim at existing differences between pre-service teachers' level of assertiveness, according to demographic data - gender, residence, and age. The results indicate that the mean assertiveness score in pre-service teachers was 3.32 (max. 64; min. -61).

Next, we examined the mean assertiveness score separately for male and female pre-service teachers. After analysing mean scores, it stands out that male pre-service teachers are much more assertive than female pre-service teachers (M male = 6.65; M female = 1.65). The correlational analysis shows that, from a gender perspective, there was a significant correlation between male and female pre-service teachers, the Pearson correlation coefficient – $r(282) = -.09$, $p = .048$, one-tailed test.

Regarding students' residence, we found that urban pre-service teachers are more assertive than rural pre-service teachers (M urban = 4.81; M rural = 1.04). The correlation analysis and t test indicate that there is no significant statistical difference between urban and rural pre-service teachers ($t = 1.30$) regarding the place of residence. As regards the age range, results suggest that there is a significant positive correlation between age and the assertiveness score in pre-service teachers – $r(282) = .12$, $p = .02$, two-tailed test.

After having established the gender, residence, and age differences between pre-service teachers, we examined the next three research questions (2, 2a, and 2b):

Is there a connection between the students' mean assertiveness score and the type of faculty / study program?

Regarding differences depending on the type of faculty students have chosen to attend, the results show that, indeed, there are differences between pre-service teachers (see Table 2 for details). According to the results, the pre-service teachers from the *Faculty of Agriculture* are the most assertive students, while the students from the *Faculty of Veterinary Medicine* and the *Faculty of Food Processing* are the least assertive students.

Table 2. *The students' level of assertiveness depending on the type of faculty*

Faculty	Mean	N	SD
Agriculture	9.10	59	19.33
Horticulture & Forestry	7.69	33	21.12
Animal Husbandry & Biotechnologies	2.18	32	22.62
Management and Rural Tourism	1.51	37	29.45
Veterinary Medicine	0.35	59	26.25
Food Processing	0.10	64	22.98
Total	3.32	284	23.79

From a comparative perspective of the programs of study, the highest assertiveness score was identified in the faculty of *Horticulture* ($M = 19.33$), and the lowest assertiveness score was identified in the *Faculty of Engineering and Management in the Tourism Industry* ($M = -2$). The means for all programs of study are presented in Table 3.

Table 3. *The students' level of assertiveness depending on the study programs*

Study program*	Mean	N	SD
Horticulture	19.33	6	15.74
M.E.A	14.40	5	24.17
Agriculture	14.10	10	18.95
L.S.C.	12.22	9	13.46
Forestry	9.56	16	20.56
G.E.	8.20	5	16.43
E.E.P.A	8.00	7	28.32
Biology	7.04	23	18.05
Biotechnologies	6.42	7	22.40
E.E.A.	6.33	9	25.84
E.M.P.C.A.	1.23	17	36.10
Veterinary Medicine	0.35	59	26.25
F.P.T.	0.10	64	22.98
L.A.	- 0.60	5	13.39
Plant Protection	- 0.80	5	19.99
Animal Husbandry	- 1.07	26	24.89
E.M.T.I.	- 2.00	11	21.61
Total	3.32	284	23.79

***Note.** M.E.A. = Machinery and Equipment for Agriculture; L.S.C. = Land Survey and Cadastre; E.E.P.A. = Environmental Engineering and Protection in Agriculture; E.E.A. =

Economic Engineering in Agriculture; L.A. = Landscape Architecture; G.E. = Genetic Engineering; E.M.T.I. = Engineering and Management in the Tourism Industry.

4. Discussion

RQ1-What is the students' mean assertiveness score?

We calculated the students' mean assertiveness score to find out if an intervention is necessary to help them become more assertive. Our findings suggest that pre-service teachers displayed moderate level of assertiveness, as it was observed during the *Educational psychology* course. The mean of assertiveness score exceed the ratio of 35-45% of the students in the sample presented by Nevid and Rathus (1978). Analysing the score, it appears that assertiveness is a characteristic of western culture. Assertiveness reflects an individualistic style, which is valued and promoted in western culture more than in other cultural contexts (Eskin, 2003).

The same idea is supported by Chandrasekaran et al., (2010), who, after analysing the data of ten focus group participants, concludes that, indeed, there are cultural differences in accepting an authoritarian figure (e.g. teacher). Thus, in the USA, the cultural model encourages students to be challenging and to ask questions about what is presented in the classroom. In contrast, for students educated in the Latin cultural model, it is promoted to accept the point of view of an authoritarian person, without comments. In this case, being assertive, as a student, against an authoritarian figure such as the teacher, could be seen as a disrespectful attitude. This medium to low level of assertiveness for pre-service teachers is not only a national problem, but also an international problem, as was concluded by Althen (1991). We must take into consideration that the USA and Austria are highly assertive countries, whereas Sweden and New Zealand are less assertive countries (Javidan et al., 2006).

Analysing the derivative consequences from a behavioural point of view, it may be conjectured that assertive students are competent at saying "no" and they are also able to adapt to real life situations, to cope with the challenges in the workplace and to maintain better relationships with significant others in their life (Alberti & Emmons, 2017). Assertive students are highly aware of the consequences of avoiding face to face contact and communication with their teachers (Haynes, 2000). Assertiveness helps students argue and fight for their rights, while respecting and protecting the rights of others (Parray & Kumar, 2016).

From a gender perspective, male pre-service teachers seem to be more assertive than female participants in our study, according to the means assertiveness scores. Our findings are consistent with other studies (Erbay & Akçay, 2013; Hijazi et al., 2011; Costa et al., 2001). The reason could be deeply rooted in the cultural model, because, as shown by Amanatullah and

Morris (2010), women with low assertiveness scores are liked / appreciated more than women with a high assertiveness score. As for female competence and leadership, the level of assertiveness is required to be sufficiently high but not too high, because a high level will violate expectations of female “niceness” (Van Miegroet, 2016). Nonetheless, other studies maintain that there is no significant difference between students, as regards their level of assertiveness (using the same Rathus Assertiveness Schedule) from a gender perspective (Parray & Kumar, 2016; Shafiq et al., 2015; Arigbabu et al., 2010). It may possibly be regarded as a gender issue, considering research which concluded that female engineers were typically less assertive than male engineers (McIlwee & Robinson, 1992).

Next, we analysed pre-service teachers’ mean assertiveness score from the point of view of their residence. The results indicate that students from urban environments are more assertive than students from the rural area, probably due to higher diversity and complexity in social interactions. Findings contradict the results of other studies which have found that rural students are more assertive than urban students (Shafiq et al., 2015; Asokam & Muthumanickam, 2013) and other researchers which have found no significant differences between urban and rural students, as regards assertiveness levels (Parray & Kumar, 2016).

Next, we examined assertiveness scores in pre-service teachers from an age perspective. Research on how individuals’ various age ranges may affect their respective level of assertiveness is quite restricted. The correlation analysis reflects that there is a significant positive correlation between assertiveness levels and age. Therefore, it may be hypothesised that the younger students are when they enrol in the teaching program, the lower their assertiveness scores will be. However, as the age of enrolment in the teaching program is higher, the level of assertiveness also tends to increase, as students become better prepared to build positive relationships with their colleagues and future students (in practicum and in-service). Our findings are consistent with results from other studies (Atan, 2016). In contrast to our results, many other studies purport that assertiveness may decrease with age (Larijani et al., 2017; Prakash & Devi, 2015; Güven, 2010). Other studies in this area concluded that there is no significant relationship between age and the level of assertiveness (Shafiq et al., 2015).

RQ2-Is there a connection between the students’ mean assertiveness score and the type of faculty/study program?

Next, we analysed the mean assertiveness score, depending on the type of faculty students have chosen to attend, so as to see in which domains students display the highest and the lowest assertiveness scores. Our results show that the pre-service teachers from the Faculty of Agriculture are the most assertive

group from our university. However, this does not mean that pre-service teachers are really prepared for the teaching career, considering that high numbers of Agriculture graduates felt unprepared to teach in the first year, as concluded by Kantrovich (2007, as cited in McIntosh, 2017)

Research conducted in the fields of agriculture and animal science concluded that the more assertive the students were, the more confrontations they had with their teachers regarding grades, as compared to the less assertive ones (White & Broder, 1988). It would be interesting to compare whether the same behaviours occur in our students. The next level of assertiveness identified in pre-service teachers from the Faculty of Horticulture and Forestry could be explained by a strong relationship between the two branches: agriculture and horticulture. In sum, our results are consistent with other findings that students in the horticultural domain tend to be highly assertive and build positive relationships benefiting their career development (Sintim, 2016; Trip et al., 2004).

On the other hand, the low level of assertiveness in the veterinary medicine students within our sample is consistent with other studies, which focuses on the necessity to organise assertive training for tertiary level students from veterinary medicine (Gelberg & Gelberg, 2005). Moreover, communication skills with clients/pet owners represent a very important aspect noticed by many graduates, upon entering the labour market (Jaarsma et al., 2008). No research on assertiveness has been identified with respect to students in the field of Food Processing.

Next, we analysed the mean assertiveness scores according to study program, in order to identify which ones prepare pre-service teachers with the highest and lowest mean assertiveness scores. The highest level of assertiveness for pre-service teachers from the Horticulture study program does not surprise us, because people have been dependent on plants since the very beginning of time, which imparts an evolutionist aspect to this effect. Consequently, pre-service teachers in this area seem to be prepared for a new domain – HT – horticultural therapy (Jang et al., 2010; Simson & Straus, 1998). This new form of therapy represents a “treatment modality that uses plant products to improve the social, cognitive, physical, psychological, and general health and well-being of its participants” (Simson & Straus, 1998, p. xxxiii). Thus, HT may offer a chance for undergraduates and graduates to work in public schools, to teach job skills specifically designed for special education students by including gardening skill sets. People with disabilities or young people who are socially and/or economically challenged could be helped by HT programs (Cipriani et al., 2017; Sempik et al., 2014; Wu & Qiu, 2013; Kim, 2007; Fetherman, 2004; Ferrini, 2003; Haller, 1998; Smith, 1998), even autism spectrum disorders (Flick, 2012).

The students from the Agriculture study program have a high level of assertiveness (on the third place). This result could reflect that pre-service teachers are adapt at stress management. As McIntosh (2017) concluded, stress management and student discipline are the main issues Agriculture teachers face in their first year. A high level of assertiveness will help Agriculture teachers, as many of them anticipated high stress for their first year of teaching (Paulsen et al., 2015). Nonetheless, the main problem for Agricultural pre-service teachers is finding a job as an agricultural science teacher, given that there are only few Agricultural high-schools compared with other countries, which provide numerous job openings in this domain (Saucier et al., 2015).

The low level of assertiveness displayed by students enrolled in the Animal Husbandry study program reflects the necessity to improve some interpersonal skills to assist them in their future profession. Some studies in the area also include communication skills, time management, self-assertiveness, and interpersonal skills (Cavinder et al., 2011). Employers seek soft skills, but the top two ranked are communication and decision making/problem solving (Crawford et al., 2011). Also, employers in livestock/animal husbandry are looking for graduates with very strong critical thinking skills (Bolton et al., 2015). In sum, communication skills represent a very important competence in all areas of industry (Almeida et al., 2020; Lappalainen, 2009), not just in animal husbandry.

Limitations of the study

Certainly, a larger sample of university students would present a clearer image of pre-service teachers from the life science teaching career. The questionnaire was completed only by volunteers among the students enrolled in the teaching program (284 students from a total of 357). The number of participants is limited from the beginning.

Implications of the study

The paper presents, for the first time, the level and the differences in assertiveness in pre-service teachers in a life science university (for all study programs). The research promotes assertiveness assessment during the first year of study in pre-service teachers, in order to have enough time for organising interventions/workshops to increase the level of assertiveness for future teachers, given that teaching requires assertiveness, as Kim et al. (2019) have suggested. As argued by Brown (2004), one of the most relevant weaknesses of career-starting teachers is precisely the lack of assertiveness in relationships with students.

Assertiveness training is useful for pre-service teachers in order to help them manage anxiety, distress symptoms, work effectively with their

colleagues and pupils' parents, and to ask support when they need (Ee & Chang, 2010). Moreover, it is equally useful for first-year students because stress represents "a factor that is able to inhibit success, affecting academic performance and interfering with psychological wellness" (Exner, 2002, p. 204).

Secondly, this research carries implications for university management with the suggestion of including communication courses in the curricula, with a special focus on assertive communication (Barton & Beck, 2005). Also, assertive communication skills are necessary because in the three-year teacher preparation program, pre-service teachers could learn about the multiple roles associated with teaching (as a guide, friend, and confidante), so as to help undergraduates adapt to current social challenges they would face across professional fields (Wade & Anderson, 1996).

Moreover, the study also highlights the lack of research assessing assertiveness in the field of engineering or biology, except the research conducted by Peneva and Yordzhev (2014). Instead, there are a lot of studies on assertiveness in medical students or nurses (Azizi et al., 2020; Omura et al., 2019), but none in domains related to engineering and life sciences.

Finally, this research joins other studies, which analyse different issues concerning pre-service and in-service agriculture teachers and related fields: animal science, agricultural management, horticulture, agricultural engineering technology (Key, 2019; McIntosh, 2017).

5. Conclusion

Overall, the present study points to the conclusion that assertiveness in pre-service teachers represents an aspect deserving more consideration in Life Science universities. Our results highlight that there are differences in pre-service teachers' assertiveness level regarding gender, residence and age. Urban respondents showed higher level of assertiveness than rural students, and male respondents presented higher level of assertiveness than female participants in the study. Also, the results indicate that the level of assertiveness increases with age, being an important aspect for novice teachers. It has been concluded that there are also major differences in pre-service teachers' assertiveness level depending on the study programs they have opted for. Although the present correlational study has mainly identified correlations rather than causal relationships in our target samples, further research would certainly lead to a better understanding of the issue. The results of the present study fill the gap regarding the issue of assertiveness in pre-service teachers within Life Science universities. Given that assertiveness represents an important aspect of teacher education, generating multiple

benefits for both teachers and students, it is necessary to improve assertive communication skills during the teacher preparation program at tertiary level.

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Declaration of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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