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Correlations of self-esteem with academic competencies and gender variations

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Abstract

In psychology, self-esteem is a concept that is largely used and analysed in the scientific literature. The goal of this study is to assess, with validated instruments, the corollary links between students' academic results and the nature of perceptions of their skills and self-esteem. A total of 255 student volunteers with an average age of 21 years (91 female students and 164 male students) were included. We opted for two types of surveys: a questionnaire (SEQ) developed by Duclos, which measures self-esteem in five domains, and a questionnaire on the perception of competence on three domains of training. According to the results, even though students displayed a low sense of competence in the face of modest results during training, their self-esteem in the 'family and social' domains stayed stable with good scores. The study concludes that every person achieves high self-esteem when they achieve successes that are equal to or greater than their ambitions.

Keywords: Academic results, corollary links, gender, perception of competence, self-esteem.

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1. Introduction

In psychology, self-esteem is a concept that is largely used and analysed in the scientific literature of Bariaud (2006), which does not facilitate its clear use. According to a study by Cohen-Scali, Zein, Vignoli and Lallemand (2019), it is often studied and strongly mobilised during a transition between studies and work. Still, Delignieres (2007) and Zedda, Thibodeau, and Lefebvre's (2018) studies, which are separated in time, demonstrate that there are causal hypotheses to explain the self-esteem and solar results of young college students. Thus, the results show positive relationships between academic performance and three of the nine dimensions of self-esteem selected. Therefore, when we approach the subject of self-esteem, we find ourselves with a multitude of concepts that are used more or less synonymously. Therefore, self-esteem can be explored from different angles and under multiple dimensions (Hepper, Gramzow and Sedikides, 2010).

Barbot, Safont-Mottay and Oubrayrie-Roussel (2019) put two types of theoretical models forward in this direction: unidimensional and multidimensional.

The unidimensional models consider self-esteem as a global entity, covering the whole concept of self: it is the general appreciation that an individual has of himself/herself. The pioneers of this model include Coopersmith (1967), Piers and Harris (1964) and Rosenberg (1979) cited by Fiassa and Nader-Grosbois (2010).

Additionally, and taking into account the fact that individuals make different self-assessments in different domains of life, Harter (1985) considers a multidimensional model more appropriate and constructs his instruments accordingly. They focus on different domains of the concept of self: physical, relational, social etc. Self-esteem is conceived in this model as a sectoral entity, allowing the individual to make separate assessments of different domains of his or her personality. The notion of self-esteem is, therefore, one of the most ambiguous in psychology, and the lack of a true empirical consensus leads to examining self-esteem according to different phenomena and areas of life.

Self-esteem/concept of self-scales vary considerably in their structure and content, raising questions about which scales are the most valid. In addition, a qualitative survey found that children value areas and content not found in these scales. Guerin and Tatlow-Golden (2018) attribute this to the fact those scales are generally designed by adults, with little or no reference to children's representations.

Since 2002, in his work on the sense of self-efficacy, Bandura (2005) has argued that the sense of self-efficacy refers to individuals' beliefs about their ability to achieve particular performances. It helps to determine activity and environmental choices, the subject's investment in the pursuit of goals, the persistence of effort and the emotional reactions he or she experiences when encountering obstacles. Sense of self-efficacy theory is used in many areas such as education, work, health, sport and even in collective actions that are marked by the belief shared by citizens in their ability to bring about change through Rondier's collective action (Harter, 1993).

As a result, self-esteem and the feeling of self-efficacy represent two distinct theoretical constructs that are not systematically linked. Self-esteem can come from self-assessments based on personal competence, and also on the possession of personal characteristics invested with positive or negative values depending on the culture (social status, profession etc.).

In primary education, and distinctly in secondary education, students who have good self-esteem, as compared to students who consider themselves modest, persevere more in their school work when they encounter difficulties, and use more effectively the skills and strategies they have developed to overcome their difficulties (Virat, 2014).

On the contrary, studies on this theme are rare in the initial training of physical education teachers. But we have persuaded ourselves with Roux-Perez's (2006) study that novices in training are in line with the standards and requirements of training. They represent professional practices and engage in

action according to the degree of recognition and the resulting sense of mastery of the situation, and this may lead to a partial reorganisation of their perceptions during the next stages of training.

Observation shows that in initial teacher training, prior knowledge of the target does not have the place it deserves as a pedagogical device. Careful analysis of the simple didactic practices in use in training schools quite easily reveals the lack of psychological concepts contributing to this end (Aebli, 2019).

It is in this sense of verification and understanding of the population to be trained that we are conducting this study in a university environment and precisely in the initial training of physical education teachers. The first objective is to measure the correlational links between students' academic results, the nature of their perceptions of their own skills and the level of their self-esteem with respect to the demands of training. For this will lead them towards a better optimisation of the constraints and efforts they will face.

The purpose of this study is to identify the relationship between students' academic results, university competencies and the level of their self-esteem. This work is part of a pilot project to accompany students during this professional training leading to students and trainers' qualification.

We stipulate hypothetically that the results obtained by the students during the different stages of the training affect the levels of confidence and self-esteem and may condition all of their futures, their adaptations and finally the attainment of the desired academic and personal success. This is a statement also shared by Famose and Bertsch (2009) in a secondary school environment.

2. Methods and materials

2.1. Population of study subjects

The profiles of the students who made up the sample for this study are heterogeneous in their physical profiles, as in the types of previous training followed. There were 255 student volunteers with an average age of 21 years (91 female students and 164 male students). They were pursuing training at the Ecole Normale Superieure Casablanca Hassan II University.

2.2. Measuring instruments

2.2.1. The questionnaire (SEQ)

Duclos' (2004) Self-Esteem Scale consisted of 30 items divided into 5 dimensions (family self, social self, school self, physical self and global self).

2.2.2. Self-esteem scale

The test measures the scores of self-esteem on five domains, developed by Duclos (2004).

It consists of 30 items divided into 5 dimensions; family (six items), social (six items), school (six items), physical (six items) and global (six items).

The dimensions of the *Self-Esteem Scale* are rated on a 4-point intensity scale: almost never (1), sometimes (2), often (3) and usually (4). Higher scores indicate greater self-esteem. The global score of self-esteem contains four levels: low self-esteem, somewhat good self-esteem and very good self-esteem.

Psychometric properties of the test (reliability and validity)

The questionnaire of self-assessment build previously presents the following metric qualities: the correlation of inter-items amounts to 0.3 and the internal consistency of Cronbach's alpha is 0.80.

2.3. Competencies' perception questionnaire

This instrument was used to assess the variables related to the perception of competence mobilised during university training. The evaluation was carried out on a 4-point Likert scale: I am drowned in big gaps (1), I feel the difficulties that accumulate (2), I find the requirements affordable (3) and I am in perfect control of the situation (4). The score of each subject is the sum of the points obtained in each item. The following three areas were assessed:

- *Practical skills:* Seven items were assessed: recuperating between training sessions; leading a group on the field; respecting the time available to engage in practice; running in endurance and supporting strength exercises; being accepted by others in the game; progressing in learning techniques; and following the rhythm of the practice sessions.

Oral competencies: Seven items were assessed: expressing one's self orally in a constructed manner; speaking in front of the audience; communicating one's ideas to the teacher; questioning the teacher; listening and retaining oral exchanges; and retaining lectures.

- *Writing competencies:* Eight items were assessed: taking notes; using the draft; analysing a question; understanding the expected work; respecting the instructions; arguing an answer; elaborating a synthesis; and organising the research documents.

Subjects responded according to the four levels, I am drowned in big gaps (1), I feel the difficulties that accumulate (2), I find the requirements affordable (3) and I am in perfect control of the situation (4), to the three types of training requirements. The score of each subject is the sum of the points obtained in each item.

2.3.1. Academic outcomes

We noted the school averages of seven teaching modules of the first semester for the academic year 2018–2019 received from schooling services. Each module was noted on 20 points.

2.4. Study design

Just at the beginning of the second half of the year in February, we distributed the first questionnaire, Duclos' (2004) Self-Esteem Scale, to students in a single session after linguistic explanation and clarification (translation of some terms into Arabic).

The questionnaire (analysing variables related to the perception of one's competence) was tested for 'content validation' on 30 cases of the promotion (LEEPS) 2017–2018 within the framework of a pilot project of student accompaniment and support. Then, in a second phase, it was explained and distributed to the entire student sample through SurveyMonkey, an online survey tool.

2.5. Data analysis

We used the Bravais–Pearson linear correlation coefficient (r) to analyse the relationships between the variables and the nonparametric Mann–Whitney test to compare means. The significance level was set at <0.05.

In addition to comparing the variation in self-esteem scores, we used the Mann–Whitney test, which is a non-parametric test, to compare the means of two independent groups on the same variable. The readjustment of the calculations for all pairwise comparisons was carried out using the Bonferroni correction.

3. Results

3.1. Self-esteem levels, academic achievements and gender correlation

Table 1. Variations in the levels of self-esteem, academic achievement and gender

Parameters Academic achievements	Female Mean ± SD	Male Mean ± SD	Total Mean ± SD	Test comparison *p*-value Student's test
Overall score (seven modules)	13.43 ± 1.19	12.90 ± 0.88	13.06 ± 1.01	0.025
Notes of the theoretical modules	12.39 ± 1.89	11.69 ± 1.49	11.90 ± 1.64	0.044
Notes of the practical modules	17.30 ± 1.37	16.73 ± 1.17	16.90 ± 1.25	0.039
Self-evaluation of the modules	9.15 ± 2.14	8.40 ± 1.92	8.63± 2.01	0.03**
Self-esteem levels	% (*n*)	% (*n*)	% (*n*)	*p*-value, χ^2 test
Physique self-esteem	36.67 ± 8.89	32.73 ± 6.10	34.71 ± 7.03	0.09
Familial self-esteem	44.19 ± 6.95	42.55 ± 6.93	43.06±6.94	ns
Social self-esteem	34.22 ± 9.48	35.23 ± 7.88	34.92 ± 8.37	0.01
School self-esteem	31.30 ± 8.47	26.50 ± 9.15	28.37 ± 8.99	0.006
Global self-esteem	78.111 ± 4.60	70.301 ± 2.70	72.721 ± 3.72	0.03**
Low self-esteem	3.7% (15)	6.7% (47)	5.7% (62)	ns
Fairly good self-esteem	66.7% (29)	81.7% (79)	77.0% (108)	0.05*
Very high self-esteem	29.6% (47)	11.7%(38)	17.2%85	0.013
Total	35.69% (91)	64.31% (164)	100 % (255)	ns

Variations in self-esteem and academic scores based on gender and their correlations are presented in Tables 1 and 2, respectively.

Indeed, the statistics from the training modules for this first timeframe show that the female gender has a relatively better score than the male gender. The adaptations of girls seem to be better marked than those of boys in theory, as well as in practice. On the other hand, they show equal persisting scores in family self-esteem. What also marked these results is the disparity between the two genders in school (university) self-esteem. Girls once again showed a superiority in the scores, i.e., 31.30 ± 8.47, while boys showed only 26.50 ± 9.15 (*p* value = .006, χ^2 test) (Table 1). On the other hand, the female genre had recorded a significantly 'high self-esteem' score compared to the male gender (Table 1).

As a result, gender impacted the achievement scores by placing girls in a higher position than boys during this first semester of training. There is also a strong correlation between gender and the perception of overall self-esteem among females compared to males (Table 1).

3.2. Correlation between academic self-esteem of genders and the evaluations obtained during training

The results in Table 2 show that academic self-esteem in both genders correlates with the levels of marks and ratings obtained during training – a result that correlates with physical self-esteem. Indeed, the higher the student's academic self-esteem, the higher the student's physical self-esteem.

On the other hand, the other dimensions of self-esteem (family and social) are not significantly impacted by the academic results obtained.

As a result, scores in the self-esteem domains vary significantly depending on the nature of the demands of the act to be carried out. It is in the family self-esteem score that students score the highest. Constraints and practical requirements during training do not negatively affect students' family self-esteem and, therefore, maintain a good self-worth shared with their family circle.

Table 2. Correlation matrix between academic achievements and self-esteem domains (*n* = 255)

Parameters		Self-evaluation	Scores of the theory modules	Practical module notes	Global score
Physical self-esteem	*r*	−0.12	−0.30**	0.67	0.43**
	p	0.265	0.004	0.061	0.001
Family self-esteem	*r*	0.22	0.00	0.32	0.01
	p	0.059	0.992	0.641	0.903
Social self-esteem	*R*	0.03	0.09	−0.40	0.33
	p	0.770	0.788	0.741	0.804
School self-esteem	*r*	0.25*	0.68**	−0.40*	0.57*
	p	0.033	0.002	0.045	0.0431
Global self-esteem	*r*	0.14	0.067**	−0.41*	0.49*
	p	0.189	0.008	0.03	0.021

R^2 (readjusted): 0.52. *r*: coefficient de correlation de Bravais–Pearson; $p < 0.05$ est la probabilite de signification.

*$p < 0.05$ la correlation r est significative a 95%.

**$p < 0.01$ la correlation r est tres significative a 99%.

On the other hand, it is in the academic self-esteem score that they achieved the lowest level, and this concerned especially those students who had modest academic results during the training period. The students targeted by the survey are, therefore, conditioned by initial representations of a desired 'student-athlete' prototype. The contrasting results in the different forms of physical practice led them to be confused and uncertain about their chances of adapting to this training.

3.3. Variations in physical self-esteem between genders

Table 3. Variations in scores in the areas of self-esteem and practical competence based on gender

Parameters	Gender	Physical self-esteem (Mean ± SD)		Family self-esteem (Mean ± SD)		Social self-esteem (Mean ± SD)		School self-esteem (Mean ± SD)		Global self-esteem (Mean ± SD)	
Keep up with the practice sessions	M	34.85	7.06	42.84	7.02	35.15	8.76	28.75	8.93	72.96	13.56
	F	34.00	7.06	44.21*	6.60	33.71	6.01	26.36	9.38	71.50	15.01
Recover between training sessions	M	34.49	6.32	43.38	6.27	34.05	9.26	27.49	8.78	72.16	12.62
	F	34.88	7.57	42.82	7.45	35.56	7.68	29.02	9.17	73.14	14.60
Animer un groupe sur le terrain	M	34.78	7.26	42.29	7.58	36.33*	7.36	28.64	8.47	71.33	14.03
	F	34.64	6.86	43.88	6.16	33.40	9.18	28.07	9.60	74.21*	13.39
Respect the time available engage in practice	M	34.32	6.12	43.21	6.65	34.12	9.19	28.79	9.22	73.84	13.50
	F	35.47	8.57	42.77	7.56	36.43*	6.41	27.57	8.62	70.60	14.11
Running in endurance	M	34.84	6.53	43.08	6.75	36.22*	7.71	27.54	9.12	71.36	13.68
	F	34.54	7.74	43.03	7.29	33.16	9.00	29.49	8.80	74.57*	13.75
Support Strength Exercises	M	33.88	7.00	43.21	6.36	35.21	8.35	27.94	8.51	72.34	14.22
	F	37.68*	6.47	42.53	8.88	33.89	8.60	29.89	10.63	74.11	12.00
Be accepted by others in the game	M	35.18	6.76	43.82*	6.24	35.18	8.18	29.63*	8.72	72.21	13.47
	F	33.83*	7.56	41.60	8.02	34.43	8.85	25.97	9.15	73.70	14.38
Progress in earning techniques	M	34.75	6.77	43.25	6.66	35.34*	8.67	28.64	8.95	72.69	14.16
	F	34.61	7.87	42.52	7.80	33.74	7.53	27.61	9.24	72.83	12.74

Data are presented as mean and standard deviation (SD).

*Significant variation $p < 0.05$. Comparison of group tests by Mann–Whitney's non-parametric test.

For variations in the demands of physical practice, self-esteem scores are distributed across the different domains into averages and standard deviations. Gender is selected to express the heterogeneity or homogeneity of the responses obtained. Female students (F) have a tendency close to the representations of male students (M) (as expressed in Table 3).

As a result, scores in the self-esteem domains vary considerably based on the nature of the work carried out. Students perform best in the area of family self-esteem. The constraints of practical demands during training do not negatively affect students' family self-esteem and, therefore, maintain a good self-esteem shared with their family circle. This applies to both genders.

On the other hand, it is in the academic self-esteem score that they have reached the lowest level, and this is especially true for students who have had modest academic results during the training period. The students targeted by the survey are, therefore, conditioned by the first representations of a desired 'student-athlete' prototype. The contrasting results of the different specialities of physical practice led them to be confused and uncertain as to their chances of adapting to the requirements of this new training.

3.4. Variation of self-esteem scores and writing competencies between genders

Table 4. Variations in scores in the areas of self-esteem and writing competences based on gender

Parameters of oral requirements	Gender	Physical self-esteem (Mean ± SD)		Family self-esteem (Mean ± SD)		Social self-esteem (Mean ± SD)		School self-esteem (Mean ± SD)		Global self-esteem (Mean ± SD)	
Writing notes in a course	M	35.03	6.91	41.89	7.52	34.22	8.57	28.05	10.14	70.46	13.68
	F	34.48	7.17	43.92**	6.42	35.44	8.26	28.60	8.13	74.40**	13.65
Use the draft for your own reproduction	M	34.40	7.02	43.22	6.48	35.23	7.86	27.69	8.74	72.60	13.70
	F	35.64	7.16	42.59	8.30	34.00	9.87	30.36*	9.60	73.09	14.10
Analyse successfully the requirements of the questions asked	M	34.33	7.08	44.00**	5.67	35.21	8.71	28.88	9.31	72.26	13.28
	F	35.43	7.00	41.27	8.70	34.37	7.80	27.40	8.41	73.60	14.72
Understand the work expected	M	34.97	7.26	43.18	7.17	35.19	8.63	28.48	9.28	73.00	13.58
	F	33.85	6.29	42.65	6.27	34.00	7.56	28.00	8.13	71.80	14.49
Observe the writing instructions	M	34.54	7.02	43.10	7.25	35.39*	8.06	28.13	9.25	72.79	13.64
	F	35.12	7.18	42.96	6.29	33.81	9.13	28.92	8.49	72.58	14.19
Diversifying the argumentative options for a response	M	34.87	7.15	42.86	7.38	34.99	8.80	28.14	9.02	72.72	13.74
	F	34.11	6.73	43.83	4.99	34.67	6.66	29.22	9.05	72.72	14.03
Elaborate a synthesis or a mental map	M	34.75	6.71	43.55	6.37	35.20	7.57	29.27*	8.46	73.98*	13.46
	F	34.65	7.69	42.16	7.89	34.42	9.76	26.74	9.80	70.45	14.12
Develop and Compose Documentary Research	M	34.27	7.25	42.29	7.34	34.40	8.96	28.52	9.47	73.31	13.62
	F	35.37	6.73	44.20*	6.23	35.69	7.46	28.14	8.36	71.86	14.02

Data are presented as mean and standard deviation (SD).

*Les differences significatives entre les deux sexes en reference a l'indice $p < 0.05$.

For difficulties in writing requirements, the results show that disparities are also significant between different domains of self-esteem. However, there is stability in academic self-esteem, which remains the lowest performing domain compared to the other self-esteem domains. The demands on students' writing skills are more difficult and the constraints are more accentuated than those encountered in practical competencies.

Females once again scored higher than males in terms of their ability to adequately meet the requirements of certain writing skills.

This superiority of scores in some writing skills' requirements correlated with some dimensions of self-esteem. Indeed, the superiority of scores in writing skills' requirements recorded among females correlated with their scores in school and family self-esteem (Table 4).

On the other hand, the requirements of the new training expectations for university students (develop and compose documentary research, observe the writing instructions and elaborate a synthesis or a mental map) are perfectly mastered by the male gender, pushing their family and school self-esteem scores further than those of the female gender. This is another expression of the inter-gender variation. This is what we analysed at this stage of the justification of the results.

Therefore, in the final anachronistic (Table 4), we found eight significant variations between boys and girls. They were concerned with school, family and global self-esteem, and this was when the perception of mastery of the requirements of writing skill was high.

3.5. Variation of self-esteem scores and oral competencies between genders

Table 5. Areas of self-esteem and requirements of oral competencies

Parameters of oral requirements	Gender	Physical self-esteem (Mean ± SD)		Family self-esteem (Mean ± SD)		Social self-esteem (Mean ± SD)		School self-esteem (Mean ± SD)		Global self-esteem (Mean ± SD)	
Build a good oral discussion	M	34.63	7.23	42.71	7.83	33.73	9.17	29.44	8.71	72.85	14.47
	F	34.78	6.92	43.37	6.11	35.98*	7.53	27.41	9.21	72.61	13.18
Speaking in front of the audience	M	34.87	6.70	43.36	6.13	34.43	9.23	30.00*	8.92	72.17	13.42
	F	34.53	7.48	42.70	7.85	35.50	7.31	26.45	8.79	73.38	14.21
Communicating ideas to the teacher	M	34.54	6.87	43.73	6.08	35.88	7.87	28.52	9.66	71.29	14.61
	F	34.97	7.35	42.06	8.04	33.49	8.98	28.14	8.02	74.86*	12.17
Criticise and impose yourself on the ideas put by others.	M	35.16*	6.94	42.75	7.15	33.59	8.93	28.35	8.88	73.00	13.16
	F	33.54	7.29	43.88	6.41	38.42*	5.42	28.42	9.47	72.00	15.38
Listen and concentrate in classroom	M	33.81	7.39	44.02*	6.14	35.48	7.76	28.33	8.54	72.38	13.15
	F	35.82*	6.48	41.87*	7.73	34.23	9.12	28.41	9.62	73.15	14.56
Easy exchange with the audience	M	34.31	7.04	42.94	7.29	35.13	8.63	28.02	9.36	73.60*	12.57
	F	35.21	7.08	43.21	6.58	34.67	8.15	28.79	8.61	71.64	15.12

Data are presented as mean and standard deviation (SD).

*Les differences significatives entre les deux sexes en reference a l'indice $p < 0.05$.

Once again we found variations between the two genders on the requirements for oral proficiency. They concern the scores achieved by girls on two dimensions of self-esteem: social and academic self-esteem. Females scored higher than males in the latter dimensions of self-esteem (M 33.73 Mean = 9.17 SD; F 35.98* Mean, 7.53 SD). The perception of girls expressed by crossing it with their ability to 'build a good oral discussion, speaking in front of the audience' is expressed in Table 5.

Girls also scored well compared to boys on the dimension of social self-esteem (M 33.59 Mean = 8.93 SD; F 38.42* Mean = 5.42 SD). This is expressed by increasing this dimension of social self-esteem with their ability to 'criticise and impose yourself on the ideas put by others'.

On the other hand, boys scored higher and showed significant variations in their overall self-esteem. They also expressed high scores in their ability to 'interact appropriately with the audience' (Table 5).

For both genders, the results revealed similarities between oral and written scores. Students in their judgments about self-efficacy during this training period confirm the links between the indicators of 'core training skills'.

4. Analysis of the study

We recall that the objective of the study is to verify the presence or absence of correlational links between the variables: self-esteem and academic results obtained by students of both genders. On the other hand, to verify the variations of these links based on gender, this was carried out in order to optimise the constraints of the beginning of the training and to accompany the specific progress of both genders. Therefore, guaranteeing the success of all students in their training by taking into consideration their particular needs.

The analysis of the data relating to the crossing of the variables taken, 'self-esteem, academic results and their variations based on gender', shows that the total number of experienced students confirms a very satisfactory self-esteem, especially in the academic, family and social areas for the female gender. Good results and scores of the latter in the global self-esteem favour their success in the next stages of their training.

Indeed, for practical requirements, the female gender show higher scores than the male gender. This concerns their ability to withstand high intensity efforts and long physical work. Furthermore, in the overall skill of practice training, boys show higher scores than girls in the requirements for physical endurance efforts and easy acceptance by others in-group work.

In other parts for the written requirements, the scores again show high variations in the female gender and consequently show superiority over the boys. These variations are significant generally in the family and school self-esteem (Table 4).

Finally, for overall oral proficiency, the female gender show distinctively high scores in speaking in front of others with good overall self-esteem – an advantageous predisposition for further training for girls compared to boys. In terms of listening skills and concentration in class, boys (Table 5) scored more favourably than girls, and this has corollary tendencies with their social self-esteem, which also increases significantly.

As a result, it turns out that the male gender is mainly concerned with his social self-image to please others more than their interest in furthering their current education.

Therefore, the disparities in scores in the cited requirements presuppose the design of programmes adapted to the efforts and needs according to the resources of each gender. Thus, no longer consider the feminine gender based on an allegedly masculine one only. It is, therefore, necessary to start from a non-stereotypical vision and without the only image of the 'masculine' profile to be formed. Girls, therefore, have the opportunity to perfect their skills by gradually transforming themselves at their own pace. Boys also adopt their work rhythms according to their tastes and intensities in the different training requirements.

5. Discussion

The variations verified in the different areas of self-esteem between genders during this training show that the female gender is far from certain received ideas about the fragility of self-esteem in them. Through the results obtained, they displayed a good self-image compared to their fellow trainees, the boys. In fact, they feel that they are appreciated in their university activities and in their family esteem. This enables them to follow-up on their requirements and consequently to adapt well to the training. Oral skills requirements are accessible and significantly more manageable for females than for males. As a result, they are the driving force behind the motivation of the training groups throughout the training. The mixed interaction during the training between the two genders will generate an interest from both genders for more collective production and efficiency in the different stages of the training.

The same applies to the written competence requirements. Girls scored significantly better than boys. Variations in the different areas of self-esteem, therefore, depend on gender according to the results obtained. In writing job requirements, the female gender surpassed the male gender, which consequently also raised their scores in academic and family self-esteem. Disparities between girls are also significant, with intra-gender standard deviations ranging from 13.18 to 15.38 (Table 5). For boys, the results also show heterogeneity in scores, but less than for girls (12.57–14.61) (Table 5).

As a result, a minority of girls are considered to have difficulties in training, far from a good majority who seem to be on the road to success. For boys, the intra-gender disparity is not significant. It can, therefore, be deduced from this that, despite the good collective scores for girls in terms of overall self-esteem and academic achievement, there are still a few cases of failure. It is this minority which also interests us in order to accompany them in this difficulty by allowing them to keep pace with the others in the best conditions.

On the other hand, from the results of Table 2, we can see as a reminder that academic (university) self-esteem of both sexes correlates with the levels of marks and evaluations obtained during training. These results also correlate significantly with physical self-esteem. This reveals the peculiarity of this training, which is also based on physical resources. In fact, the higher the student's academic self-esteem, the higher the student's physical self-esteem.

On the other hand, the other dimensions of self-esteem (family and social) are not significantly impacted by the academic (university) results obtained. Constraints and practical demands during the course of study do not negatively affect students' family self-esteem and, therefore, maintain a good self-esteem shared with their family circle. This good factor often helps new students in university education (Petre, Simion and Marica, 2017).

The students targeted by the survey are, therefore, conditioned by the first representations of a desired 'student-athlete' prototype. The contrasting results of the different forms of physical practice led them to be confused and uncertain as to their chances of adapting to this training. The training situation in this field presents difficulties to be further optimised by taking into account the three ergonomic variables: subject, environment and activity to be carried out. Students must follow targeted support programmes based on constraints. To do this, diagnostic devices towards the end of the first semester are strongly advised.

6. Suggestions

In light of the verification of the experimental facts of this study and by reinvesting some of the writings identified at its beginning, we suggest that every person achieves high self-esteem when they achieve successes that are equal to or greater than their ambitions.

This occurs regardless of gender (Oxman, 2018). Therefore, in order for a student to experience success and support it, it is very important that they are offered realistic goals and are confident that

they are capable of achieving them. These realistic and attainable goals become protective factors for self-esteem.

In another perspective, no one can actualise and develop by accumulating only failures. In this study, male students perceived themselves to be in relative difficulty compared to female students. It is highly recommended to support those who are experiencing difficulties with optimised measures in the context of sub-programmes parallel to the usual training. However, without forgetting, a person can draw a lesson or a lesson from each failure in order to reassure himself or herself somewhat about his or her personal value. It is, therefore, obvious to consider that self-esteem is not acquired once and for all; it needs to be constantly nourished, in particular, by new successes in the various training exercises. This allows us to stipulate that the reassuring situation in 'self-esteem' of the majority of girls must be monitored so that it lasts longer throughout the training course.

Finally, supporting students to develop their feelings of competence regardless of gender presupposes making specific comparisons to identify particular gender gaps, especially in a training that requires motor performance and commitment to physical preparation. A field of biological disparities between genders is often unfavourable to girls. It will, therefore, have to be carefully considered when designing programmes for this mixed and very heterogeneous population.

We have seen that the tendencies to adequately support certain life skills and efforts are mainly related to physical self-esteem. This is an aspect that varies greatly between genders, depending on our study results. For this reason, it is also highly recommendable to effectively support students' self-esteem in its disparities and to prescribe a climate of confidence and security during the early stages of their vocational training. Self-esteem is, therefore, not monolithic, but is built up through positive experiences in different situations. Thus, this 'self-esteem' does not depend exclusively on the student, but also on the types of teaching arrangements put in place by the trainers and the status attributed to gender issues in the host training institution.

7. Conclusion

Identifying and understanding the relationship between students' self-states and their variations based on the two genders are the main objective of this work. Thus, prior knowledge on gender disparity has been expressed in the results obtained in this work. The summary tables have shown that self-states are significantly variable according to the gender questioned.

As a result, girls revealed a good predisposition to the challenges of single and co-educational training.

On the other hand, it can be said that this work can be a good precursor to better optimisation of interventions during this training programme for a mixed population.

The extension of this work on the perception of competence and self-esteem in both sexes will converge on the triggering of motivation and improves the powers of action during training. The disparity in perception between the two sexes has an impact on the results of the degree of adaptation of both sexes to the targeted learning. The female gender has better results for successful adaptation to learning in the near future.

Finally, we are convinced with Canisius Kamanzi, Lessard and Tardif's (2019) study that the close follow-up of our 'future teacher' students also gives us academic value and shapes a positive belief in our training activities. This monitoring will also be relevant insofar as it also makes it possible to effectively support the students' self-image in their disparities and to prescribe a climate of mutual trust.

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