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THE SELECTED TEACHERS' COMPETENCE AND A SENSE OF PROFESSIONAL IDENTITY AMONG MEDICAL STUDENTS

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ABSTRACT: The didactic competences and interpersonal skills of an academic teacher might have an influence on shaping the vision of a professional role among students. The proper relationship between an academic teacher and a student stimulate academic development. This phenomenon is particularly important in the medical professions and is associated with specific knowledge and skills gained in the learning process. The aim of the project was to analyze the relationship between selected didactic competences and interpersonal skills of an academic teacher and the degree of students' identification with their future medical profession. 85 students of Warsaw Medical University aged 18-25 took part in the study. The mean age of participants was 21 years. All participants were medical course students. The research was questionnaire-based. The research tools applied enabled the evaluation of the degree of students' identification with their work in a chosen medical profession, as well as academic teachers' qualities that influence forming one's professional identity. Statistical analysis was conducted using SPSS Statistic 17.0 software. Correlation analysis - Spearman's Correlation Coefficients and linear regression were used. The level of identification with a medical profession among students was graded as high or very high. The statistical analysis has shown a significant relationship between the identification with students' future medical profession and the selected methodical and didactic competences as well as the substantive competences of an academic teacher. According to students, among the most important academic teachers' personality traits were being ambitious, demanding and just.

Key words: Didactic competences, medical professions, interpersonal skills.

INTRODUCTION

The didactics in higher education is a conscious process in which teachers as well as students are actively involved. This process has specific characteristics (eg. students' age) and depends on multiple teacher's skills, such as capturing students' interest and getting them engaged, appropriate choice of materials and teaching methods, as well being a mentor for them throughout their learning process. (Lugovtsova & Yavuz, 2014). The teaching process is of particular importance in medical schools. On the one hand it is based on the sharing specific knowledge and skills, on the other it shapes appropriate moral and ethical attitude, as well as awareness of one's own activities. (Joshi, 2012).

The role of the academic teacher in the teaching process

Many scientific studies emphasize the importance of adequate academic teachers' attitudes towards the subject, as well as a group of students they work with. Didactic and substantive competences might have an important role in shaping the proper teacher-student relationship (Beelen, 2006). The adequate relationship between teachers and students determine the proper didactic development (Lugovtsova & Yavuz, 2014). Among methodical and didactic competences of an academic teacher we can distinguish the following: delivers knowledge in a clear and understandable way, conducts classes in an interesting way, stimulates activity throughout classes, is able to select adequate materials, exercises discipline, takes advantage of various didactic tools, shows communication skills, clearly defines his/her requirements, as well as systematically controls and

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evaluates the level of gained knowledge (Adamus & Jaworski, 2014a; Adamus & Jaworski, 2014b, Lugovtsova & Yavuz, 2014).

Among substantive competences of an academic teacher we should highlight: proves to be an expert in his/her subject area, shows thorough knowledge in his/her subject matter, possesses thorough knowledge, possesses practical experience in taught subject, demonstrates experience, expands his/her knowledge by participating in conferences and follows ethical principles (Adamus & Jaworski, 2014a; Adamus & Jaworski, 2014b).

Adequate teaching methods are one of the important factors determining the proper management and transfer of knowledge. Studies emphasize that academic teachers can follow an extensive list of methods, such as lecturing, demonstrating, collaborating, oral reporting and assignments. The higher variety of teaching methods used during lessons, the more efficiently and effectively students will work. The effectiveness of the method applied is determined by the extent to which it provokes the student to be active and autonomous (Adamus & Jaworski, 2014; Lugovtsova & Yavuz, 2014; Vaughn & Baker, 2001).

A sense of professional identity among medical students

A sense of professional identity is defined as the rational and emotional acceptance of a chosen profession, by performing tasks and activities associated with this profession. There are two forms of an identification with a chosen profession in the literature. These are formal and real identification. The first one, a formal identification is characterized by a lack of emotional connection with a profession and a tendency to look for new employment. The latter is known as a real identification and is characterized by a correct perception of one's profession and its acceptance, as well as job satisfaction (Byra & crime, the penalty, 2011).

There are also publications which highlight the importance of didactic and substantive competences, as well as communication skills of academic teachers in shaping the future identification of students' professional role. A sense of medical professional identity is not only associated with the medical knowledge. A person who passes that knowledge forward plays an important role in this process. Student imitates the teacher who impresses her/him and is an authority for her/him. Academic teachers create their authority by not only possessed knowledge, but also owing to their teaching and communication skills (Adamus & Jaworski, 2014b).

The aim of study

The aim of the study was to analyze the relationship between the degree of students' identification with their future medical profession and selected didactic as well as substantive competences of an academic teacher.

The following research questions were formulated based on the aim of the study:

1. What is the level of students' identification with their future medical profession?
2. Which methodical and didactic competences of an academic teacher are important for medical students?
3. Which substantive competences of an academic teacher are important for medical students?
4. Are there differences between male and female students in terms of preferred methodical and didactic competences of an academic teacher?
5. Are there differences between male and female students in terms of preferred substantive competences of an academic teacher?
6. Is there a relationship between the selected methodical and didactic competences of an academic teacher and students' identification with their future medical profession?
7. Is there a relationship between the selected substantive competences of an academic teacher and students' identification with their future medical profession?

METHODS

The study was conducted on 85 students aged from 18 to 25 years. The mean age was 21 years (SD = 1.1). The group of subjects consisted of 50 women (58.8%) and 36 men (41.2%).

The study was voluntary and anonymous. All participants were medical course students.

Selection criteria for the research study included: 1) current course of medicine, 2) informed consent for taking part in the research. Additionally, the following variables were controlled: gender, age and the year of studies.

The research was questionnaire-based. The researched tools applied enabled the evaluation of: the degree of students' identification with their work in a chosen medical profession, as well as academic teachers' qualities which influence forming one's professional identity.

The degree of identifying oneself with work in a chosen medical profession was graded on a five-point scale from 1 to 5 (where 1 - very low, 5 - very high).

The methodical and didactic competences, as well as substantive competences were analyzed. The respondents graded the influence of these academic teacher's qualities on their perception of a chosen profession (where 1 - represents no influence and 6 - a very high influence).

The following methodical and didactic competences of an academic teacher were evaluated:

- 1) delivers knowledge in a clear and understandable way,
- 2) conducts classes in an interesting way,
- 3) stimulates activity throughout classes,
- 4) is able to select adequate materials,
- 5) exercises discipline,
- 6) takes advantage of various didactic tools,
- 7) shows communication skills,
- 8) clearly defines his/her requirements,
- 9) systematically controls and evaluates the level of gained knowledge

The following substantive competences of an academic teacher were evaluated:

- 1) proves to be an expert in his/her subject area
- 2) shows thorough knowledge in his/her subject matter,
- 3) possesses thorough knowledge,
- 4) possesses practical experience in taught subject
- 5) demonstrates experience,
- 6) expands his/her knowledge by participating in conferences,
- 7) follows ethical principles,

Statistical analysis was conducted using SPSS Statistic 17.0 software. Correlation analysis - Spearman's Correlation Coefficients and linear regression were used.

RESULTS and FINDINGS

The level of identification with a medical profession in students taking part in the research study was graded as high or very high. Male students were characterized by a higher level of identification with the medical profession than female students ($t=-2.18$; $p=0.03$) (Table 1).

Table 1. Characteristic Of The Selected Methodical And Didactic Competences Of An Academic Teacher

Variables	X	SD	Mediana	Min.	Max.
The level of identification with a medical profession	4.37	0.63	4.00	3	5
The level of identification with a medical profession for women	4.28	0.64	4.00	3	5
The level of identification with a medical profession for men	4.57	0.56	5.00	3	5

Characteristic of the selected methodical and didactic competences of an academic teacher

The most important methodical and didactic competences of an academic teacher for medical students were: delivers knowledge in a clear and understandable way, conducts classes in an interesting way, clearly defines his/her requirements and shows communication skills (Table 2).

Competences such as: stimulates activity throughout classes, is able to select adequate materials and systematically controls and evaluates the level of gained knowledge, were also very important. The least important competences of an academic teacher for medical students were: takes advantage of various didactic tools and exercises discipline. The detailed data are presented in Table 2.

Table 2. Characteristic Of The Selected Methodical And Didactic Competences Of An Academic Teacher

Variables	X	SD	Mediana	Min.	Max.
delivers knowledge in a clear and understandable way	5.55	0.86	6.00	1	6
conducts classes in an interesting way	5.36	1.07	6.00	1	6
stimulates activity throughout classes	4.86	1.25	5.00	1	6
is able to select adequate materials	4.84	1.17	5.00	2	6
exercises discipline	4.32	1.19	4.00	1	6
takes advantage of various didactic tools	4.29	1.28	4.00	1	6
shows communication skills	5.07	1.06	5.00	1	6
clearly defines his/her requirements	5.17	0,99	5.00	1	6
systematically controls and evaluates the level of gained knowledge	4.34	1.38	5.00	1	6

Men and women did not differ among themselves in terms of preferred methodical and didactic competences of an academic teacher (Table 3).

Table 3. Characteristic Of The Selected Methodical And Didactic Competences Of An Academic Teacher

Variables	Gender	X	SD	t	p
delivers knowledge in a clear and understandable way	F	5.48	0.99	-1.14	0.26
	M	5.69	0.47		
conducts classes in an interesting way	F	5.38	1.07	0.39	0.70
	M	5.29	1.13		
stimulates activity throughout classes	F	4.90	1.27	0.26	0.80
	M	4.83	1.22		
is able to select adequate materials	F	4.80	1.31	0.00	1.00
	M	4.80	0.93		
exercises discipline	F	4.38	1.19	0.36	0.72
	M	4.29	1.18		
takes advantage of various didactic tools	F	4.26	1.37	-0.69	0.49
	M	4.46	1.17		
shows communication skills	F	5.06	1.11	-0.48	0.63
	M	5.17	0.95		
clearly defines his/her requirements	F	5.04	1.07	-1.10	0.27
	M	5.29	0.93		
systematically controls and evaluates the level of gained knowledge	F	4.54	1.33	1.54	0.13
	M	4.09	1.36		

Characteristic of the substantive competences of an academic teacher

Medical students rated as the highest such substantive competences of an academic teacher as: shows thorough knowledge in his/her subject matter, possesses practical experience in taught subject, demonstrates experience and proves to be an expert in his/her subject area. Following ethical principles and expanding knowledge by participating in conferences were also very important for medical students (Table 4).

Table 4. Characteristic Of The Substantive Competences Of An Academic Teacher

Variables	X	SD	Mediana	Min.	Max.
proves to be an expert in his/her subject area	5.29	0.92	5.00	1	6
shows thorough knowledge in his/her subject matter	5.61	0.82	6.00	2	6
possesses thorough knowledge	5.08	1.14	5.00	1	6
possesses practical experience in taught subject	5.64	0.89	6.00	1	6
expands his/her knowledge by participating in conferences	4.95	1.23	5.00	1	6
demonstrates experience	5.20	1.03	6.00	2	6
follows ethical principles	5.14	1.23	6.00	1	6

Male and female students did not differ among themselves in terms of preferred substantive competences of an academic teacher (Table 3).

Table 5. Characteristic Of The Substantive Competences Of An Academic Teacher

Variables	Gender	X	SD	t	p
proves to be an expert in his/her subject area	F	5.18	1.04	-1.60	0.12
	M	5.49	0.56		
shows thorough knowledge in his/her subject matter	F	5.56	0.79	-1.23	0.22
	M	5.77	0.77		
possesses thorough knowledge	F	5.02	1.29	-0.98	0.33
	M	5.26	0.74		
possesses practical experience in taught subject	F	5.62	0.83	-0.81	0.42
	M	5.77	0.88		
expands his/her knowledge by participating in conferences	F	4.88	1.27	-1.12	0.27
	M	5.17	1.04		
demonstrates experience	F	5.30	1.10	1.01	0.31
	M	5.06	1.10		
follows ethical principles	F	5.10	1.10	-1.22	0.23
	M	5.37	0.94		

Relationship between the level of identification with a medical profession and the selected methodical and didactic competences of an academic teacher

The level of identification with a medical profession positively correlated with: delivers knowledge in a clear and understandable way, conducts classes in an interesting way, stimulates activity throughout classes, exercises discipline, clearly defines his/her requirements and systematically controls and evaluates the level of gained knowledge.

There were significant differences between male and female students. The level of identification with a medical profession had a positive relationship only with: clearly defines requirements in the case of women on the one

hand, and delivers knowledge in a clear and understandable way, conducts classes in an interesting way, stimulates activity throughout classes, exercises discipline and systematically controls and evaluates the level of gained knowledge in the case of men on the other hand (Table 8).

Table 8. Relationship Between The Level Of Identification With A Medical Profession And The Selected Methodical And Didactic Competences Of An Academic Teacher

Variables	The level of identification with a medical profession					
	All students		Women		Men	
	rho	p	rho	p	rho	p
delivers knowledge in a clear and understandable way	0.32	<0.01	0.27	0.06	0.42	<0.01
conducts classes in an interesting way	0.32	<0.01	0.25	0.08	0.46	0.01
stimulates activity throughout classes	0.21	0.05	0.11	0.45	0.44	0.01
is able to select adequate materials	0.14	0.21	0.07	0.65	0.31	0.07
exercises discipline	0.30	<0.01	0.26	0.07	0.41	0.02
takes advantage of various didactic tools	0.16	0.16	0.15	0.30	0.17	0.34
shows communication skills	0.11	0.32	-0.02	0.91	0.31	0.07
clearly defines his/her requirements	0.25	0.02	0.29	0.04	0.11	0.55
systematically controls and evaluates the level of gained knowledge	0.25	0.02	0.23	0.10	0.41	0.02

Relationship between the level of identification with a medical profession and the selected substantive competences of an academic teacher

The level of identification with a medical profession positively correlated with substantive competences of an academic teacher such as: proves to be an expert in his/her subject area, possesses thorough knowledge, possesses practical experience in a taught subject, expands his/her knowledge by participating in conferences, demonstrates experience and follows ethical principles.

There were also significant differences between male and female students. The level of identification with a medical profession in women positively correlated with: possesses thorough knowledge and demonstrates experience. The level of identification with a medical profession in male students had a positive relationship with: proves to be an expert and possesses practical experience in taught subject (Table 9).

Table 9. Relationship Between The Level Of Identification With A Medical Profession And The Selected Substantive Competences Of An Academic Teacher

Variables	The level of identification with a medical profession					
	All students		Women		Men	
	rho	p	rho	p	rho	p
proves to be an expert in his/her subject area	0.36	<0.01	0.25	0.09	0.62	<0.01
shows thorough knowledge in his/her subject matter	0.20	0.09	0.16	0.27	0.15	0.40
possesses thorough knowledge	0.26	0.02	0.40	0.01	-0.09	0.60
possesses practical experience in taught subject	0.35	<0.01	0.24	0.09	0.50	<0.01
expands his/her knowledge by participating in conferences	0.27	0.02	0.16	0.28	0.32	0.07
demonstrates experience	0.28	0.02	0.28	0.05	0.21	0.24
follows ethical principles	0.36	<0.01	0.27	0.06	0.01	0.99

Linear regression for women

A linear regression analysis was used to make in-depth analysis of the observed relationships, where the dependent variable was the level of identification with a medical profession, and predictors were selected methodical and didactic as well as substantive competences of an academic teacher.

Finally created model contained one predictor and explained 41.5% of the variance of the dependent variable (adjusted R-square was 0.172). The model was well matched to data, better than the average enables prediction of the dependent variable: $F(1.49) = 9.97$, $p < 0.01$. The resulting regression coefficients were given in Table 10.

Table 10. Linear Regression For Women

Variables	B	Std. Error	Beta	t	p
Scale	3.24	0.34		9.58	<0.01
possesses thorough knowledge	0.21	0.10	0.42	3.16	0.01

Linear regression for men

A linear regression analysis was used for male students, where the dependent variable was the level of identification with a medical profession, and predictors were selected methodical and didactic as well as substantive competences of an academic teacher.

Finally created model contained eight predictors and explained 86.4% of the variance of the dependent variable (adjusted R-square was 0.746). The model was well matched to data, better than the average enables prediction of the dependent variable: $F(8.26) = 9.99$, $p < 0.01$. The resulting regression coefficients were given in Table 11.

Table 11. Linear Regression For Men

Variables	B	Std. Error	Beta	t	p
Scale	0.05	0.73		0.07	0.95
proves to be an expert in his/her subject area	0.40	0.12	0.41	3.36	<0.01
expands his/her knowledge by participating in conferences	0.47	0.09	0.88	5.03	<0.01
stimulates activity throughout classes	0.19	0.07	0.42	2.89	0.01
exercises discipline	-0.25	0.10	-0.52	-2.57	0.02
takes advantage of various didactic tools	-0.18	0.06	-0.39	-2.87	0.01
clearly defines his/her requirements	0.20	0.09	0.33	2.32	0.03
systematically controls and evaluates the level of gained knowledge	0.23	0.05	0.57	4.33	<0.01
demonstrates experience	-0.21	0.07	-0.36	-2.94	0.01

CONCLUSION

Presented results have shown that the students' identification with their future profession is very important for medical students. This is consistent with other publications that include Adamus & Jaworski (2014); Borges (2007); Gazewood, Owen & Rollins (2002); Stets & Burke (2000). Studies show that professional identity development refers to the gradual process by which students assume the identity of a "physician" over the medical training. The researchers stress that professional identity in doctors refers to three important areas such as: 1) personal identity, comprised of factors such as an individual's history, experience, personality, feelings, goals, and values; 2) role identity, which refers to one's assumed social or professional functions, activities, and responsibilities; and 3) social identity, understood as the commitment to the values and goals of specific groups (Borges, 2007).

The development of a professional identity is an essential element of teaching medicine. It allows students to learn how their professional work will look like in the future on the one hand, and fulfill their responsibilities and obligations as physicians on the other hand (Rabow et al., 2010). Properly formed professional identity may affect the proper motivation to study and future job satisfaction. Satisfaction with the work is a result of balancing one's expectations and needs, and the possibility of their fulfillment in the workplace (Krogstad et al., 2006).

The level of identification with a medical profession and the selected methodical and didactic competences of an academic teacher

Obtained results have shown that the level of identification with a medical profession is associated with such competences as: delivers knowledge in a clear and understandable way, conducts classes in an interesting way, stimulates activity throughout classes, clearly defines his/her requirements.

Proper material selection and way of teaching allows the student to acquire knowledge, skills and improve their performance. The appropriate methods of teaching develop the cognitive abilities of the student on the one hand, and shape appropriate attitudes towards patients and medical staff on the other hand. The literature emphasizes that the value of teaching methods depends on the teacher's activity and the extent to which the student is provoked to be proactive during classes. The selection of teaching methods should be carefully considered, and an objective evaluation will be prepared after its realization (Theall & Franklin, 2001).

It is reported that familiarity with 'learning styles' have definite benefit for both teacher and students. Teachers can adapt new methods if they know the learning styles of the students (Lubawy, 2003). 'Learning style' means as 'an individual's preferred method of gathering, processing, interpreting, organizing and analyzing information' (Kharb et al., 2013).

Presented study have shown that medical students are characterized by a specific style of teaching, which is associated with the following qualities: systematically controls and evaluates the level of gained knowledge and exercises discipline. Qualities such as: delivers knowledge in a clear and understandable way, conducts classes in an interesting way, stimulates activity throughout classes, clearly defines his/her requirements were also very important for students.

Students' expectations regarding the competences of academic teachers should be included in the curriculum of medical courses. This is related to the fact that medical students are adults thus they have already developed their own learning style (Collins, 2004).

Relationship between the level of identification with a medical profession and the selected substantive competences of an academic teacher

The present study have shown that the level of identification with a medical profession correlated positively with such substantive competences of an academic teacher as: proves to be an expert in his/her subject area, possesses thorough knowledge, possesses practical experience in taught subject, expands his/her knowledge by participating in conferences, demonstrates experience and follows ethical principles.

Studies have shown that being an expert was a very important characteristic of academic teacher for medical students. This relationship was observed particularly in male medical students. The linear relationship between the level of identification with a medical profession and being an expert in academic teachers' subject area has been shown in this study. A review shows that the identification with a significant person is an important element of identification with one's future professional role. This is realized by mirroring the identity of an authority. An academic teacher plays the role of an authority and significantly impacts students, shaping their values and beliefs system (Śnieżyński, 2004).

The professional identity development is stimulated by receipt of feedback and mentoring as well as clinical activities. These experiences are integrated with each individual's personality, prior experience, extracurricular activities and aspirations to give rise to notions of professional identity. The more the academic teacher is the expert for the students, the greater the professional identity, which is unique and highly subjective (Monrouxe, 2010; White, Borges & Geiger, 2011).

The practical experience of an academic teacher in clinical work is also very important for students. Students can gain not only theoretical knowledge, but also practical tips of clinical work. It is compatible with other scientists' research, Penar-Zadarko et al. (2008), who have shown that competences, communication, respect for students and practical experience are important characteristics for medical students. An academic teacher who has a clinical practice can highlight how students could use theoretical knowledge in practice, and may refer to cases of patients and their problems during lesson. An academic teacher also teaches medical students how to cope with stress. A number of stressors are associated with the health and helping professions, including time pressures, workload, having multiple roles, and emotional issues (Lambert et al., 2004; Lim, Hepworth, & Bogossian, 2011).

An academic teacher also shapes in students an important skill, namely appropriate doctor-patient communication. The teacher not only teaches students communication skills, but also shapes ethical, moral and professional attitude towards patients and all medical staff (Adamus & Jaworski, 2014; Hussein, 2009). More and more publications highlight the important role of shaping the ethical attitudes among medical students (Alkaabba & Hussein, 2011; Hussein, 2009; Eckles et al., 2005). Our research has shown that students expect ethical and moral behaviours of academic teachers. The ethical behaviour in clinical practice is essential in the correct development of the identification with the future role of the professional in medical students.

The developed curriculum of medical studies should include not only the theoretical aspects of ethics, but also, which are equally important, practical ones. An academic teacher must be a role model of ethical attitudes which students will strive to emulate.

Limitations

There are some limitations to this study. First, our data are drawn from students at one medical school. Broader participation is necessary to determine if these findings are generalizable or if they only reflect a particular institutional culture or cohort of students. Secondly, there was a small sample of respondents.

RECOMMENDATIONS

Current research stress that development of effective 'curriculum and learning environment' is the greatest challenge of modern medicine (Murphy et al., 2004). There is a global trend of medical curriculum reform, changing from a teacher-centered to a student-centered learning (Collins, 2004). This curriculum should include a number of factors influencing the identification with future professional role in students, among others academic teachers' competences and learning styles of students. It should be taken into account that medical students are adults thus they have already developed their own learning style (Collins, 2004). Including these factors will impact the level of job satisfaction, ability to cope with stress and problems at work and behave morally and ethically in the future.

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