

A Matter of Professionalism: Academic Misconduct of Veterinary Students

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Abstract: Academic integrity guarantees the professional integrity and validity of the education and qualifications offered by the veterinary schools. In this study, we analyzed the responses of 528 veterinary students of two veterinary schools in Seoul regarding their awareness about, knowledge of, and frequency of engaging in academic misconduct. A total of 88.4 percent of the participants agreed that cheating and plagiarism by undergraduates would influence their future academic misconduct. The most common form of academic misconduct was plagiarism (71.7% in the A school, 69.5% in the B school), with falsification (40.2% in the A school, 31.7% in the B school) also reported at a high rate. Students indicated the lack of a culture of academic integrity as the main reason for academic misconduct. According to the regression analysis students' awareness and knowledge of academic integrity and their perception of peers' academic misconduct predicted a significant amount of variance of the frequency of academic misconduct. The findings of this study support that academic integrity should be learned in a flexible format from an early stage of professional development in veterinary curriculum. In parallel with the efforts of faculty, a community approach may be likely to improve the academic environment in terms of integrity.

Key words: academic misconduct, veterinary student, professionalism.

Introduction

Honesty and confidence are important attributes as veterinary skills and knowledge for a good veterinarian (13). It is not a moral issue for an individual professional, but for the whole veterinary society, because these attributes are core values of the veterinary professionalism. Therefore, veterinary schools give effort to develop ethical attitude of their students throughout the curriculum (9). Academic misconduct in professional schools is opposing to professional integrity and devalues the system of educational assessment and the validity of qualifications (17).

Recent research has demonstrated that physicians' unprofessional behavior was strongly associated with prior unethical behavior in medical schools (15). In a study of online plagiarism, veterinary and medical students self-reported lower amounts than students from other types of colleges (18). But other studies showed that medical students are lenient towards dishonesty in education and practice, and many of them engaged in cheating or dishonesty during their medical training (3,16,17). Some of previous studies on undergraduate students' academic misbehaviors indicated that personal characteristics (gender, age, academic achievement) and contextual or situational factors (peer disapproval, fraternity, cheating of their peers) can influence dishonest behavior (6,11). However, much less is known about the academic misconduct by veterinary students.

Veterinary medicine is in a complicated ethical position, as

it requires the balancing of different academic, interpersonal, intrapersonal, and professional demands as well as potential conflicts between animal and human interests (21). Furthermore, the highly competitive environment of clinical and biomedical science pressures young professionals to produce outcomes in a short time and drives them to indulge in dishonest practices or research. After a few cases of research misconduct were revealed, academic integrity programs have been provided to graduate students in every university and college in Korea. However, less attention has been paid to ethical attitudes toward the academic works of undergraduate students. In relation to undergraduate students, cheating during exams, falsification, and plagiarism of assignments are the most frequently stated problems (7). There is a need to understand students' academic misconduct in various cultural context, especially in veterinary medical education.

This paper explores personal characteristics, educational experience, attitudes toward academic integrity and knowledge of academic misconducts in terms of how they influence academic misconduct by veterinary students. In doing so, we hope to provide insight into the development of educational environments which maintain a strong level of academic integrity and ensure the professional qualification for the graduates.

Materials and Methods

Survey instruments

A four section survey was developed for the study; the first section asked respondents' characteristics and former educational activities of academic integrity, the second section investigated the frequency of academic misconduct, the third

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section explored attitudes towards academic integrity, and the last section tested basic knowledge about academic misconduct.

In the first section participants indicated their previous participation in formal and non-formal courses and discussions on campus on academic integrity with 3 items. Facts about their personal background, such as their study year and gender are asked to indicate. In the second section, participants rated on a five-point Likert scale how often they have involved in the 10 different patterns of academic misconduct for last 1 year. Regarding patterns of academic misconducts, we referred to the major patterns of academic misconduct in the guidelines of the Faculty of Liberal Education at Seoul National University (5). These included 'copying text directly and not acknowledging the source (plagiarism)', 'buying or selling assignments', 'resubmitting work already submitted for a different course', 'earning credit without contributing to a collaborative assignment (free-riding)', 'cheating during exams', and 'signing another person's name on a class attendance list when that person is enrolled but does not attend the class'. Four patterns of academic misconduct related to practice which veterinary students may experience, such as 'intentionally altering or omitting data for a laboratory report', were added. Participants also rated the frequency of peer academic misconduct in the same categories. Participants ranked the reasons for academic misconducts on a five-point Likert scale. Reasons included 'lack of a culture of academic integrity at universities', 'perceived low risk of being caught or penalized', 'ignoring an ethical perspective of learning', 'not enough effort by teachers to prevent academic misconduct', 'lack of an academic integrity guideline for students' and 'not having properly learned about academic misconduct'. In the third section, the attitude toward academic misconduct was indicated with the question "Students' cheating and plagiarism influence their future academic misconduct." They evaluated academic integrity environment of their own colleges in terms of strict inhibition of academic misconducts and effort of faculty members. In the fourth section, thirteen items are utilized to test the participants' knowledge of aca-

ademic misconduct based on the guidelines of the Faculty of Liberal Education at SNU.

Data collection and statistical analysis

With the institutional review board (IRB) approval we distributed the questionnaires to students of the two veterinary schools in Seoul (A school and B school). With the help of the Students Council we collected the questionnaires over a period of one week, from the 25th of September to the 1st of October of 2014. Excluding incomplete responses, 528 responses in total (206 pre-vet students; 224 females) were used for the analysis (response rate 66%). Descriptive statistics of the respondents are summarized in Table 1. The frequency of academic misconduct, perception of peers' academic misconduct, attitudes toward the importance and need for education were measured on five-point Likert scales. The sum of correct answers from the knowledge measurement test was used on an interval scale. The differences among two schools and subgroups of gender and different educational experience on academic integrity were tested with analysis of variance (ANOVA) and t-tests. It was assumed that the perception of peers' academic misconduct, attitudes toward, and knowledge of academic misconduct would be related to the behaviors of academic misconduct. A hierarchical regression analysis was performed with the self-reported frequency of academic misconduct as the dependent variable using SPSS 20.0.

Results

Educational experiences and knowledge of academic misconduct

Only 20.1% of the respondents in the B school and 51.6% in the A school reported that they had participated in formal academic integrity courses (Table 1). The difference is likely to be caused by that formal courses in academic writing and integrity for pre-vet students of the Faculty of Liberal Education are mandatory in the A school since 2012. One third of the A school respondents and a half of B school respondents

Table 1. Respondents' characteristics and educational activities pertaining to academic integrity

Group	Subgroup	A School (n = 184)		B School (n = 344)	
		N	%	N	%
Program	Pre-vet Program	79	42.9	127	36.9
	Veterinary Program	105	57.1	217	63.1
Gender	Male	94	51.4	207	60.5
	Female	89	48.6	135	39.5
Formal Course	Participated	95	51.6	69	20.1
	Did not participate	89	48.4	275	79.9
Non-formal Course	Participated	52	28.3	46	13.4
	Did not participate	132	71.7	298	86.6
Discussion on campus	Often discussed	29	15.7	6	1.8
	Occasionally discussed	34	18.5	51	14.9
	Discussed once or twice	56	30.4	96	28.0
	Never discussed	65	35.3	190	55.4

never discussed this topic on campus with teachers or other students.

The sum of correct answers from the knowledge measurement test were not different between the two schools and among subgroups with different educational experience. However, veterinary students got significantly higher scores than pre-vet students (10.80 ± 2.46 and 10.20 ± 2.74 , $p < 0.05$). Female students had better knowledge on academic misconduct than male students (11.04 ± 2.10 and 10.20 ± 2.86 , $p < 0.01$).

Attitude on academic misconduct and perception of academic integrity environment

A total of 88.4 percent of the participants agreed that cheating and plagiarism by students would influence their future academic misconduct, however, the difference was not statistically significant among subgroups. Students (in the A school) and females (in the B school) placed significant more amounts of importance on the need for academic integrity education for students ($p < 0.05$). On the other hand the participants who often discussed on academic integrity agreed less on the need for education in the A school ($p < 0.05$).

Only the 13% of participants in the A school and 28% in B school agreed that the college inhibits strictly academic misconducts (with degree of agreement 2.79 and 2.97 on a five-point Likert scale respectively). Peers' awareness of academic integrity (3.41 ± 0.91 in the A school, 3.69 ± 0.95 in the B

school) and perceived effort of faculty members to prevent academic misconduct were not different between two schools (3.21 ± 0.95 in the A school, 3.38 ± 0.97 in the B school).

The participants of the two schools prioritized lack of an academic integrity culture in universities as reason for academic misconduct (3.71 ± 0.98 in the A school, 3.61 ± 0.96 in the B school). They also placed important on a low-risk of academic misconduct in terms of being discovered and penalized (3.56 ± 0.99 in the A school, 3.62 ± 1.09 in the B school). Not enough education about academic integrity and lack of an academic integrity guideline for students were regarded as relatively less important than others as reasons for academic misconduct.

Frequency of academic misconduct and perception of peers' academic misconduct

Most often, academic misconduct occurred in the form of 'copying text directly and not acknowledging the source.' Among respondents 71.7% in the A school, 69.5% in the B school involved in plagiarism at least once for the last 1 year. 'Intentionally altering the data for a laboratory report (40.2% in the A school, 31.7% in the B school)' were also reported to occur often. Involvement in 'cheating during exams' and 'submitting the report submitted by one's senior in the previous year' differed between two schools ($p < 0.01$), but frequency of other academic misconducts did not show significant differences (Table 2). Students perceived that academic

Table 2. Frequency of academic misconduct and perceived peers' academic misconduct

Items	School	Frequency of academic misconduct		Peers' academic misconduct	
		Mean† (SD)	<i>p</i> -value	Mean† (SD)	<i>p</i> -value
Copying text directly and not acknowledging the source	A	2.14 (.963)	.771	2.89 (1.015)	.241
	B	2.16 (1.040)		2.99 (1.006)	
Buying or selling assignments	A	1.16 (.504)	.358	1.87 (.846)	.000
	B	1.20 (.516)		2.26 (.920)	
Resubmitting work already submitted for a different course	A	1.25 (.513)	.211	2.07 (.906)	.133
	B	1.19 (.519)		2.19 (.900)	
Free-riding (Earning credit without contributing to a collaborative assignment)	A	1.10 (.333)	.850	2.21 (1.035)	.144
	B	1.10 (.426)		2.34 (1.015)	
Cheating during exams	A	1.06 (.280)	.000	1.73 (.777)	.000
	B	1.18 (.511)		2.63 (1.013)	
Signing another person's name on a class attendance list when that person is enrolled but does not attend the class	A	1.48 (.796)	.681	2.71 (1.149)	.295
	B	1.45 (.755)		2.60 (1.107)	
Intentionally altering or omitting data for a laboratory report	A	1.55 (.788)	.190	2.36 (1.067)	.143
	B	1.46 (.762)		2.23 (.931)	
Submitting the report submitted by one's senior in the previous year	A	1.80 (.972)	.000	3.26 (1.291)	.000
	B	1.39 (.704)		2.72 (1.051)	
Intentionally making data for a laboratory report	A	1.49 (.782)	.996	1.83 (.907)	.008
	B	1.49 (.760)		2.04 (.878)	
Ignoring the welfare guideline for experimental animals	A	1.27 (.664)	.936	1.75 (.904)	.101
	B	1.26 (.627)		1.89 (.908)	

† 5 Likert scales (1: Never to 5: Very often)

Table 3. Regression model for students' academic misconduct

		Model 1		Model 2		Model 3		Model 4	
		β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Personal attributes	(Constant)	1.510	17.428	1.582	13.209	1.404	8.914	1.658	10.336
	Program	-.006	-.520	-.003	-.225	-.001	-.090	.004	.375
	Gender	-.012	-.367	-.014	-.421	-.044	-1.332	-.022	-.672
	School	-.040	-1.130	-.025	-.667	-.047	-1.291	-.061	-1.709
Educational Experiences	Formal course			-.029	-.642	-.028	-.654	-.040	-.951
	Non-formal course			-.005	-.098	-.003	-.068	.004	.095
	Discussion			-.011	-.570	-.001	-.067	-.001	-.048
Awareness and Perception	Importance					-.043	-2.554**	-.049	-2.958**
	Educational Needs					-.033	-1.690	-.028	-1.472
	Environment					.009	.395	.019	.895
	Peers' academic misconduct					.186	7.691**	.201	8.503**
Knowledge	Knowledge							-.033	-5.381**
	R	.058		.075		.352		.414	
	R ²	.003		.006		.124		.172	
	F	.570		.476		7.188**		9.527**	

* $p < 0.05$, ** $p < 0.01$

misconduct occurs by their peers more often than by themselves. The frequent patterns of perceived academic misconduct were different between the two schools. 'Submitting the report submitted by one's senior in the previous year' was perceived to occur more often in the A school ($p < 0.01$), but 'buying or selling assignments,' 'cheating during exams,' and 'intentionally making data for a laboratory report' were more often in the B school ($p < 0.01$).

Regression model for students' academic misconduct

The results of the hierarchical regression analysis with the frequency of academic misconduct on a 5-point Likert scale as the dependent variable are presented in Table 3. Personal attributes (program, gender, school) and educational experience did not predict academic misconduct in all models. In the model 3, awareness and perception were significantly related to how often the participants involved in academic misconduct ($R^2 = 0.124$, $F = 7.188$, $p < 0.01$). Among the variables students' awareness of importance of academic integrity was significantly related to the likelihood of academic misconduct ($\beta = -0.043$, $t = -2.554$, $p < 0.01$). Participants' perception of peer academic misconduct also predicted a significant amount of variance of the frequency of academic misconduct ($\beta = 0.186$, $t = 7.691$, $p < 0.01$). In the model 4, awareness, perception and knowledge explained additional 4.8% of the variance ($R^2 = 0.172$, $F = 9.527$, $p < 0.01$). Knowledge was significantly related to the likelihood of academic misconduct ($\beta = -0.033$, $t = -5.381$, $p < 0.01$).

Discussion

Plagiarism is the most frequent type of academic misconduct to occur among veterinary students. Although students are aware of the possible link between the unethical learning behaviors of students and their future academic misconduct,

they still involve in academic misconduct. However, they may copy the work of other for their assessments, as they do not know how to reference texts appropriately (1,17). On the other hand, although guidelines for scientific writing are available for students, it can be easily ignored if it is not monitored strictly. Another concern from the findings in this study is that almost 40% of the respondents were at least once intentionally involved in altering or omitting data for a laboratory practice report. Students conduct many laboratory experiments and clinical practices according to the ethical guidelines at their universities. Therefore, data collecting and processing in these practices should be more strictly guided and supervised by faculty, as prior personal unethical actions may reinforce future willingness to engage in misconduct by a successful outcome and the absence of being caught (4). When faculty members underestimate the problem and take no action to prevent it, misconducts can increase (2).

From the findings of this study it is clear that students can involve easily in the academic misconduct, if they perceive that academic misconduct of their peers commonly occurs. They think that academic misconduct is mainly a problem related to the lack of a culture of academic integrity and stressful academic environment in this study. This is supported by previous studies in which peer-related contextual or environmental factors were proposed as most influential with regard to students' academic misconduct (1,11,12,16,17).

Ethical training and formal courses may be criticized for being ineffective and having little relation to ethical behavior (6,8). However, our study indicated the knowledge of academic integrity is associated with academic misconduct in the regression model. Although education on academic integrity may not directly decrease academic misconduct, understanding of academic integrity policies was reported to be negatively associated with academic dishonesty (10). It demonstrated the possibility of a flexible format of education

on academic integrity. Students need to be exposed to the basic knowledge of academic integrity through the whole formal and informal curriculum and in their campus life. Academic integrity should be included and students should be monitored early in their veterinary curriculum because students may involve in various academic misconduct from the early stage of their education. In formal curriculum enforcement of veterinary professionalism, as a set of desirable professional attitudes and behaviors (14), may be one of the effective way which veterinary schools strengthen academic integrity for students. In informal curriculum, honor codes, as a statement of the values and expected behaviors of all members of an institution, may function as an educational and regular guideline (20). Discussing cases with peers can be more effective than lecturing guidelines. Students at universities with an honor code see themselves as part of a moral community. This type of community approach can be effective in controlling academic dishonesty among students (10, 11). This process also includes creating hidden curriculum in which students can learn academic integrity from every day campus life (19).

Conclusion

This is the first study analysis of academic misconduct in veterinary schools in Korea. It showed self-reported patterns and frequency of academic misconduct of veterinary students. Participants' perception of peer academic misconduct and knowledge on academic misconduct significantly influence on the academic misbehavior. More effective learning methods through the whole curriculum and creating environment of academic integrity among college members can prevent academic misconduct in veterinary schools and ensure the quality of professional education.

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수의전문직업성 측면에서 본 수의과대학 학생의 학습윤리

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요 약 : 정직성과 신뢰는 수의사의 전문직업성(professionalism)을 구성하는 핵심요소일 뿐만 아니라, 수의학교육에서는 수의학 전문교육 결과의 정당성을 보장하는 근거가 되는 중요한 가치이다. 의학교육에서는 의과대학에서의 학습부정 경험이 추후 의사로서 일할 때 발생하는 비윤리적인 행위와 관련이 있다고 밝혀져 있다. 본 연구에서는 서울시내 수의과대학 학생 528명(A대학: 184명, B대학: 344명)의 학습부정과 학습윤리에 대한 태도를 조사하여 분석하였다. 학생들은 학습윤리가 향후 학문윤리에 중요한 영향을 미칠 수 있다고 평가하였다(88.4%). 가장 흔하게 발견되는 학습부정행위는 보고서 작성시 표절(A대학: 71.7%, B대학: 69.5%)과 실습 시 데이터 위조행위(A대학: 40.2%, B대학: 31.7%) 등이었으며, 학생들은 학교 내 학문윤리 문화의 부재가 학습부정행위의 원인이 된다고 지적하였다. 회귀분석 결과 학습윤리에 대한 지식과 동료 학생들의 학습부정행위에 대한 인식이 수의과대학 학생들의 학습부정행위 빈도에 영향을 미치는 것으로 나타났다. 본 연구 결과를 통해 수의과대학 학생들의 학습윤리 교육이 저학년부터 전 과정에 걸쳐 보다 유연한 형식의 프로그램으로 진행되어야 하며, 교수진과 학문 커뮤니티의 학문윤리 환경 조성이 중요하다는 점을 도출하였다.

주요어 : 학습부정, 수의과대학생, 전문직업성