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Article

Bad Practice Affecting and Limiting the Education of Students: A Study of Pedagogical Myths in Pedagogy Students

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Abstract

A pedagogical myth is defined as the mental representation of a concept which does not correspond with the current scientific theory. The contribution of pedagogical myths to education has been immeasurable. The bringing of myths by students into their process of education affords them with a powerful basis for retaining many mistaken ideas. Data were collected from 448 pedagogy students undertaking education in Warsaw (Poland). The study investigated which myths were more prevalent among students, how students related to known pedagogical myths and how their knowledge changed over the years of their academic education. An additional aim of this study was to identify whether students' beliefs in pedagogical myths could be associated with their level of education. The results revealed the high prevalence of pedagogical myths and their resistance to the process of education. This may indicate the need to supplement pedagogical study programs with critical thinking training in order to eliminate them before graduates embark on their teaching and pedagogical careers. The findings confirm the persistence of pedagogical myths.

Keywords

Pedagogical myth • misconception • limitations of students • teacher candidates • student beliefs

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This article aims to provide information on students' views regarding certain pedagogical topics. It examines how, in some situations, students build their own knowledge based on pedagogical myths. Joseph Campbell (1988) argued that a myth was always intended as a source of instruction. A myth could therefore be a threat to educational practice. This study has specifically investigated whether the prevalence of myths in the experience of students does in fact pose a threat to pedagogical practice. Using scientific literature to guide the hypotheses, it was predicted that misconceptions would be prevalent and would decline during subsequent years of education. It was also expected that the strength of beliefs would differ in relation to individual myths.

Primarily, myths are stories that may or may not be true. Myths are a path to human understanding, and the creation of myths is a path to self-development and human expansion (Campbell, 1988). This study examined another way of thinking about myths and investigated to what extent they might undermine good teaching practice. The concept of pedagogical myths is employed instead of *misconceptions* (Kember, 2000) and *conceptual misunderstandings* to highlight their existence among students. The term misconception has been defined as "alternative understandings of phenomena constructed by a student in response to the student's prior knowledge and experience" (Munson, 1994, p. 31). There are many common myths in popular culture that very often concern educational issues. For example, the misconception that people can learn a new language while sleeping (Brown, 1984). In fact, some studies have shown that some basic forms of learning can happen during sleep, such as the association of sounds with smells and the fixing of memories in the relevant circuits of the brain through appropriate auditory stimulation (Anthony et al., 2012). What needs to be understood is how prevailing culture allows for certain myths to exist. In Poland, for example, there is a belief in some parts of the society that corporal punishment as a means disciplining children can be divided into two categories: violence and spanking. It is a well know statement that violence is unacceptable, but some people think that spanking is acceptable. At the same time, supporters of spanking have not noticed that the scientific community have almost unequivocally condemned spanking (Halemba & Izdebska, 2009; Jarosz & Kurkowski, 2016, 2018). Scientific research has confirmed the link between the use of spanking and incidents of violence that threaten the health and lives of children (Affifi et al., 2017; Gershoff, 2013; Lee et al., 2013; Zolotor et al., 2008). However, many people still believe that spanking is an acceptable form of punishment.

A pedagogical myth is a well-established conviction that contradicts current knowledge concerning pedagogical truths. A myth must be dispelled for current knowledge to prevail in educational practice. Psychological misconceptions have been studied by Lilienfeld et al. (2011). Bensley et al. (2014) developed the *Test of Psychological Knowledge and Misconceptions* (TOPKAM). There is some suggestion that psychological myths are still present in student curricula and nobody is doing anything about it (Kowalski et al., 2016). There are other synonymous words showing this phenomenon, for instance *misconception* (Köse, 2008), or *naïve science* (Taylor & Kowalski, 2004). Pedagogical myths have more often than not been dealt with at a general level. An example of this would be research on myths that concern teaching methods, rearing, and psycho-pedagogical help for children and adolescents (Garstka, 2016). Garstka (2016), using the results of other authors, analysed psycho-pedagogical myths and questioned the credibility of some studies, and found support for other studies. Christodoulou (2014) argued that governments and educational organizations were responsible for promoting and mandating unfounded theory and bad practice in education. Christodoulou (2014) examined the set of tools that teachers were taught at University for ensuring children's progress. The fact was that this set of tools did not work. She studied the influences and philosophies behind each "myth" ranging from "facts prevent understanding" to "the teaching of knowledge is indoctrination" (Christodoulou, 2014). There has not been a long tradition if

studying pedagogical myths unlike the study of psychological myths. Research studies by students of present belief in myths are even less common (Arntzen et al., 2011).

Students have a complex system of prior beliefs and understandings about the world based on social interactions, upbringing, popular culture, and experience. Pedagogical myths are what students themselves develop erroneously and these differ from current scientific concepts. The sharing by students of false beliefs concerning pedagogical knowledge can be dangerous. The spread of erroneous beliefs among students and teachers can have potentially negative effects for practice (Cibik, 2017; Perkowska-Klejman & Odrowąż-Coates, 2019).

Within the general education programmes in Poland, education studies are presently designed to prepare students for future careers as teachers and teacher's assistants responsible for the education of children, adolescents, and adults. The aim of pedagogical courses is not only to prepare students for work at schools and other educational centres but also to educate them in the general field of pedagogy. In principle, students' knowledge should grow with the completion of each stage of study. There is, however, a gap in the literature and pedagogy students are not tested for the disappearance of false beliefs during their education.

The two main sources of pedagogical myths can be categorised as follows: *non-scientific beliefs* and *conceptual misunderstandings*. Non-scientific beliefs are often learned from religious and mythical sources. In contrast, conceptual misunderstandings are forms of scientific knowledge that result in students failing to confront paradoxes and conflicts resulting from their own non-scientific beliefs. In this article, pedagogical myths and conceptual misunderstandings have been treated as being synonymous. An imperfect grasp of basic scientific concepts will affect the ability and the retention of myths by students will affect their ability to act as informed and professional teachers (Impey et al., 2012).

Currently, the issue of misconception is often undertaken by international researchers in psychology (Hughes et al., 2013; Lilienfeld et al., 2011) but there are very few analyses on this topic in pedagogy. For example, Dekker et al. (2012) found that most of teachers in the United Kingdom and the Netherland subscribed to the belief that teachers should match their teaching styles to their students' learning styles. Despite, the popular scientific evidence that there is not. Moreover, Poland is still in the process of universities educational changes (Law 2.0 will change the Polish universities) and gaining new knowledge about determinants favouring misconception in education is highly needed. That is why it was decided to prepare a questionnaire of the pedagogical myths among future teachers. This questionnaire was prepared with students after the course about common misconception in education. This research was conducted to investigate how students relate to known pedagogical myths and how their knowledge develops over the course of their academic education. Due to the high social harm associated with the widespread pedagogical myths, an early identification of myths among pedagogy students is important. Pedagogical myths pose challenges for educational research and practice.

Methods

Participants

The data were gathered from six different groups of students (N = 448 students), from The Maria Grzegorzewska University in Warsaw (Poland). The first group were first year bachelor's students (n = 76), the second group contained third year bachelor's students (n = 69), the third group comprised of first year master's students (n = 73), the fourth were students attending the second year of a master's program (n = 62), the fifth group were first year students from a part-time bachelor degree program (n = 68), and the sixth

group were second year students from a part-time master's degree program (n = 98). All respondents were studying education. Gender in the study group was at the level characteristic for this field of study – only 4% were men. Participants were categorized by age into young adults, students between 19 and 35 years old (n = 435, M = 17, SD = 418), and middle-aged adults, students between 36 and 51 years old (n = 10, M = 0, SD = 10).

Instruments

To measure the pedagogical myths, a questionnaire consisting of 16 items with 2 response options (*true-false*) was used. It included issues related to stress-free upbringing, reward and punishments, only children, raising siblings, kindergarten, education without a specific worldview, limiting sound, children in large families, gender inequalities in the family, excessive attention payed by mothers to sons, spanking, the youngest child, nursery, praise as an educational method, and children protection. Most of the items were inspired by popular articles on the Internet. The false statements were formulated by the author of this research with the assistance of students attending one of the Master of Education programs. The correct answer to each item was not directly taught during any of the courses of the respective study programs. The items are shown in appendix.

The results were interpreted assuming a significance level of .05. A value of N in the tables indicates the total number of participants. A factor analysis of the scale revealed one factor only, labelled *Myths in pedagogy*, containing 16 statements. The reliability of the scale was Cronbach's α = .69. The factor explained 23.5% of the overall variance. Additionally, the tool included questions about the socio-demographic characteristics of the sample: gender, year of birth, year of study.

Procedure

The study was conducted with the consent of lecturers and participants during regular classes at the Maria Grzegorzewska University (Poland). The study took place between 2016-2018. Students were informed that participation was voluntary and that they could resign from participation whenever they wished. The research was inspired by Kowalski et al. (2016).

Data Analysis

The pedagogical myths in this article represent some students' ideas about pedagogy. In this study, 16 pedagogical myths have been examined by allowing students to consider their own thoughts in non-literal ways thus creating space for the discovery of some of the consequences resulting from the teacher training process. To determine possible changes in students´ correct understanding relating to known pedagogical myths and how their knowledge changed over the course of their academic education, a cross-tab and chi-square analysis were used. The study instruction contained an element of deception as the respondents were informed that the study concerned "views on pedagogy" (the idea was taken from published research by Kowalski et al., 2016). The items in the survey were not uniformly strong and do not have equal diagnostic power (Bensley et al., 2014). For example, a student might concur with the statement "an only child is more susceptible to problems in interpersonal relationships". This might elicit student´s disagreement because there are some scientific results that having a sibling may be especially helpful for learning how to manage conflicts in peer relationships. Nonetheless, the survey has utility to measure myths, and for example, as it is shown in the discussion section, the items that relate to pseudoscience have a diagnostic power.

Results

Table 1 presents the percentages of correct answers of the participants in each year of study, together with the total percentage. As the questionnaire focused on myths, in all the items, the correct answer was "false".

Table 1. *Dissemination of pedagogical myths among pedagogy students*

	% of correct answers							*Chi-square test*
	All	*1st year students BA*[1]	*3rd year students BA*	*1st year students MA*[2]	*2nd year students MA*	*1st year students MA -part time*	*2nd year students MA -part time*	
Myth 1	56.2	44.7	49.3	64.4	58.1	61.9	56.7	9.14
Myth 2	42.7	35.5	33.8	40.3	45.2	56.1	40.3	11.33*
Myth 3	43.4	34.2	52.9	53.4	41.9	39.8	39.7	9.35
Myth 4	16.4	10.5	11.8	22.2	6.5	31.6	8.8	28.90**
Myth 5	54.1	43.4	66.7	63.9	53.2	49.5	52.2	10.95
Myth 6	43.4	34.2	39.7	42.9	38.7	54.6	45.6	8.72
Myth 7	71.3	82.7	56.9	61.9	78.3	69.1	77.9	17.21*
Myth 8	66.0	67.1	53.8	65.0	62.9	71.1	73.1	7.28
Myth 9	78.3	85.5	70.8	80.3	77.0	75,3	80.9	5.78
Myth 10	41.0	39.5	38.5	40.0	39.3	54.6	27.9	12.56*
Myth 11	57.6	53.9	63.1	57.6	50.0	64.9	52.9	5.41
Myth 12	33.9	26.3	31.8	34.3	35.5	44.9	26.5	9.13
Myth 13	66.7	58.9	67.6	82.6	79.0	60.8	55.9	19.25*
Myth 14	51.5	53.9	51.5	54.3	49.2	58.2	38.2	7.20
Myth 15	77.3	82.9	75.0	75.7	82.3	74.2	74.6	3.32
Myth 16	61.1	50.7	63.2	72.5	61.3	65.3	52.9	9.52

Note. BA = Bachelor's degree student; MA = Master's degree student in Education
*$p < .05$; **$p < .01$

The Chi-square analysis with the period and level of the study is shown in Table 1. Comparing different years of pedagogical studies 11 of the 16 factors did not reach statistical significance at the level of $p < .05$. Additionally, these results indicate that students' beliefs in pedagogical myths do not significantly change over the course of their studies, except for myths 2, 4, 7, 10, and 13. An analysis of adjusted standardized residuals (ASR) showed that, in myth 2, second year part-time MA students had a higher percentage of correct answers than the rest (ASR = 3). In myth 4, second year MA students had the lowest percentage of correct answers (ASR = 2.3) whereas second year part-time MA students had the highest percentage of correct answers (ASR = 4.6). In myth 7, year 1 BA students (ASR = 2.3) had the highest percentage of correct answers and year 3 BA students (ASR = 2.8) had the lowest percentage of correct answers in comparison to the rest. In myth 10, first year part-time MA students had the lowest percentage of correct answers (ASR = 2.4) and second year part-time MA students had the highest percentage of correct answers (ASR = 3.1). In myth 13, first year MA students (ASR = 3) and second year MA students (ASR = 2.2) had the highest percentage of correct answers whereas first year MA part-time students had the lowest percentage of correct answers (ASR = 2.1). No other significant differences were found.

Myth 1: *Stress-free upbringing of pre-schoolers is an effective educational method*. A total percentage of 56.1% of students answered the question correctly. There were small differences between study stages. Among the first- and third-year students, the number of correct answers increased by 5%,

[1] BA – Bachelor's degree student - is a graduate professional degree which prepares students for work as a teacher in nursery, kinderdargen, or school, depending on the choice of the student, which is made during the second year of studies.
[2] MA – Master's degree student in Education – is more competent than Bachelor in the pedagogy and practical skills of teaching.

unfortunately at the master's level the number of correct answers decreased by 6%. However, a 5% increase in correct answers was observed among part-time students. Effectively, there was no significant change in the student's beliefs during their studies.

Myth 2: *Rewards and punishments are the most effective educational method*. Less than half of the surveyed students had correct answers to this statement. No significant differences were observed among bachelor students. A disturbing increase of faith in this myth emerged among part-time students. This increase was of 16%.

Myth 3: *An only child is more susceptible to problems in interpersonal relationships*. The statement of the truthfulness of this sentence was above average and was of 66.7%. This belief increased from 58.9% to 67.6% for bachelor's students' and decreased from 81.4% to 79% for master's students'. In part-time students the change observed was from 55.9% to 60.8%. The results showed that the tested hypothesis had been confirmed.

Myth 4: *In the process of raising siblings, parents should treat children equally*. Only 16.4% of all the students were convinced that this statement was not true. Master's students disagreed with the statement most often, 22.2% for full-time students, and 31.6% for part-time students.

Myth 5: *Children who did not attend kindergarten have problems in making new contacts*. More than half of all surveyed students were convinced that the statement was not true. Belief in this myth increased over the course of the study programs by more than 20% for bachelor's students and decreased by 13% for master's students.

Myth 6: *Raising children without a specific worldview is possible*. Over 60% of students said that raising children without a specific worldview is possible. This belief increased over the course of the study programs from 53.8% to 65% for bachelor's students and from 62.9% to 73.1% for master's students at the end of their higher education. Among part-time students, there are no significant differences and this belief remained at the level of over 70%.

Myth 7: *Limiting sound stimuli positively affects the child's psychomotor development in the period of 0-18 months*. The perception of the truthfulness of this sentence was above average and was of 71.3%. This belief decreased from 82.7% to 56.9% for the bachelor's students' and increased from 61.9% to 78.3% for the master's students. In the part-time students the changes observed were from 77.9% to 69.1%.

Myth 8: *Children in large families raise each other without parental supervision*. More than 43.4% of students disagreed with the statement that children in large families are brought up without parental supervision. Moreover, this belief increased by 5% among bachelor's students, and decreased by 4% among master's students. It increased by 9% among the part-time students.

Myth 9: *Mothers are more focused on raising girls, while fathers on raising boys*. More than 78.3% of students do not believe that mothers are more focused on raising girls or that fathers are more focused on raising boys. The differences between students of various ages were insignificant. However, among bachelor's students the number of correct answers decreased significantly from 85.5% to 70.8%.

Myth 10: *Paying too much attention to sons by mothers has an impact on their clumsiness in adulthood.* Over 40% of students correctly answered this question. There were no significant differences in the number of correct answers among full-time students. The number of correct answers increased from 27% to 54.6% among part-time students.

Myth 11: *In some cases, "spanking" may be an acceptable form of punishment.* More than 57.6% of students indicated that "spanking" is not an acceptable form of punishment for children. In all groups, just over half of the students answered correctly.

Myth 12: *The youngest child in the family always has more privileges than duties*. Almost 34% of surveyed students answered correctly. A slight increase of correct answers was observed among the older students. The highest number of correct answers, at 44.9%, was recorded among part-time students.

Myth 13: *By sending a child to a nursery, we shorten their carefree world of childhood*. Over 40% of pedagogical students do not believe that a kindergarten shortens the carefree period of childhood. It is worth emphasizing that, as their formal education progresses, students are more likely to claim that a nursery reduces the period of carefree childhood. This belief increased from 34.2% to 52.9% for bachelor's students and decreased from 53.4% to 41.9% for master's students. No changes were observed in part-time students.

Myth 14: *School teaches things that are of no use in life*. Over 50% of students were convinced that school teaches useful things. There were small differences between students' groups. A significant difference was only observed among part-time students and the number of correct answers increased from 38.2% to 58.2%.

Myth 15: *Praise makes a child conceited*. Students (77.3%) are convinced that praise does not teach children conceit. Praise is most often treated as a desirable tool in working with children (Bayat, 2010). There is no definite research that praise makes children conceited. The word "conceited" means that someone is excessively proud of oneself.

Myth 16: *Nowadays, children need constant protection*. More than 61% of students disagreed with this very general statement. A small percentage increase in correct answers was observed in responses from older students.

Discussion

The purpose of the present study was to determine whether widespread myths about pedagogical themes existed among students. The results obtained prove the high prevalence of pedagogical myths and their resistance to the education process. There is some good practice in University courses related to myth refutation. An additional aim was to identify whether students' beliefs in pedagogical myths could be associated with the level of their education. The obtained results permit the acceptance of the thesis that belief in the few of the myths analysed decreases with higher levels of education.

However, there is still a worrying percentage of myth believing students. The research results indicate that there are myths that education has an impact on and others that are resistant to the education process. In order to compare which myths are resistant to the education process and which are not, students were divided into two groups during the analysis: bachelor's and master's students. It was found that few of the myths examined can be dispelled through the education process. Despite of university education this process is not always entirely successful. The results showed a high degree of prevalence of pedagogical myths. A few years of study differentiate the group of bachelor's and master's students by only a few points advantage. For some myths (1, 3, 5, 6, 8, 9, 11, 12, 14, 15) it is difficult to talk about any significant susceptibility to education. Through this article, we promote the dissemination of accurate, empirically based information to students, help students discriminate between substantiated and unsubstantiated pedagogical knowledge, and make specific suggestions concerning the types of lectures that need to be added to study programs.

It is presumed that belief in some myths is associated with a lack of student reflectivity. According to Perkowska-Klejman (2019), reflectivity in a university means preparing future elites to strive for truth, respect for others, cooperation with others, and creativity when conducting research and seeking knowledge.

The issue of searching for students' reflectivity is part of the stream of critical and emancipatory pedagogy. This is primarily expressed in a constructivist approach to learning.

The results of the first question showed that 46% of students belief in stress-free upbringing**.** Stress-free upbringing means that the parents and educators strive to relieve children from: hardship, unpleasantness, and effort. Stress in this sense threatens the child's development, and its developmental significance is underestimated (Nowak-Dziemianowicz, 2011). The term "stress-free upbringing" is often misused and associated with positive action as to provide the child with emotional harmony (an example of such abuse of the term can be found in Majeed (2016). Most often, the concept of "stress-free upbringing" appeared as a vogue, as a means of escape from coping with stress. It is assumed in the presented article that almost 44% of students were "convinced by a vogue" for stress-free upbringing.

We also found that rewards and punishments were still strong belief among students. Many studies have been written about the reliance on extrinsic rewards and punishments in motivating children (Harrop & Williams, 2007; Moberly et al., 2008; Payne, 2015). In some countries systems of reward and sanction within behaviour and discipline policies have been adopted formally in schools, for example in the UK. Research confirms that the systems of rewards and punishments are the most common (not the most effective) means of disciplining students at school. In contrast, many studies have indicated that systems of reward and punishment are unsuccessful in supporting desirable behaviour because students are not prompted to reflect on their behaviour (Charles, 2011; Gossen, 1996).

The third question that only child is more susceptible to problems in interpersonal relationships is ambiguous. There are studies to confirm that children without siblings were more likely both to be victimised and aggressive in peer groups, suggesting that having a sibling may be especially helpful for learning to manage conflict (Kitzmann et al., 2002). There are studies that suggest parent emotion coaching as an influence that may protect children from the negative impacts of interpersonal relationships (Buckholdt et al., 2014). Bronfenbrenner's theory (1979) emphasises that children are influenced by numerous layers or systems of influence, especially by the family and school. The statement that only children are susceptible to problems in interpersonal relations is a significant simplification and is labelling in nature. Pedagogy students should be aware that there are many factors that influence children's social development.

In the current study, almost 84% of students beliefs on the process of raising siblings, parents should treat children equally. In the literature, the concept of siblings is most often used in configuration with siblings with disabilities (Conway & Meyer, 2008; Tsamparli et al., 2007). Research has also been conducted regarding adult siblings who raise younger siblings becoming their caregivers (Denby & Ayala, 2013). There are several studies that confirm that parents are more likely to favour younger siblings, consequently disciplining the older ones (Volling & Elins, 2008). There are no credible scientific sources that parents should be guided by the principle of equality, if only because the needs of children of different ages vary.

Another finding that children who did not attend kindergarten have problems in making new contacts may be associated with the fact that a lot of research has been done on the role of the kindergarten in the socialisation of children (Czub, 2014; Denham et al., 2003). Accordingly, having no experience of kindergarten may suggest a lack of socialisation. However, most often, children's problems in establishing new contacts are accompanied by other problems. To investigate this, Garner et al. (1994) conducted an evaluation of the socialisation of negative emotions. Researchers highlight the importance of the social development of low-income children.

Many researchers recognise that religion and spirituality are important to the populace (Josephson & Peteet, 2007). It is difficult to agree that raising children without any worldview is possible. The question

was not about imposing parents' views on children. Upbringing in isolation from religion is possible. However, even a secular upbringing is a certain worldview. There is a possibility that when a child accepts religious induction from a parent this will cause him to be limited in his thoughts and actions as he matures (Morgan 2005). There is extensive proof in the literature that upbringing without any worldview is impossible (Callan, 1985; Gardner, 1991; Hand, 2002; Hand et al., 2004; Kazepides, 1987).

The seventh myth concerned that limiting sound stimuli positively affects the child's psychomotor development in the period of 0-18 months. There is research that shows that diversified acoustic environments affect the tempo of the auditory cortical development (Chang & Merzenich 2003). On the other hand, there is research which has found that exposure to excessive noises has a negative impact on vocal abilities or spatial orientation, and a lack of stimuli can lead to complete loss of functionality in the brain's auditory cortex (Fisch, 1983). Therefore, a child's psychomotor development is related to the appropriate choice of sounds and not to sound limitation in general.

Nowadays, in terms of time and attention, families seem to invest more in their children than was once the case. Research has shown that the problem of children's development in large families is not due to a lack of parental intervention but is due to families lacking sufficient resources (Desai, 1995). In the United States, there is an example of good educational practice, namely Gardendale. There, the family manifests itself in coming together at school, and children learn from siblings, parents, grandparents and other relatives who have the capital of time, knowledge or skills and engage in the life of the school including family's celebration of student achievements, which attracted not only students' families, but even teachers' families. At Gardendale, parents can visit their children during classes, and there are special family rooms. Gardendale is said to be a school that has become a family (Anderson & Pellicer, 1998).

There is also belief that mothers are more focused on raising girls, while fathers on raising boys. There are some findings that fathers' obligations and attachments are greater if they have sons (Morgan et al., 1988). Dahl and Moretti (2008) claimed that the weight of the evidence supports the notion that parents in the U.S. favour boys over girls. However, there is not enough research to say that mothers clearly focus on raising daughters and fathers on sons. There are studies that show that parents focus on upbringing at varying levels during the different stages of a child's development (Conley & Rauscher, 2013). Trivers-Willard suggests that parents' social status affects to what extent they invest in male and female children (Gaulin & Robbins 1991). There is no evidence to support misconception about that paying too much attention to sons by mothers has an impact on their clumsiness in adulthood. The causes of possible awkwardness in an adult's life should be sought in mental and social problems diagnosed in childhood and not in their mother's behaviour (Knapp et al., 2011).

Results from the present study provided evidence of that students, like Polish society, still think that in some cases spanking may be an acceptable form of punishment. It is worth emphasizing that when the study was conducted, the Polish public debate about the fact that spanking is a form of violence against children, and it is against of The Rights of the Child, was quite intense. All research from recent years indicates that a smack is an unacceptable form of punishment and is clearly a bad educational method. This myth was comprehensively explained in the introduction to the article.

Another myth was "The youngest child in the family always has more privileges than duties". Parents may adopt different rules or attitudes toward their subsequent offspring as compared to their first-borns (Averett et al., 2011). There is evidence that siblings may be treated unequally by parents, but this is not related to the concept of privileges and duties (Meunier et al., 2012; Rolan & Marceau, 2018). Within the scope of the research, pedagogy students were asked: By sending a child to a nursery, we shorten their carefree world of childhood. The analysed myth is nothing less than a view that is unsupported by any

scientific research. There are a lot of research studies on the negative effects of separating a child from its mother (see e.g., Arnold, 2009; Dechent, 2008, and general attachment theory, Bowlby, 1997, 1998; Charlwood & Steele, 2004). These studies show that there is a group of children who are unable to adapt to the nursery, but these reports cannot be generalised to the entire community of children.

The slogan that school teaches things that are of no use in life is a frequently repeated statement in Poland. If we examine this, we should be able to differentiate between the content of the knowledge transferred and the methods employed by teachers. Research confirms that the problem lies primarily in the teaching process and not the content provided in lessons at school (Buliński, 2015).

Another myth that praise makes a child conceited was also no supported by the research. Praise may serve to undermine, enhance, or have no effect on children's intrinsic motivation, depending on the set of conceptual variables (Henderlong & Lepper, 2002). It has been confirmed in several studies that praise can give a short bursts of pride to children and then a long string of negative consequences (Cimpian et al., 2007; Dweck, 2007; Kamins & Dweck, 1999; Mueller & Dweck, 1998). The question is "what is praised: intelligence or effort?" Children praised for their intelligence described intelligence as fixed trait whilst children praised for their hard work believed they could improve through praise (Mueller & Dweck, 1998). The present study showed that over 20% of the students surveyed think that praise makes children conceited. Other studies have not confirmed the relationship between praise and conceit. Therefore, it is supposed that students' convictions may come from folk pedagogy. This is knowledge that is mostly incompatible with the concepts and practises of science (Astington, 1993; Bruner, 1996; Torff, 1999; Wellman, 1990).

The last myth that nowadays, children need constant protection is very ambiguous. First, the age at which children need constant protection is not specified. Secondly, it is not known what form of protection is being referred to, whether family or institutional. Many recent studies point to an existing crisis of confidence for both family and child protection systems (Featherstone et al., 2014; Lonne et al., 2008; Mansel et al., 2011). However, the existing crisis of confidence does not lead to the unequivocal statement that children need constant protection.

The results of the study show that there is no meaningful difference between the bachelor's and master's degree levels of education regarding myth retention. This study has not presented the source of students' beliefs and as could be expected, most participants would not remember exactly where they learned the information. Future research goals include looking at University courses related to myth refutation that may be most effective in changing misconceptions. Even a single course on misconceptions could teach students to critically consider alternatives and dispel many naïve and incorrect beliefs concerning pedagogy. It is possible that the achieved result of the dissemination of pedagogical myths could be associated with the ambiguity or ambiguity of some items (Hughes et al., 2013).

Given the high prevalence of myths, the reasons for their occurrence can be considered. First, the disturbing results in this article do not have to be related to the lack of relevant content in the study program. It may be possible, as was stated by Cardoso et al. (2015) that quality in higher education is related to its structural component. Many of these misconceptions can result from its special content, related to the beliefs of the person who believes in them. Secondly, what seems to be most obvious is that myth can be associated with experiences. From the research results obtained we can say that in the case of pedagogical myths, nothing affects our knowledge of rearing and education more than how our parents/guardians raised us and what we experienced at school and in contact with peers. Furthermore, relationships with family may make it difficult to consider that some position is false. If a person is faced with the choice of declaring an element to be bad, such as having received several spankings in childhood, they may be reluctant to refer to the fact that spanking is an unacceptable educational method. Other reasons for the existence of myths are their

frequent presence in pop culture, a lack of critical thinking skills (also the misunderstanding of questions), previous well-established mistaken knowledge/beliefs.

This article has been guided by a desire to strengthen students' vigilance against pedagogical concepts and practices that are not supported by scientific evidence. It also highlights the need for a more systematic approach to this issue in the pedagogical study plan. The conclusions for university practice are that the acquisition of knowledge in a reflective way equates to achieving a high level of social maturity, detachment from social pressures, the taking into account of different perspectives, making independent judgments and the assuming of responsibility for one's own actions (Ghanizadeh, 2017; Perkowska-Klejman, 2019).

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Appendix

Items of the questionnaire

Item 1: Stress-free upbringing of pre-schoolers is an effective educational method.
Item 2: Rewards and punishments are the most effective educational method.
Item 3: Only children are more susceptible to problems in interpersonal relationships.
Item 4: In the process of raising siblings, parents should treat children equally.
Item 5: Children who did not attend kindergarten have problems in making new contacts.
Item 6: Education without a specific worldview is possible.
Item 7: Limiting sound stimuli positively affects the child's psychomotor development at the age of 0-18 months.
Item 8: Children in large families raise each other without supervision from their parents.
Item 9: Mothers are more focused on raising girls, while fathers are more focused on raising boys.
Item 10: Excessive attention payed by mothers to sons has an impact on their clumsiness in adulthood.
Item 11: In some cases, "spanking" may be an acceptable form of punishment.
Item 12: The youngest child in the family always has more privileges than duties.
Item 13: By sending a child to nursery school, we shorten the carefree world of childhood.
Item 14: School teaches things that are useless in life.
Item 15: Praise makes a child conceited.
Item 16: Nowadays, children need constant protection.