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REALIZATION OF PROFESSIONAL PEDAGOGICAL COMPETENCE DELIVERING ICT-BASED COURSES

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Abstract

The paper gives an overview of conceptual theoretical research regarding pedagogical competence, and, specifically, professional pedagogical competence as realized at the level of higher education. The theoretical research was aimed to elicit the characteristics of the pedagogical competence in the context of higher education which would result in bringing out the guiding principles in designing instruction for the students at HE level for achievement of both immediate study objectives and long-term pedagogical goals.

Fulfilling the function of societal integration, and, specifically facilitating participation in life-long learning has become a significant factor to evaluate the appropriateness of an educator's performance, and consequently, the pedagogical competence.

The significance of positive learning experience gained in the course of the study process is brought out in this connection as a prerequisite for effective participation in life-long learning. Continuity of long-term pedagogical objectives and short-term and immediate objectives related to the study process has been thus emphasized.

The ability to set forth, structure, categorize and achieve both immediate and long-term goals making use of a variety of teaching methods and aids is related to the professional pedagogical competence. Relating the concept of pedagogical competence in higher education to the realities and actualities of the study process the paper looks into ICT-based instructional designs as facilitating formation of positive developmental experience with the students.

The paper looks into the factors conductive to formation of positive learning experience at the dynamic interface of the students-teacher, students – students and students-context interaction.

Pragmatic research has been carried out to identify the correlation between the factors, which as has been suggested could be responsible for formation of positive learning experience in the course of the study process. Another suggestion that a combination of factors is required to provide for the positive developmental experience during the study process in the student's perception was tested.

For the pragmatic research mixed research methods have been employed: qualitative and quantitative research methods; such as structured and semi-structured interviews, documented observation, students' feedback; factor analysis, triangulation of qualitative and quantitative findings. The data collected through specially designed questionnaires was processed by SPSS. The paper gives the outcomes of the data processing and the conclusion thus arrived at pertaining to realization of pedagogical competence.

Keywords:

ICT in education, pedagogical competence, pedagogy of higher education, developmental experience.

Introduction

Realization of professional pedagogical competence should be informed by the understanding of the overarching concept of competence. If the HE professional pedagogical competence is to be realized in practice the principles and methods consistent with the PPC model should be clarified. The continuity of immediate teacher's actions and the achievement of long-term goals should be provided for. An attempt is made to define a link connecting short-term pedagogical objectives to long-term pedagogical goals on which an educator should focus the efforts in delivering study courses at the HE level. The object of the research is therefore professional pedagogical competence of a HE educator. The research aims to elicit the factors at the students' level providing for the appropriateness of the HE educator's performance. Students' *experience* was conceptualized as an area uniting the immediate and more remote perspectives of application of the pedagogical treatment. For the term to be used consistently the wording *students' experience* requires characterizing, which is intended to be carried

out here. **We hypothesized,** that a totality of factors will be concurrently responsible for the formation of positive experience in the students' perception. **Research methods** included literature review to describe the models of professional pedagogical competence at HE level. In the pragmatic research mixed research methods are employed: such as structured and semi-structured interviews, documented observation, students' feedback; processing of quantitative data obtained from the questionnaires by SPSS and STATISTICA, triangulation methods to interpret the quantitative data.

The concept of competence

The concept of competence is widely used across many disciplines and contexts in order to describe what individuals must learn, know, or to be able to in order to succeed in various occupations and activities. Complex holistic nature of competence is often commented on with the components blending, merging and progressing, enabling the individual to handle challenges that occur in a specific situation in an appropriate way. The concept of competence is seen as problematic because it has many varied meanings and interpretations. (Schneckenberg and Wildt, n.d.), there are no single use of the concept and no broadly accepted definitions or unifying theory. (Rychen and Salganik, 2000). The interpretation of the concept is dependent on cultural, linguistic and national circumstances. (Schekenberg & Wilt, n.d; Tilla,2005.). With respect to the notion of competence this paper is partially based on the assumptions of the broad international project which produced a contribution report on work that has been undertaken by the DeSeCo program (Defining and Selecting Competencies: Theoretical and Conceptual Foundations) (Rychen and Salganik, 2000). The DeSeCo program adopts the approach termed "conceptual pragmatism" (Rychen and Salganik, 2000.) to define *competence.* The approach features:

- the need for defining, selecting and assessing competence in scientifically plausible and pragmatically relevant way is recognized;
- understanding of reality while also constructing it in a manner that is consistent with the principles of human rights and democratic values shared in a modern, democratic society;
- practice and research are facilitated, both theoretical and practical;
- the research can be narrowed to the to particular contexts of professions, occupations, groups and individuals;
- attention to how competence can be identified, transmitted and developed in specific context.

Hence, the approach of conceptual pragmatism to the concept of competence recognizes:

functionality as ability to achieve results : the approach of "conceptual pragmatism" which is *functional*, because the competence is defined as the ability to successfully meet complex demands in a particular context;

conceptualization of internal structure of competence: according to the functional demand-oriented approach the internal structure of competence is conceptualized in the sense of an individual's resources, such as knowledge base, skills, abilities and other;

action: the components together represent a complex control system and result in a person taking action, thus *"*possessing the component resources the individual is also able to mobilize such resources properly and to coordinate them, at an appropriate time, in a complex situation (Le Boterf as cited in Weinert, 2001)

context dependency: actions always take place in a socio-cultural environment. The criteria for effective performance and action take form and manifest themselves as the individual acts to meet the challenges and satisfy the social interests within multiple social fields. Competence is inseparable from the context in which it is developed and used.

Thus, the components comprising the model of competence made use of here do not exist independently of action and context. Instead, they are conceptualized in relation to demands and actualized by action taken by individuals in a particular situation.

In line with our aims we will try to look into the "pedagogical" and "professional" strands of competence eventually narrowing down the discussion to the context of higher education. Merging the comprehensive model of competence with the notion of profession and pedagogy and situating them in the higher education, we intend to bring out recurring strands to focus on them for the purposes of our research**.`**

Profession-related strands of competence

Our overview has revealed that generally the definition of *profession* reveals commonality with the notion of competence. The issues emphasised in characterization of profession are: proficiency in one's field," (Webbs,1917-1977), adherence to ethical standards "which include … the striving to be an expert in one's calling and uphold the good name of the profession" *(Kasher*, 2005)*;* autonomy seen as independent decision taking: "professionals …use their own judgement in determining the appropriate approach" (*Kasher*, 2005). *Value–driven actions* such as provision of a valuable service to society with little or no self-interest are seen as a regular feature of a professional. As it could be expected, the purely "professional" elements will be hard to separate from particular occupational fields. Thus references to "teaching profession" (Weinert, 2001) or "educational professionalism" (Bezzina, 2006) are common.

The comprehensive reflection on the teacher's

actions, conscious steering of his/her own professional development, 'reflection' about work attitude and reflection about the concept of education, are also features of the professionalism of teachers.(Weinert, 2001). In terms of professional development and quality performance (1) protest against stereotyping; (2) advancement of the goals of profession; (3) developing standards for themselves and their institutions are listed.

The data on the competence of teaching staff in HE conducted by Education and Competence Group (Mulder et al, n.d.) come from the international journal databases and policy reports of national and international institutes (such as USDE, the Commission of the EU, OECD, UNESCO, CEDEFOP), conference papers and the Internet. Careful attention has been paid to select the scientific and formal policy sources as well as academic research papers. The following competence-related issues were thus elicited as topical for HE: (1) competence for performance improvement, (2) fulfilling the promise of linking education and the labour market, (3) designing the programs complying with the needs of society. *Ecompetence* referred to in literature (for example Schneckenberg and Wildt, 2006; Department for Education Innovation, Annual report, 2006) in our opinion should not be regarded as a separate entity but rather as an extension of pedagogical professional competence integrating the following assumptions found in literature: (1) academic staff play a key role in education innovation. They are the "process owners" or "gatekeepers" of the research and teaching activities within the university (Kerres et al., 2005, as cited in Schneckenberg and Wildt, 2006). Higher education teachers define and plan the (subject) curricula. Staff members need to be aware of, and understand, the innovative potential of the technology that is available for their research and teaching (Salmon 2004, as cited in Schneckenberg and Wildt, 2006)

Although eCompetence has a technological focus, it is not primarily dealing with the level of expertise of the individual teacher to handle specific software applications, but has to be interpreted as the ability to make appropriate judgments on the effective integration of ICT into the educational context and processes.

Hence, with respects to professional pedagogical competence the following ideas could be elicited as central:

- understanding of the processes of the personality growth in the course of studying and interactions in the environment of the educational institution;
- the ideas of responsibility of the educator realized through taking into consideration the consequences of one's actions, also in the long-term perspective and with respect to social integration;
- levels of the educator's competence as greater or smaller ability to recognize the intended and unintended consequences of individual's actions and behavior;
- ethical issues in educational context, understood as values transferred in education and realized in interaction between the students and the teacher, including democratic and human rights principles shared in democratic society.

Considering the context dependency strand of the overarching definition above with respect to HE professional pedagogical competence we have stated that in order to characterize the competent performance of a HE educator, description of the essential features of the socio-cultural environment in which HE educator is performing is required. The competence in HE is conceptualized as linked to the realities and actualities of modern society. Therefore, the concepts and ideas of the learning information-based society form the societal and educational context in which the pedagogical competence is considered. Presently, the pedagogical aims at HE level increasingly tend to be related to social and economic trends in society and educators operate on the social order.

Competence models are multi-level in at least two respects: (1) the models comprise issues categorised as immediate, to be addressed on the spot and more long-term distant goals to be taken into account by the HE educator (2) the models deal with professionals' competence progressing from lower to higher level of proficiency.(Schneckenberg and Wildt, 2006) From (1) it could be implied that certain continuity should be achieved between immediate and more remote perspectives of the teacher's performance. From (2) it could be implied that development (advancement) of professional skills is possible and expected as a likely thing to happen with an individual professional. Having stated the multi-level orientation of the PPC model in terms of inter-dependence of goals and objectives of varying degrees of exigency we concluded that a kind of link to unite all the levels is required. With the purpose in view (*student's) experience* was conceptualised as an area where to focus the pedagogical treatment aimed to achieve the pedagogical goals and objectives. Pedagogical objectives are understood as a range of tasks a teacher faces while delivering a study course. Pedagogical objectives are concerned not only with the learning outcomes or acquisition of the target subject-specific knowledge and skills, but also with the issues of personality growth taking place in educational setting or acquisition of effective life strategies and underlying attitudes, values, and beliefs. The notion "experience" is specifically used here as relevant to the formation of attitudes, values, reflections and dispositions which are likely to underlie behaviour in line with the social order and the modern realities and actualities such as participation in LLL, integration into information-based

society, sustainable development and other no less important issues.

Thus we could arrive to the graph in Figure.1

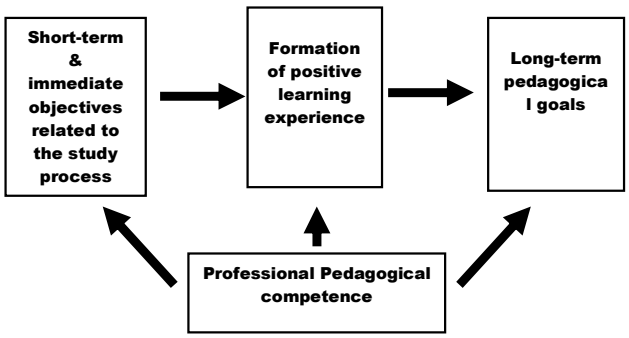

Fig. 1. Experience as a link unifying multi-level components of Pedagogical Professional Competence

Experience can be a confusing word as it is a notion uniting several senses, we distinguish between the experience as the immediacy of contact with the events of life and the interpretation of the event (Boud et al 1997).For the purposes of the research the experience is defined both as the content and the process. The fundamental theoretician of experience, Dewey, maintained that experience should be the primary concern of educationalist "The business of education 'might be defined as an emancipation and enlargement of experience' (Dewey, 1997). Experience includes *what* men do and suffer, *what* they strive for, love, believe and endure, and also *how* men act and are acted upon, the ways in which they do and suffer, desire and enjoy, see, believe, imagine (Dewey, 1997). Theoretical ideas of Dewey underlie the construct of experience how it is interpreted here. Dewey's theory is that experience arises from the interaction of two principles -- continuity and interaction. Continuity is that each experience a person has will influence his/her future, for better or for worse. Interaction refers to the situational influence on one's experience. Besides, from Dewey's ideas it follows that:

- education should have both a societal purpose and purpose for the individual student.
- the long-term matters, but so does the short-term quality of an educational experience.

Educators are responsible, therefore, for providing students with experiences that are immediately valuable and which better enable the students to contribute to society. According to Dewey curricula are to be focused on content *and* process, thus emphasizing the students-educator interactions. The experience conductive to formation of target attitudes, dispositions and life strategies could be viewed as the unity of the process and result or a succession of situation leading to the sum total of the experience-on-reflection which is significant to a person in a positive way. This, of course may vary across individuals and be perceived by different persons as rewarding, challenging, relevant, appropriate, developmental etc. or contributing to the personal growth in some other way. The characteristics of *experience* have been conceptualized as consistent with the persons becoming positively interactive, democratic and dynamic learners.

Some excerpts from literature seem to testify to the fact that "experience" is increasingly being paid attention to as a source to inform educational policy and practice : The National Student Survey (NSS) collect information on "students' perceptions of their higher education experiences", "mapping trends in the student learning experience" to help develop curricula and pedagogy innovations and sustainability in the students' skills and knowledge. (NSS, 2008). The importance of learning experience is increasingly recognised: the student learning experience extends beyond the walls of the classroom and laboratory and far beyond the submission and assessment of work. (The Higher Education Academy. Innovation Way. Annual report. 2008)

The characteristics of the learning experience in the students' perception

The theoretical assumptions as below were fed into conceptualization of the characteristics of the students-teacher interface to provide for the formation of positive learning experience.

The vector of positive developmental experience defined in conformity with the principles of learning community (Bezzina, 2006; Hord & Sommers, n.d.) and self-directed learner (Cross, 1981; 1978; Knowles,1973, 1984; Mezirow, 1985) and viewed as linked to effective integration of a student into the context of higher education. The definition of the context brings to the forefront the interactions among the participants of the process. The context thus is conceptualized as "*situation defined through the relationships and "interactions between the elements within the situation over time historically situated and culturally idiosyncratic*. (Luckin et al. n.d.).

If the possibilities for positive experience are to be created at the interface of interaction between the students, the individual student and the teacher, the students as a group and the teacher, there are several issues to be focused on derived from the theoretical pedagogical assumption concerning adult learners. They are:

Attention to the learner's attitudes facilitating participation in interaction with both the teacher and the students. The HE teacher must create an environment in which learners feel free to express opinions, share ideas, and discuss information and experiences valuable for them (Conrad & Donaldson, 2004; Plloff & Pratt, 1999; Palloff & Pratt as cited in Blondy, 2007).

Attention to the internal motivators which might be important in adult learners

Knowles (1984) viewed that internal motivators such as increased self-esteem, self-actualization, or recognition are essential in adult learners. Ose, 1999, expresses similar views concerning self-esteem needs and self-actualization issues in adult learners; (Lieģeniece, 2002, Cross, 1981)

Attention to the relevance of materials, methods and activities offered to the learners. *Adult* learners tend to be problem-oriented (Knowles, 1984; Cross 1978) and, accordingly, their orientation toward learning shifts from one of subject-centeredness to one of problem-centeredness. (Bluma, 1998; Smith, 1996; 1999; Lieģeniece, 2002). The assumption deals with the applicability of knowledge, understood here as being relevant to the learners experience, personal circumstances and attitudes.

Attention to both immediate and more distant learning outcomes

Adult learners are self-directed. (Knowles, 1984; 1975; Cross 1978) This is understood as the adult learners tending to take responsibility for themselves, and establish their own learning goals. They should find possibility to formulate own goals flexibly and find opportunities for activities appropriate to their skills level and learning styles within the course objectives (Hanna et al., 2000; Blondy, 2007).

Pragmatic research

The purpose of the research was to evaluate the parameters of the study events at the students-teacher interface in order to reveal if they correlate in the students' perception. Self-assessment of the level of parameters of study event was obtained directly after the event.8 items (see the description below) were measured between the maximum value of 100% and the lowest value of 0%. Overall 101 responses were obtained from the students of Design School, BIA doing an ESP (English for the study purposes) course. The questions for the questionnaire to be administered in the research were formulated after semi-structured interviews with the students.In the questionnaire offered to the students immediately after the study event the factors as below were evaluated. The teacher's observation during the study events were documented to be compared with the student's feed back on the particular event. Interpretation of the observation data is outside of the present paper. The quantitative data obtained were processed making use of SPSS and Statistica.

F1. Comprises a number of issues at the teacher's level to be evaluated by the respondent under the title ***Teacher's contribution*****:** such as materials, choice of topics, carrier content, activities offered for the class, availability of the materials, class management; relevance of the teaching aids and methods.

F2. Comprises a number of issues at the students' level under the title ***Students' contribution.*** Students are regarded as a group on the receiving point of the pedagogical treatment, the issues evaluated are: the general atmosphere of co-operation, accord, harmony as opposed to passivity feeling, defiance non-cooperation, how enthusiastic, committed, involved the students seem to be. The questions concern the students' response to the activities, willingness to participate in the activities, general acceptance or resistance to what is offered for the contact-class event or ICT-mediated event.

F3. Comprises a number of issues at the level of the individual student-respondent under the title ***My own contribution*****.** The questions are about the actual amount of activity or inactivity of the respondent, level of involvement, opportunity to function and to be heard and appreciated which was in fact realized, the general feeling of one's significance during the contact-class event or ICT-mediated event.

F4. Comprises a number of issues at the level of the individual student-respondent under the title ***Control.*** The questions are about how the needs of the individual respondent were met, his ability to influence the course of the class, to draw attention to his requirements, the opportunity to get clarification of unclear issues, opportunity to dwell on some point for a longer or shorter time depending on the needs of the respondent, work at the respondent's own pace, have say in the choice of topics, type of activities etc.

F5. Comprises a number of issues at the level of the individual student-respondent under the title ***Experience (positive developmental).*** The questions are designed to find out whether on the whole the time of the person's life can be evaluated as useful, significant, rewarding in affective and cognitive ways, whether it could be regarded as informative, offering understanding of matters of general nature relevant to the student's personal interests and concerns at the period of life.

F6. Comprises a number of issues at the level of the individual student -respondent under the title **Anxiety.** The questions are designed to find out to what extent the respondents was stressed or threatened with a chance of failure, negative consequence of active or passive behavior, uneasy, expecting to be ignored, embarrassed, shamed.

F7. Comprises a number of issues at the level of the individual student-respondent under the title **Satisfaction.** The questions are designed to measure the extent to which the event met the expectation of the student, whether is was "okay", general feeling of fulfillment, good opinion and contentment both cognitively and emotionally generated from the event

F8. Comprises a number of issues at the level of the individual student-respondent under the title **Effectiveness.** The questions are designed to measure the productive development of subject-specific skills, acquisition of knowledge as perceived by the student.

At the start descriptive statistics was obtained, the results are presented in the Table.1

Table 1. Descriptive Statistics

		F1	F2	F3	F4	F5	F6	F7	F8
N	Statistic	101	101	101	101	101	101	101	101
Range	Statistic	70	90	95	99	100	100	100	98
Minimum	Statistic	30	10	5	1	0	0	0	2
Maximum	Statistic	100	100	100	100	100	100	100	100
Mean	Statistic	87.8	69.7	63.9	63.9	67.9	40.7	71.4	70.4
	Std. Error	1.5	2.0	2.5	2.8	2.3	3.5	2.4	1.9
Std. Deviation	Statistic	15.2	19.9	25.2	28.6	23.3	35.5	24.2	19.2
Variance	Statistic	231.7	396.6	636.8	815.9	543.3	1262.1	585.1	367.8
Skewness	Statistic	-2.0	-0.7	-0.7	-0.8	-1.1	0.3	-1.4	-1.3
	Std. Error	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Kurtosis	Statistic	4.2	0.4	-0.3	-0.4	0.7	-1.4	1.6	2.4
	Std. Error	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Kolmogorov-Smirnov's test was conducted to check the conformity to the normal distribution of the mean. The K-S test led us to the conclusion that the data do not conform to the normal distribution. Therefore, to evaluate the directions and the correlation values among various factors Spearman Rank Order Correlations was chosen. The data obtained in calculations are given in Table2.

Table 2. Spearman Rank Order Correlations

	F1	F2	F3	F4	F5	F6	F7	F8
F1	1	**0.4**	**0.2**	0.1	**0.2**	0	**0.3**	**0.3**
F2	**0.4**	1	**0.5**	**0.2**	**0.4**	**0.2**	**0.4**	**0.4**
F3	**0.2**	**0.5**	1	**0.5**	**0.4**	0.1	**0.5**	**0.4**
F4	0.1	**0.2**	**0.5**	1	**0.3**	-0.1	**0.3**	**0.2**
F5	**0.2**	**0.4**	**0.4**	**0.3**	1	**0.3**	**0.5**	**0.5**
F6	0	**0.2**	0.1	-0.1	**0.3**	1	0	0
F7	**0.3**	**0.4**	**0.5**	**0.3**	**0.5**	0	1	**0.5**
F8	**0.3**	**0.4**	**0.4**	**0.2**	**0.5**	0	**0.5**	1

All the data in Table 2 are given till one decimal. Bold-marked correlations are significant at p <.05000
Shaded boxes are the average correlation among the factors under consideration (level -0. 5).

Correlation of F5 with F1-F4, F6-F8 was looked into separately. It was initially assumed that the strongest correlation with F5 will be observed with F1-F4. The research showed that significant positive correlation within all the groups F5-F1, F5-F2, F5-F3, F5-F4, F5-F6, F5-F7, and F5-F8. A single domineering factor was not observed. Although the significance is sufficiently high, among all the factors low and medium correlation is observed (for the pairs F5-F7 and F5-F8). It can be concluded that there are no domineering impact on F5 of any of the factors. In this connection we can observe integrated impact of all the factors on F5.

An attempt was made to discover significant correlation between other groups of factors. Significant direct inter-correlation was discovered within the pairs F2-F3, F3-F4, F3-F7, F5-F7, F5-F8, and F7-F8.

It can be observed that SPSS data processing on the whole tally with the outcomes obtained on the data processing with Spearman Rank Order Test. It can follow that all the factors identified by us for the research have impact on the F5*Experience* as defined above. It can be noted that the F7 and F8 were designed to be complementary to the F5 which serves the centre of the research emphasizing the personal worth and importance of the event relevant to the concerns and interests of the individual, and eventually, pertinent to the issues of personal growth.

Correlation between F2 and F3 might be interpreted as the group's attitudes being conductive to the individual's participation in the event, highlighting the issues of shared values and belonging for the positive effect of the study event. The ability to work at individuals own pace and set achievable objectives (F4*Control)* facilitates the student's participation in the study event (F3) and leads to general satisfaction, cognitive and emotional, derived from the study event. It can be noted that the F7 and F8 were designed to be complementary to the F5 which serves the centre of the research emphasizing the personal worth and importance of the event relevant to the concerns and interests of the individual, and eventually, pertinent to the issues of personal growth. Significant direct inter-correlation within the pairs F5-F7, F5-F8 proves

that we might have been right in assuming that. Also, direct inter-correlation within the pair F7-F8 indicates that productive development of subject-specific skills contributes to the general feeling of satisfaction after the study event. Indirectly, the consistently high evaluations obtained under the title *Teacher's contribution* might testify to appropriate design and use of teaching aids and strategies by the particular teacher. At the same time the consistently low evaluations obtained under the title *Anxiety,* show, in some way that the group of the students taking the course with the particular teacher enjoys certain psychological comfort.

Table 3. SPSS data processing

Reliability Analysis scale (alpha)	Mean	Std	Dev	Cases
1.	VAR00001	92	38	101
2.	VAR00002	70	20	101
3.	VAR00003	70	64	101
4.	VAR00004	64	29	101
5.	VAR00005	68	23	101
6.	VAR00006	43	51	101
7.	VAR00007	71	24	101
8.	VAR00008	70	19	101

Skewness coefficient shows the general tendency to reliability. F5 correlates directly (2-tailed) with F2, F3 and F4

Conclusions on the pragmatic research

The data obtained in pragmatic research do not disprove the hypothesis concerning a totality of factors concurrently responsible for the formation of positive experience in the students' perception. The factors brought out in our discussion proved to correlate with positive learning experience in the students' perception. Further research is required in order to: improve the research methodology and instruments, to test the research instrument on a different sampling from the classes delivered by different teachers in several courses. Self-report do not assess the characteristics of event in an objective measure, but can guide future action as they can be viewed as a resource to forecast the outcomes related to choice of the teaching tools and strategies. Students tend to value teaching that recognises their individual academic and social identities and that addresses their particular learning needs. University teachers need to develop inclusive pedagogic practices and curricula that take account of the diverse interests and needs of students in each class.

Conclusions

Multi-level structure of professional pedagogical competence calls for the continuity among the levels to be provided. Positive students' experience has been conceptualized as a link between the immediate teacher's actions at the interface of student's teacher – interaction and long-term goals related to the societal needs to be achieved by the HE educators. Students' experience underlying formation of attitudes linked to behavior can be addressed at the level of students'– teacher interaction. Factors providing for effective teacher's performance have been elicited and appear to correlate in the students' perception. Findings of the research can be used to address the choice of materials, methods, and strategies employed by the teacher to ensure effective achievement of pedagogical goals and objectives.

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