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May *Each* Learn?

A b s t r a c t The present contribution offers a theoretical introduction to and a sample of possible implementations of *concepts rarely known* and realized in Hungarian educational sciences and teacher education. While tolerating the value of subjective differences we may consider several factors. This study focuses on one of these elements: the possible educational applications of *Gardner's multiple intelligences (MI)* theory applied through *Productive Learning (PL)* in teacher training. MI in classrooms of public education and teacher training may be interpreted as a consequence of *neurodiversity*. Discussing the ethical dimensions of his theory and reflecting on its educational applications Gardner insists on the elaboration of MI in schools concerning the Holocaust. Concerning a spot on relevant narratives in Hungarian public life this paper gives an introduction to an example of a curriculum development program and its realization of student teachers at the University of Pecs coordinated by the author between 2011 and 2013. The theoretical review of this research was realized in the frames of TÁMOP 4.2.4. A/2-11-1-2012-0001 "National Excellence Program – Elaborating and operating an inland researcher personal support system." The project was subsidized by the European Union and co-financed by the European Social Fund.

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Introduction

There is a wide range of interpretational framework for those working in the field of educational sciences concerning the actual focus of their research area and subject (Kozma, 2013) even in such a relatively small community as that of the Hungarian researchers of educational sciences. This discipline is a part of social sciences and may be interpreted as a multi-, inter-, and trans-disciplinary field (Arató, 2008, p. 126) with concerns of cognitive sciences, psychology, social psychology and those of humanities, such as socio-linguistics. Regarding teacher training (Mrázik, 2011), depicting the process of teaching and learning besides paradigms centring the teacher or focusing the learner a new approach is being articulated: the one that places *learning* into the focal point (Arató, 2013)

The concept of learning in this contribution is meant to be interpreted twofold: on the one hand the process through which the individual acquires knowledge and develops competences and on the other hand the potential insight (Bálint, 2013a, 2013b) of the individual as gaining understanding of previous experiences of humankind. Via the current study the author interprets her role as an

educationalist taking autonomy and responsibility into account by sampling a possible unity of theory and practice, training and development.

Neurodiversity

The published form of this concept appeared first fifteen years ago Blume discussing geeks' possible neurological differences compared to what had been labelled as neurologically typical (NT). Blume suggested that *NT is only one kind of brain wiring, and, when it comes to working with hi-tech, quite possibly an inferior one*. Since then its terminology has not occurred in the Hungarian educational or psychological discourse but sketchily (Gyarmathy, 2012).

Authors on the topic (Armstrong, 2011; Jaarsma &Welin 2011) suggest that the phrase neurodiversity, a short form of neurological diversity was first used by sociologist Judy Singer, being on the autistic spectrum herself, who intended to change the discourse of the neurologically atypical parallel to the use of the concepts biodiversity or cultural diversity. Not only postmodern relativism may be traced throughout the emerging use of this terminology overseas but that of a paradigmatic change pointing out that as we do not pathologise a calla lily with petal deficit disorder we ought not to label human beings who have different kinds of brains or altering ways of thinking and learning (Armstrong, 2011).

According to Armstrong (2011) we may distinguish eight principles of neurodiversity, such as the followings:

1. the human brain works more like an ecosystem than a machine;
2. human beings and human brains exist along continuums of competence;
3. human competence is designed by the values of the culture to which you belong;
4. whether you are regarded as disabled or gifted largely depends on when and where you were born;
5. success in life is based on adapting one's brain to the needs of the surrounding environment;
6. success in life also depends on modifying your surrounding environment to fit the needs of your unique brain (niche construction);
7. niche construction includes career and lifestyle choices, assistive technologies, human resources, and other life-enchancing strategies tailored to the specific needs of a neurodiverse individual;
8. positive niche construction directly modifies the brain, which in turn enhances its ability to adapt to the environment.

Consequently, in educational environments, Armstrong argues, universal design for learning, such as multiple intelligences instructional strategies ought to be used in order to allow each student to use their unique abilities (2011).

On the Nature of Intelligence and Its Concerns in Education

Table 1: Basic Differences of Approaches of Singularistic (Traditional) and Pluralistic Intelligence Theorists on the Nature of Intelligence

Traditional	Pluralistic
static	dynamic
possible numeric expression	impossible numeric expression: may be traced during processes
single in nature	plural in nature (multiple ways of possible expression)
measured in isolated settings	measured in life-like situations
an instrument of selection and predestination in success/failure dichotomy	an instrument for fulfilment of human capacities in various ways

Source: Dezső, 2012.

There is an ongoing debate between singularistic and pluralistic theorists of intelligence (see Table 1) – as suggested by the labels of categories they are named after (Mccarthy & Pittaway 2014). (Over)simplifying their debate we may conclude that the ones belonging to the first group of scientists argue that we may talk about the existence of a general (g) factor of intelligence on top of the hierarchy of our intellectual abilities, determining other, partial abilities. Pluralistic researchers, however, state that amongst our mental capacities the most important ones are: the speed of perception, memory, counting, understanding special relations, linguistic abilities/communicative competences and education, while factor g has only a secondary role (Cianciolo & Sternberg, 2007).

While the singularistic (or traditional) approach describe intelligence as single and static, pluralistic theorists argue that it is plural in nature, as it has multiple ways of possible expression and is also dynamic. Those who belong to the first category of scientists state that intelligence can be measured in isolated settings and expressed numerically. On the other hand pluralists conclude that intelligence ought to be measured in life-like situations and may be traced during processes rather than numerically. Pluralists consider that for traditionalists intelligence is an instrument of selection and predestination in the success versus failure dichotomy whereas for them it is an instrument for the fulfilment of human capacities in various ways.

To justify their viewpoint they cite Binet from the early twentieth century, who is believed to be the father of IQ tests: *A few modern philosophers... assert that an individual's intelligence is a fixed quantity, a quantity which cannot be increased. We must protest and react againstthis brutal pessimism... With practice, training, and above all, method we manage to increase our attention, our memory, our judgement and literally to become more intelligent than we were before* (Binet, 1975:106; Dweck, 2006:5) In spite of a common belief Binet insisted that education may result in fundamental changes in intelligence.

Gardner's Theory

One of the most debated (Schaler, 2006) pluralistic intelligence concepts is that of Howard Gardner, a Harvard professor of cognition. The theory called multiple intelligences first appeared in 1983 in a book entitled Frames of Mind.

In this striking publication Gardner suggests that in schools and psychometric IQ tests what is measured as intelligence is mostly linguistic and mathematical abilities. Consequently those who perform poorer in these fields are concerned as less intelligent. Hence, Gardner proposes an alternative definition of intelligence: To my mind, a human intellectual competence must entail a set of skills of problem solving — enabling the individual to resolve genuine problems or difficulties that he or she encounters and, when appropriate, to create an effective product — and must also entail the potential for finding or creating problems — and thereby laying the groundwork for the acquisition of new knowledge (Gardner, 1983; 1993; 201). He also characterizes eight criteria along which an intelligence may be identified:

1. potential evidence of isolation in localized areas of the brain due to brain damage;

2. can be observed in isolated forms, including the existence of savants, prodigies, autistic individuals, and other exceptional populations;

3. identifiable core operations or set of operations;

4. distinctive developmental histories including a definable set of expert or "end-state" performances;

5. evolutionary histories and evolutionary plausibilities;

6. can be supported from experimental psychological tasks;

7. can be supported somewhat from psychometric findings (identifiability, testability);

8. susceptible to encoding in human symbolic systems (Armstrong, 2009).

In case each criterion is justified while examining a field we may call it an intelligence.

First Gardner suggested the existence of seven autonomous (i. e. independent from one another) intelligences: musical - rhythmic, visual - spatial, verbal - linguistic, logical - mathematical, bodily - kinesthetic, interpersonal, intrapersonal (1983). Later (Gardner, 1999a) he proved the existence of an eighth intelligence, naturalistic (compare Table 2). Each of us has all the intelligences that are not mutually exclusive but act in consort. The main idea of the theory is that people contribute to society through their own strengths. Gardner also examined the possibility of an existential (2006) and a pedagogical intelligence (2012) but for those fields his eight criteria have not proved to coexist.

Gardner believes that education is an art and that it is about values. According to his view MI has three considerable dimensions in education: a scientific, an aesthetic and an ethical or moral one. For the scientific dimension he sets Darwin's example, for the aesthetic one he reminds us to Mozart and concerning morals he calls upon the historical experience of the Holocaust (Gardner, 1999b). He suggests that a sequence of events like the Holocaust is critical because everyone needs to realize what human beings are capable of doing. Although the Holocaust is mostly a precedent of human evil, we may also trace many incidents of goodness during that time period. Gardner suggests that studying a historical period is important, because people may make better decisions when they understand how others have dealt with similar pressures and dilemmas (Gardner, 1999b).

Table 2: Gardner's Eight Intelligences

Intelligence	Description
Linguistic	An ability to analyze information and create products involving oral and written language such as speeches, books, and memos.
Logical-Mathematical	An ability to develop equations and proofs, make calculations, and solve abstract problems.
Spatial	An ability to recognize and manipulate large-scale and fine-grained spatial images.
Musical	An ability to produce, remember, and make meaning of different patterns of sound.
Naturalist	An ability to identify and distinguish among different types of plants, animals, and weather formations that are found in the natural world.
Bodily-Kinesthetic	An ability to use one's own body to create products or solve problems.
Interpersonal	An ability to recognize and understand other people's moods, desires, motivations, and intentions.
Intrapersonal	An ability to recognize and understand his or her own moods, desires, motivations, and intentions.

Source:Davis et. al, 2010.

Narratives We Live Surrounded by

Narratives of rancorous, xenophobic discourse may be traced in public life in times of crises, social insecurity and economically critical societies leading nations – and humankind – at risk. Scenarios of education being parade grounds of adult civil societies have significant responsibility on echoing or deafening these narratives. As researchers stated *'permanent public anti-Romaism sustained by party regulations and media presentations'* (Forray &Kozma, 2013:70).

Both the United Nations Declaration of Human Rights and European Union Regulationssuggest that journalists (press) need to respect human rights and that they cannot induce hatredness or call on racist discrimination of people, nations or nationalities/minorities. Derogation of any kind of difference and support of violence is also against this legislative, ethic annunciation of the(Peslak 2005).

Although there is research outcome suggesting that the Hungarian public is becoming more and more resistant towards far right media voice (Barta, 2008) a phenomenon as such may not be neglected either in public or in educational discourse. In order to gain a more conscious interpretation concerning the significance of such messages let us investigate a relevant sociolinguistic approach briefly.

According to speech act theories what we perceive from such narratives, i.e. perlocutionary acts (Austin, 1962), our psychological consequences may include persuading, convincing, scaring, enlightening, inspiring as much as getting someone to do or realize something – the question is how we interpret those. Generative syntax suggests that most of our abstract concepts are metaphoric and that our narratives offer conceptual frames for our deeds. Our narratives are screenplays unfolding from complex experiences and everything we understand is a matter of framing. Consequently what counts as a fact depends on the frame used in understanding (Lakoff & Johnson, 1980).

Today, during the fourth stage of the history of research on media effects, social constructivism is focused (Scheufele, 1999). Mass media on the one hand has strong effects on social reality by adding to its construction, while on the other hand interaction between media and its recipients is limited. Still, most research examining individual-level outcomes of framing suggest a direct link between media frames and the individual-level outcomes, the perlocutionary acts of the recipients (Scheufele, 1999).

As frames have a moral nature as well (Lakoff & Wehling, 2012) we need to be reflective as educationalists while interpreting messages embodied in those. Keeping the possible consequences (i. e. the Holocaust) of a social phenomenon (i.e.

the one cited above referring to a certain group of people as non-human) in mind, one needs to deal with questions of responsibility and autonomy as professional competences of educators during the process of teacher education.

Traditions of Productive Learning (PL) in Pécs

Concerning the period of time spent in mandatory education PL is understood as *a form of education which replaces traditional schooling during the last years of general school. ... The underlying principle of the form of education PL is the participation of adolescents in social activities, particularly in professional life* (IPLE, 2011). Due to similar professional credo of colleagues at the predecessor in title of the Institute of Educational Sciences at University of Pécs in 1990 they joined colleagues from all over Europe who started developing the International Network of Productive Learning Projects and Schools (INEPS) in Berlin *in order to address mounting discrepancies and conflict between secondary school teaching and educational needs and interests of the pupils* (IPLE, 2011).

As the nature of education requires practice in the field (i.e. schools), applying PL in teacher training and educational sciences is obvious. Widespreading the circles of those who think and act along the principles of PL is a permanent social must. Tertiary education, especially teacher education and in-service teacher training is a scenario that we cannot ignore when talking about social inclusion in case we intend to widen the horizon of colleagues and future teachers through influencing their knowledge, skills and attitudes. The significant role of teacher education is clearly pointed out while examining best achieving school systems, where one of the most crucial components of such systems is *developing teachers into better instructors, and insuring that these instructors deliver consistently for every child in the system* (Barber & Mourshed, 2007).

Bárdossy, who was the cofounder and academic advisor of the Pécs City as School INEPS project (the first one of its kind in Central Europe) in the 1990s suggests that *The productive, efficient learning environment creates authentic, lifelike situations for the students' constructive acquisition; situations involve them personally and are typical of the tasks and problems in which the students are later expected to use their knowledge. In the case of Productive Learning it is important to know about our own knowledge, feelings and the process of learning.* (2011, p. 69).

During courses where student teachers design, carry out and reflect on educational projects PL may be applied in tertiary education. Amongst possible applications of PL involving Gardner's theory an elective course for teacher candidates has been introduced in 2011 spring semester at the Institute of Education at the University of Pécs.

An MI-PL Course in Teacher Education Focusing the Holocaust

While attending the one before the last semester of their teacher education students may choose elective courses that aim at strengthening their competences as educators. One of these courses of the author aims at combining the introduction and implication of Gardner's theory along the ideas and practice of productive learning, focusing the topic of the Holocaust – taking the example of the course as a scenario of a relevant curriculum development program concerning teacher training, emphasizing autonomy and responsibility.

Since 2001, the day 16 April is dedicated to the Remembrance of the Victims of the Holocaust in Hungary in the institutions of public education. It means that this day each school is suggested to devote a form of educational activities to the topic (days as such focusing other issues is present in Hungarian education – December, 10 for instance is dedicated to Human Rights). The fact that this mid-April day overlaps the period of the spring semester of our university suggests a unique opportunity for co-operation between teacher candidates and public schools in the city of Pecs.

During the elective course students are introduced to the theory of multiple intelligences and also to the idea of productive learning. The combination of the two raises awareness of two significant factors of the teaching-learning process. One is that pupils at schools (and also students involved in teacher education) are neurologically diverse and have different intelligence-profiles, therefore a particular topic needs to be interpreted throughout as many different ways as possible. The other important relevant factor of the teaching-learning process may be understood as an inevitable consequence of the previous one, i.e. that a teacher ought not to become a slave of a textbook but an autonomous and responsible creator and implementer of teaching materials and learning aids suitable for students of various intelligence-profiles due to their neurodiversity.

After the discovery of the wide range of their own intelligences, students of the course in question formulate four working groups, each concentrating on two different intelligences and the possible evocation and mobilization of those. The idea suggesting that a teacher may work not exclusively alone as an educator at a time with a group of pupils, is rarely adopted in Hungarian schools. By designing and practicing peer and/or group teaching, teacher candidates' appetite may be wet towards such activities for their future career.

The topic of the Holocaust is also refreshed, not primarily focusing on exact historical data of its series of events, rather emphasizing everlasting lessons for humankind. As Gardner (2009, p. 73) suggests: *we want students* in our case both teacher candidates and pupils in public education *appreciate what*

happened to the Jewish people, and to certain other condemned minorities and political dissidents... that began with simple verbal attacks□□□compare relevant quotation on Roma in Hungary in 2013 above□□*and laws of exclusion, gradually evolved to more violent forms of abuse, and ultimately culminated in the devising of camps whose explicit goal was the extinction of European Jewry...* The author of this contribution, the leader of the course in question argues coincidently with the father of MI theory that: *Sheer memorization or faithful paraphrase of these paragraphs□* as it traditionally happens through relevant pages of history books in Hungary□, *does not count for understanding. Rather... students exhibit understanding to the extent that they can invoke these sets of ideas flexibly and appropriately to carry out specific analyses, interpretations, comparisons, and critiques. An "acid test" of such understanding is the student's ability to perform his understandings with respect to material that is new – perhaps as new as today's newspaper* (Gardner, 2009, p. 74).

Irrespectively of their major teacher candidates during the course prepare teaching materials and learning aids aiming at interpreting the Holocaust through the evocation of two different intelligences, each in groups. As four group creates material for a 45 minutes long lesson for pupils in the eighth grade of primary education, i.e. 14-15 year old boys and girls, the outcomes of their work altogether leads to a program of a four times 45 minutes long thematic day that relies on the evocation of each intelligence described by Gardner. Since the second year of the introduction of the course, 2012, the programs do not remain theoretical educational packages but are put in practice on 16 April at different partner schools of the university. As students create different programs each spring semester we offer different applications of the same topic each April to the partner schools.

What remains the same year by year is the structure of the thematic day. Pupils on the eighth grade gather at a common location of their institution (usually the hall or the library of the school) before the school day starts and are introduced to the aim of the day. They get to know the teacher candidates who work with them during the day and are divided into four groups. Each group of pupils meets each group of teacher candidates as one particular group of pupils needs to participate in each of the four, two by two intelligences-approached lessons in order to have a chance to get involved in the topic through the particular intelligences they are the most talented of. At the end of the day pupils and teacher candidates gather again in order to summarize the experience of the day and to gather feedback from the pupils.

The reason why the targeted audience is the age group of the eighth graders of primary education lays in the structure of the recent Hungarian school system. Although other alterations do exist, the most widespread structure of schooling is eight years of primary plus four years of secondary academic and/or vocational

education or three years of vocational education. The topic of the Holocaust appears in the national curriculum on the eighth grade of primary and the fourth year of secondary education (Nemzeti Alaptanterv, 2012). Considering that the representatives of the most vulnerable social groups head the three years long secondary vocational education after completing their primary education plus keeping in mind that the mandatory age for attending the education system is 16 years of age, one may conclude that in case youngsters who are the easiest to be targeted by far right ideas do not personalize the lessons of the Holocaust. In this way they may exit their education without a relevant considerable experience that could lead to a dangerous phenomenon in terms of its possible future social consequences.

As the final step of the course, teacher candidates (student teachers) reflect on their experiences and those of the pupils expressed in their feedback. One may ask why teaching about the Holocaust ought not to remain exclusively in the hands of (future) teachers of history. The reason why I am concerned the topic needs to be handled by teacher candidates irrespectively of their majors is that this experience of humankind and its everlasting message is far beyond the specialty of historians: each of us, especially those who take responsibility in educating future generations ought to have our parts in drawing the consequences from the past in order to create a better future.

So May *Each* Learn Indeed?

Along the logic of this contribution we could trace an example of how theory/research and development together with training and practice may go hand in hand in educational sciences, with a special focus on teacher training, emphasizing autonomy and responsibility.

Learning interpreted as the process through which the individual acquires knowledge and develops competences and also as the potential insight of the individual as gaining understanding of previous experiences of humankind is an everlasting task of the author as a researcher, as a curriculum developer as much as a teacher trainer and a facilitator of partnership between different agents of the educational arena. Such learning processes need to take place both in synch and historical dimensions on vertical axles as much as on horizontal ones overlapping time, disciplinary and social status/roles of autonomous individuals who are responsible citizens of today's democracies.

In case we assume that educators themselves are being educated both on lifelong and life-wide spectrums along the principles described above, thinking globally and acting locally consequently becomes our virtue and as role models we may radiate these concerns so that *each* of those who we interact with during our

career may become effective and efficient learners themselves, helping us to remain such actors of the colorful arena of education as well.

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