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Reflections on Educational Psychology in an Emerging Democracy

Irma Eloff¹

1) University of Pretoria

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Reflections on Educational Psychology in an Emerging Democracy

Irma Eloff

University of Pretoria

Abstract

This paper reflects on the changes in Educational Psychology in South Africa in a ten year period (2005 – 2015) after the first democratic elections. It shows how Educational Psychology as a scientific discipline, and as a helping profession, has responded to the changing landscape and how the post-democracy years inspired a complete departure from previous practices. It also explores an expansion of its leitmotif from ‘helping’ to leading and facilitating processes of change and support. It shows how conceptual shifts from the individual level towards systemic interventions have impacted the nature of the support provided by educational psychologists and how the creation of virtuous cycles became central their work. The shifts from individual support to systemic support interventions have also contributed to blurring boundaries between professionals and stakeholders. The paper also argues that the strong experiential nature of studies in Educational Psychology has led to gaps in the empirical database in Educational Psychology – specifically in terms of the limited comparative studies that have been conducted. Such studies were mostly conducted within bounded systems. Furthermore, the paper argues that the role of educational psychologists has been marginalized in formal education support structures even as their role increased in importance in broader society.

Keywords: Educational Psychology, educational psychologist, South Africa, emerging democracy, helping professions, support

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Reflexiones sobre Psicología de la Educación en una Democracia Emergente

Irma Eloff

University of Pretoria

Resumen

En este artículo se reflexiona sobre los cambios en la Psicología de la Educación en Sudáfrica durante un periodo de diez años (2005-2015) posterior a las primeras elecciones democráticas. Muestra cómo la Psicología de la Educación, disciplina científica y profesión de ayuda, ha respondido al panorama cambiante y cómo los años de la post-democracia inspiraron un avance completo respecto de las prácticas anteriores. También explora una expansión de su leitmotiv: 'ayudar' a liderar y facilitar procesos de cambio y apoyo. Muestra cómo los cambios conceptuales desde el nivel individual a intervenciones sistémicas han afectado la naturaleza del apoyo prestado por los psicólogos de la educación y cómo la creación de círculos virtuosos fue el centro de su trabajo. Estos cambios han contribuido también a desdibujar los límites entre profesionales y agentes interesados. El artículo también señala que la fuerte naturaleza experiencial de los estudios en Psicología de la Educación ha conllevado un vacío en cuanto a datos empíricos - específicamente en términos de los limitados estudios comparativos que se han realizado. Además, el artículo sostiene que el papel de los psicólogos de la educación ha sido marginado en las estructuras formales de apoyo a la educación, aunque la importancia de su papel aumentó en la sociedad.

Palabras clave: Psicología de la Educación, psicólogos de la educación, Sudáfrica, democracia emergente, profesiones de ayuda, apoyo.



One the most anticipated and celebrated democracies in modern times has finally come of age in 2015. Twenty-one years have passed since democracy was established by means of a universal non-racial franchise in 1994. For all its challenges and growing pains, this period has seen the establishment of an era in which the freedoms which were fought for by so many in the preceding years could be enjoyed by all.

South Africa is often described as the ‘rainbow nation’ – a term that was coined by Archbishop Desmond Tutu when he referred to post-apartheid South Africa. It has also been called “the country of Madiba” – Nelson Mandela, its founding father. It is a country with a Bill of Rights and a Constitution that is regarded as one of the most progressive and transformative in the world (De Vos, 2002):

It is a transformative document that does not merely delineate the scope and contents of rights in a negative way, but also spells out a vision of what kind of society [it ...] aims to help bring into being’ (De Vos, 2002: 243).

The South African Constitution protects the rights of all its citizens and it provides a solid foundation upon which a new country, relatively free from the restrictions of the past, can be built. But in spite of the freedoms and privileges that this new libertarian zeitgeist confers on all its citizens, South Africa nevertheless remains a challenging country for all its inhabitants. Very few South Africans had any experience of living in a democracy prior to 1994. Since most of were born in this country, South African citizens acquired the psychological remnants of people who have lived under a regime that blatantly favoured one sector of the population at the expense of others. This ideological selectivity has burdened both those who were its victims as well as those who were its ostensible beneficiaries.

With the advent of true democracy and racial justice in 1994, educational psychologists were obliged to create new methods and pathways – new modes of practice, theoretical development, empirical research and approaches to engaging the world. In many ways, the freedom engendered by the new forms of this unique and emerging democracy, was favourable to the enterprise described in the previous sentence. Although freedom allowed practitioners to make decisive progress in some spheres, it also created

fissures in theoretical development and empirical research that are still in urgent need of attention today. The current socio-political landscape has forced practitioners to reflect deeply on existing practices and to contemplate the multiple opportunities that may materialize in the future.

Although this paper describes and examines some trends in Educational Psychology during the last two decades, its purpose is not to present an exhaustive list of such trends. It does however extend post-colonial discourses to show how one discipline within Psychology has embraced new identities, has adapted to the ever-increasing demands on its professional practice, and has carved new pathways for theoretical development. These descriptions are based on an analysis of various publications in Educational Psychology from South Africa during the period between 2005 and 2015.

The paper subscribes to the notion of Hume (1951) which maintains that perceptions which enter the human mind correlate and cohere with one another with the result that they constitute a distinct existence in and of themselves. Each group of perceptions is *sui generis*, that is to say, it is distinguishable and different from other groups of related perceptions, whether they exist contemporarily or successively. The reflections in this paper are presented in terms of this notion. In practice this means that the author lays no claim to objectivity, but rather presents subjective descriptions and reflections that are unique and personalized, and yet shifting in emphasis and point of view. The author's point of view and perceptions were shaped by, among many other factors, schooling in a pre-democratic period, access to university education during a period of political transition in the country, postgraduate studies within a democracy, and professional opportunities as a registered educational psychologist and researcher at a large tertiary institution in South Africa. Simultaneously, the author presents her perceptions from a 'disadvantaged' point of view because they are singular in their experiential trajectory. The viewpoints thus presented are those of a single individual, and they are subject to what Alvesson and Sköldberg (2000) characterize as 'the ambiguous, unstable and context-dependant character of language, the dependence of both observations and data on interpretation and theory, [...] and the political-ideological character of the social sciences' (Alvesson & Sköldberg, 2000: 1). While it is therefore reflective in its approach, this paper only presents a

limited description of the complexities of educational and psychological realities in South Africa.

Background

Although this paper in general takes cognizance of 21 years of democracy in South Africa, it specifically reflects on the role of Educational Psychology as a scientific discipline, and the changes within this discipline in the period between 2005 and 2015. The purpose of the study is to describe and reflect upon the changes and developments that have taken place in Educational Psychology during this ten year period. It locates the reflection within the context of an emerging democracy and it acknowledges the contributions of a post-colonial society that grapples continuously with questions of identity, power relations and belonging. The study makes the fundamental assumption that change rather than stagnation characterizes this period of development within Educational Psychology. The rationale for such an assumption is the view that scientific disciplines are impacted by broad societal changes and that change is therefore integral to scientific development.

Methodology

The methodology adopted for this paper is to provide an in-depth literature review together with experiential, reflective notes on Educational Psychology in an emerging democracy. The paper draws on studies conducted in Educational Psychology (and related fields) within the second decade of democracy in South Africa, namely between 2005 and 2015.

Data Collection

The literature search for this study was conducted by a qualified information specialist who has a Master's degree in Knowledge Management, an Honours degree in Industrial Psychology, and a bachelor's degree in Library and Information Sciences. She has accumulated thirteen years of full-time experience in conducting literature searches.

The first search was conducted on EBSCOhost. EBSCOhost was used because of its multiple data-bases. The EBSCOhost platform hosts a variety

of international databases which are specific to or related to Education and Psychology. In addition to the subject-specific databases such as *ERIC* and *PsycINFO*, it also hosts multidisciplinary databases such as *Academic Search Complete* and *MasterFile Premier*. This was included because it fits the multidisciplinary nature of educational psychology, the fields that it relates to, and the different contexts in which educational psychologists work. Educational psychologists by and large publish in a wide variety of disciplines.

In addition to the specific and multidisciplinary databases, EBSCOhost also includes *Africa Wide* information that harvests articles from a subset of databases with specific African and South African focus, such as the *Index to South African Periodicals* (ISAP). This was an evaluative measure for the results found in the ISAP and SAePublications (*Sabinet African Electronic Publications*) databases hosted on the Sabinet platform. Sabinet is a platform for content in South African libraries.

A comparison of the results found on the two platforms (Sabinet and EBSCOhost) was found to be methodologically challenging due to the fact that functionalities between the two platforms differ. Thus, for example, searching within the ten year time frame had to be done by hand because of restricted retrieval when using the date range functionality. Sabinet also does not have a limiting function for peer review articles (one that ensures that only academic journal articles will be retrieved). Sabinet permits the searching of separate databases while EBSCO's *Africa Wide* information does not.

On the Sabinet Reference platform, 1500 articles were retrieved using the Journals option and searching both SAePublications and ISAP. In the first batch of 500, 28 were published within the data range. In the second batch, there were 146 articles in the date range. The last batch of 500, the records were not accessible. This may have been due to duplications or a system setting that limited the number of records that could be viewed.

The reasons for the inclusion of the EBSCOhost data bases in the first advanced search are as follows: i) It made the *academic search complete* since it is a multi-disciplinary full-text database. ii) It ensured *Africa-Wide Information* since it is produced in South Africa and provides extensive coverage of all facets of African Studies and Africa. iii) It made the *business*

source complete since it dates back to 1886 and provides a comprehensive scholarly database. iv) It includes *CINAHL* because of its focus on health professionals, educators and researchers. v) It includes *ERIC* because it contains more than 1.3 million records and lists journals from the *Current Index of Journals in Education and Resources in Education Index*. vi) It includes *Family & Society Studies Worldwide* because of the coverage of the literature pertaining to human development, social welfare, family science and human ecology. vii) It includes *MasterFILE Premier* because it is updated daily and provides full-text access to almost 1700 periodicals dating back to 1975. viii) It includes *PsycARTICLES* because it contains almost all journals published by the American Psychological Association (APA), almost all of which date back to the first issues. ix) It includes *PsycINFO* because of its comprehensive coverage of peer-reviewed literature in behavioural science and mental health (some of which date back to the 1600s).

The searches were conducted during August 2015. During the first search, the keywords ‘Educational Psychology’ and ‘South Africa’ were utilized. A total of 125 items were obtained from this search. The search results were analysed to screen for duplications, editorials and book reviews. After duplications had been removed from the item list, 97 items remained.

Items were included in the data base for analysis in terms of the following inclusion criteria: i) The item was a scientific, peer reviewed article. ii) The text of the article included the two keywords ‘Educational Psychology’ and ‘South Africa’. iii) The article focused on an aspect of Educational Psychology. The institutional affiliation of authors was not considered as an inclusion criteria because numerous non-South African researchers conduct studies within the South African context.

Items were excluded when, i) the item was a book review, ii) it focused on a field other than Educational Psychology, iii) the item did not include the two keywords ‘Educational Psychology’ and ‘South Africa’, iv) it was a duplicate of another item.

Results from the first search are presented in Table 1. Results are tabled in terms of search terms used and the search options utilised. Search options delimited the searches to the period between 2005 and 2015 period, as well as to peer-reviewed journal articles. Table 1 also includes the data-bases

within EBSCOhost that were searched and the results obtained. The term SU means that key terms were searched within the subject and the term AB means that key terms were searched in the abstract.

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Table 1:

Results from the first advanced search on 'Educational Psychology' and 'South Africa' during the period 2005 – 2015

Search ID#	Search Terms	Search Options	Last Run Via	Results
S4	AB EDUCATIONAL psychology AND South Africa	Limiters – Scholarly (Peer Reviewed) Journals; Published Date: 2005/01/01 – 2015/12/31 Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases <u>Database:</u> Academic Search Complete; Africa-Wide Information; Business Source Complete; CINAHL; ERIC; Family & Society Studies Worldwide; MasterFILE Premier; PsycARTICLES; PsycINFO	38
S3	SU EDUCATIONAL psychology AND South Africa	Limiters – Scholarly (Peer Reviewed) Journals; Published Date: 2005/01/01 – 2015/12/31 Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases <u>Database:</u> Academic Search Complete; Africa-Wide Information; Business Source Complete; CINAHL; ERIC; Family & Society Studies Worldwide; MasterFILE Premier; PsycARTICLES; PsycINFO	114
S2	SU educational psychol* AND South Africa	Limiters – Scholarly (Peer Reviewed) Journals; Published Date: 2005/01/01 – 2015/12/31 Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases <u>Database:</u> Academic Search Complete; Africa-Wide Information; Business Source Complete; CINAHL; ERIC; Family & Society Studies Worldwide; MasterFILE Premier; PsycARTICLES; PsycINFO	125
S1	educational psychol* AND South Africa	Limiters – Scholarly (Peer Reviewed) Journals; Published Date: 2005/01/01 – 2015/12/31 Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases <u>Database:</u> Academic Search Complete; Africa-Wide Information; Business Source Complete; CINAHL; ERIC; Family & Society Studies Worldwide; MasterFILE Premier; PsycARTICLES; PsycINFO	559

A *second search* was conducted in order to cast a wider conceptual net. The terms ‘Family and Society Studies’ were now included. The difference in the result in the search was three articles. The delimiter term, ‘South Africa’, remained.

A *third search* was conducted from ProQuest on the ERIC data base in order to compare the search results from the previous searches. The same data-base is available on two different platforms and therefore served as a reliability check for the previous searches. The information specialist demonstrated that high correlation were obtained between the searches.

Data Analysis

The data set from the three searches was analysed by a registered educational psychologist with 21 years’ experience of research in Educational Psychology. The data analyst also has accumulated more than ten years’ experience in leading a department of Educational Psychology and a Faculty of Education in South Africa during the period under study. Data analysis consisted of in-depth content analysis of titles and abstracts of all items that met the inclusion criteria.

In addition to the in-depth, advanced literature searches, a data set of reflective notes from the author spanning a period of 20 years (1995 – 2015) were analysed by means of content analysis. This data set consisted of a set of 12 notebooks in which the author made reflective notes on Educational Psychology during this period.

The findings from this study are presented in a reflective way. Key concepts are defined as a prelude to sharing broad reflections about Educational Psychology.

Definition of Key Concepts

Educational Psychology

For the purpose of this paper ‘Educational Psychology’ as a science is defined very broadly in terms of ‘the study of learning in a variety of educational contexts’. It includes the scientific study of all the psychological aspects of education and it utilises both educational and psychological

knowledge to understand and support the processes of teaching and learning. Emotional wellbeing and behavioural aspects of learning are also integral to the work of educational psychologists. Educational Psychology includes work over a lifespan with individuals, groups, schools, families, teachers, adults, children and a variety of professionals. In South Africa, Educational Psychology as a subject field includes clinical work with children and their families.

Educational Psychologists

Since this paper reflects on Educational Psychology in South Africa during the most recent ten years of democracy (the period between 2005 and 2015), the definition of the term *educational psychologists* is situated within a country-specific conceptualization. It may however find resonance with educational psychologists working in similar contexts around the globe. Although educational psychologists are health professionals who work primarily in the education sector, the scope of practice of educational psychologists extends beyond schools and classrooms.

The Health Professions Act of 1974, as amended in 2011, defines the scope of practice of educational psychologists more broadly than it defines the scope of the psychology profession alone. It states that:

the following acts fall within the scope of practice of educational psychologists: (a) assessing, diagnosing, and intervening in order to optimise human functioning in the learning and development; assessing cognitive, personality, emotional, and neuropsychological functions of people in relation to the learning and development in which they have been trained; (b) identifying, and diagnosing psychopathology in relation to the learning and development; identifying and diagnosing barriers to learning and development; applying psychological interventions to enhance, promote and facilitate optimal learning and development; performing therapeutic interventions in relation to learning and development; referring clients to appropriate professionals for further assessment or intervention; (c) designing, managing, conducting, reporting on, and supervising psychological research, in the learning and development; conducting psychological practice, and research in

accordance with the Ethical Rules of Conduct for Practitioners registered under the Health Professions Act, 1974; adhering to the scope of practice of Educational psychologists; (d) advising on the development of policies, based on various aspects of psychological theory, and research; designing, managing, and evaluating educationally-based programmes; (e) training and supervising other registered psychological practitioners in educational psychology; and (f) providing expert evidence and / or opinions” (Health Professions Act, 1974, as amended in 2011).

Helping Professions

The ‘helping professions’ in this paper include psychologists (of all categories), speech therapists, audiologists, occupational therapists, social workers, doctors, nurses, dieticians, counsellors, and pastoral workers. Helping professionals provide support services to individuals, families and communities, which may be preventative, remediating or curative in nature. Although the work of other health professionals such as dentists, surgeons, midwives and pharmacists is recognized and acknowledged, they are not directly included in the focus of this study. Allied health professionals, such as laboratory assistants or technicians, are excluded from this study.

Support

‘Support’ in this paper refers to psychological and educational interventions that support children, teachers, parents, school principals, schools, and families. Such support ranges from individual support to broad systemic interventions. It may be single-discipline support, or multi-, trans- or interdisciplinary in nature. It includes both needs-based support and support that focuses on strength and capacities.

Emerging Democracy

The ‘emerging democracy’ referred to in this paper is the democratic society that has existed in South Africa since the general election based on universal suffrage of 1994. South Africa became a true and universal democracy in

1994 when Nelson Mandela became the first democratically elected president. The period selected for discussion in this paper is between 2005 and 2015, which falls within the first 21 years of democracy in South Africa.

South Africa

South Africa is the southern-most country on the continent of Africa. Politically, it became a democracy in 1994, after years of exclusionary ideological apartheid had dominated the country since 1948. It has a population of approximately 53 million people, nine provinces, and eleven official languages. It has three capital cities: Pretoria (executive capital), Bloemfontein (judicial capital) and Cape Town (legislative capital). It shares common borders with Namibia, Botswana, Mozambique, Swaziland and Zimbabwe, and is bounded by the Atlantic Ocean in the west, and the Indian Ocean in the east.

During the apartheid years, all aspects of socio-political life in South Africa were strictly racially segregated. In the education sector, education departments were segregated on the basis of race and skin colour, and there were vast discrepancies in the allocation of resources to ‘white’ departments and departments staffed by other racial groups. During the period after 1994, comprehensive strategies have been implemented to address the inequities of the past across all sectors of society, including education.

Educational Psychology in South Africa

‘Out with the Old, in with the New.’

When a country experiences a profound and significant political transformation, the echoes of ‘change’ rhetoric reverberate into academia and permeate the scientific understanding of a variety of subject disciplines. Hope and optimism often influence the emergence of a new, democratic social order (Badat & Sayed, 2014). In the social sciences, and perhaps also in Psychology in general, these echoes were particularly influential during the development of democracy in South Africa. It was noticeable, for example, that Educational psychologists questioned almost everything that

had been done before, and that they were in consequence advocating new methods for the conduct of their practice. Many, for example, were actively involved in crafting new policies that supported novel ways of engaging the world in their professional practice. New text books in Educational Psychology appeared and new authors emerged in the broader field of Psychology (Duncan, Van Niekerk, Townsend, 2004). Extensive debates about the scope of practice of educational psychologists were the order of the day, and changes in leadership took place within formal societies as more inclusive spaces were actively sought by participants. It was within the ambience of these new inclusive, non-segregated spaces, that an atmosphere was created in which it became possible for new discourses to emerge.

In the South African Constitution, which was promulgated two years after the first democratic elections (Republic of South Africa, 1996), the way in which “helping” was conceptualized changed fundamentally from the way in which it been defined before. Since what had preceded the Constitution was no longer acceptable, what might an alternative be? An analysis of studies in Educational Psychology in the last decade identifies numerous studies that “explored and described” new interventions, new approaches, alternative methods of assessment, and theoretical frameworks that departed fundamentally from earlier theoretical directions (Human-Vogel, 2006; Moletsane & Eloff, 2006; Van der Westhuizen & Van der Merwe, 2010). All these efforts on the part of educational psychologists formed part of a collective and individual quest to find new ways of serving the needs of an emerging democratic society. But if educational psychologists could no longer practice in the old way, they needed to be able to identify new ways of conducting professional practice that could be supported by sound empirical evidence.

A strong sense of urgency and excitement permeated the projects and pursuit of new knowledge in this radically altered landscape. New research methodologies were embraced and new clinical methods were explored, assessed and described in detail (Bischof & Alexander, 2008; Ebersöhn, 2010; Fike, Knoetze, Shuttleworth-Edwards, Radloff, 2012; Maree & Van der Westhuizen, 2011, Matsitsa, 2006; Oswald, 2014).

Before 1994, Educational Psychology in South Africa had, broadly speaking, three separate focuses. These were: i) emotional and behavioural

problems of children, ii) learning problems in children, and iii) career counselling. Now, in the new democratic society, ‘problems’ themselves were problematized with the result that the boundaries between ‘problems’ also became blurred.

The seminal work by Donald, Lazarus and Lolwana (2002) challenged South African educational psychologists to think beyond the needs and difficulties of individuals and to consider the systemic challenges that needed to be met if learning was to be successful. Donald, Lazarus and Lolwana re-conceptualised ‘problems’ as ‘barriers’ – thereby shifting discourses to focus on ways in which ‘barriers’ could be overcome, rather than what was needed to fix ‘problems’. These narratives also began to permeate policy documents (Department of Education, 1997) so that educational psychologists were encouraged to support children (‘learners’), teachers (‘educators’), and schools in ways that reflected the value of individual human rights and the dignity of human beings. These policies did not spell out actual details and directives, but rather foregrounded the seven fundamental values enshrined in the South African constitution, namely, democracy, equality, reconciliation, diversity, responsibility, respect and freedom. At the grassroots level this meant, for instance, that children with disabilities could be included in mainstream classrooms for the first time. Their effect was also to suggest radical changes in the ways in which educational psychologists could be effective in their practice.

The resultant increase on the systemic level of the scope of practice of educational psychologists has produced a number of subliminal effects. First, it has raised awareness of how broad societal dynamics exert an influence on theoretical developments within Educational Psychology. Thus, for example, experiences of discrimination, suppression and resistance have been and still are being foregrounded by researchers and commentators. Simultaneously, experiences of justice, capability, continuous success, and resilience have also become frequent in the field of Educational Psychology. Such experiences have not only been described from the perspectives of educational psychologists, but from many others in allied helping professions.

Leitmotif in Educational Psychology

Since its earliest years, the ‘leitmotif’ in Educational Psychology in South Africa has been “helping” in all its varied manifestations (Van Niekerk, 1986). How do we help children in need? How do we support families who are in distress? How do we support schools in order to ensure effective learning? How do we support individuals over a lifetime?

Prior to 1994, the practice of educational psychologists was focused predominantly on helping the *individual*: the individual child that needed help, the family unit that needed ‘fixing’, and the teacher that needed to teach in a particular way. During the early 2000s some of the most influential and prestigious publications in this field corrected the imbalance inherent in the content of their articles and commentary by deliberately shifting the emphasis away from individuals so as to foreground the systemic nature of Educational Psychology (Davidoff & Lazarus, 2004; Donald, Lazarus & Lolwana, 2002).

Such shifts in the conceptualization of Educational Psychology increased the status of educational psychologists to such an extent that they often found themselves in positions of leadership in the struggle to implement the values of democracy and human dignity in the new South Africa. Educational psychologists repositioned themselves away from their earlier singular-focus practice and began to take charge of processes that would change the way in which educational psychological support, help or intervention would be conducted in the future. Such studies and initiatives adopted foci that ranged from resilience in township schools, to pre-school teacher beliefs about HIV and AIDS programmes, to non-invasive career counselling techniques, and many other challenges which were of importance in the new democracy (Mampane & Boucher, 2011; Ruto-Korir & Lubbe-De Beer, 2012; Wood & Webb, 2008; Maree, 2012). Whereas previous service delivery models depended for legitimacy on strong structures and internal referral systems, efficacy began to be assessed in terms of the collaborative nature of partnerships, the extent of consultation, and the buy-in of stakeholders. Educational psychologists were thus seen to be leading -- rather than passively receiving. As such, they were actively using their expertise in groups, learning, psychological functioning and

human behaviour to influence interdisciplinary processes that sought solutions to large-scale systemic challenges.

The challenges inherent in the processes and initiatives were often overwhelming. The majority of the South African population had not had access to education for the major part of their lives. The dire consequences of the huge discrepancies in resource allocation between the racially segregated education departments of the past were becoming more and more apparent as schools opened up to welcome a diversity of children. It was immediately evident that illiteracy was prevalent and that poverty was often racially bound. HIV and AIDS were changing the architecture of South African families. While children with disabilities had access to inclusive schools, effective support was often neglected or unavailable. The tragic effects of the previously entrenched culture of exclusion were more than ever visible in South African schools even as South Africans rejoiced in its new opportunities. But, as elsewhere in the world, education was regarded as a means to obtain prosperity and a better life for those who had been previously disadvantaged.

In the face of these seemingly overwhelming challenges, the “helping” role of educational psychologists changed. These changing roles coincided with several other converging trends at the time. Boundaries between different categories of psychologists thus became a contested field. Whereas statutory differences between the scope of practice of clinical, counselling, educational and industrial psychologists had previously been fairly clearly defined and delineated, such differences of scope now became a theme of intense debate and extended consultation processes. And even as the roles of various categories of psychologists became blurred, the professional boundaries between psychologists and *other* professions also became indistinct. Social workers, for example, began to do clinical work; speech therapists and audiologists became prominent role players in schools, and occupational therapists were increasingly involved in the creation of optimal learning environments. These were all positive developments, and some universities even developed interdisciplinary postgraduate qualifications in which health professionals from a variety of disciplines could work together to learn needed skills and competencies.

The response of educational psychologists to the challenges of South

Africa's emerging democracy, apart from increased interdisciplinary work, has been pro-active and developmental in nature. New, responsive and inclusive approaches to intervention were developed during this time, and the participation of identified stakeholders became integral to all planning processes. Although Educational psychologists were still 'helping', they were now doing so on a larger and more flexible scale than before. They were also increasingly seen to be operating in terms of systemic challenges that went beyond the individual helping relationship.

Lack of (and limited) Comparative Work

However, while the developmental, pro-active, systemic work served the immediate needs of a changing service delivery model for educational psychologists, critical aspects of empirical work became neglected. Critical comparative studies were often ignored in favour of rich, descriptive studies that focused on bounded systems.

It seems from the analysis, that educational psychologists have largely shied away from comparisons in research and practice during the years of democracy. Even when comparisons *were* done, it was done in a descriptive way rather than an empirically-based, comparative way that would provide insight into practices that would work better or worse.

What educational psychologists have done adequately during this period of democracy is active social engagement, widening our theoretical perspectives and advocating for success stories. What educational psychologists have done *inadequately* is finding out what works better in comparison to what we are doing. The focus has been very reflective and in many instances educational psychologists have adopted cyclical, development processes in interventions. These studies certainly seem to have strengthened educational psychological practices, but it has not been benchmarked against alternatives. These alternatives may have been better than the interventions that has been studied, but in view of the limited comparative data, this cannot be assessed. Comparative studies allow the assessment of which helping modes/interventions/ programmes are better than others. The assumption is that studies by educational psychological researchers should not just tell us what is working. It should also tell us what

is working better than what we have.

Creating Virtuous Cycles

Even though empirical research in Educational Psychology was limited in terms of comparisons during the period under discussion, the lack of comparative studies may inadvertently have contributed to a positive effect: the participation of educational psychologists in the creation of virtuous cycles. One of the key roles of educational psychologists within the emerging democracy in South Africa has been the creation of virtuous cycles. The notion of “facilitation” emerged very strongly within the broad helping professions in South Africa and it resonated well with the clinical practices of many educational psychologists.

Even as educational psychologists relinquished ‘power’ within helping relationships, they stepped into expanded roles as ‘facilitators’. The democratic ethos that was permeating social engagement on many levels, meant that equality was sought amongst all role players in support and helping processes (Daniels, 2006).

For educational psychologists it meant building collaborative partnerships with teachers, schools principals, parents, families, children, health professionals and civic organizations. The collaborative partnerships that emerged as a central construct in the research and practice of educational psychologists entailed a blurring of traditional boundaries and roles. In fact, one of the successes of Educational Psychology in a democratic South Africa has been the effective blurring of lines in the ‘us-them’ conceptual phenomenon. This may have been an inadvertent result of a society-in-transition in which the lines between formerly ‘apart’ (e.g. separate) groups were blurred. It may also have been the result of activism on the part of educational psychologists who wished to topple former power structures that depended on the continued existence of previously defined groups, e.g. us-and-them.

These former ‘us-them’ groupings constituted a variety of conceptual groupings – amongst others, the patient/client vs professionals group, the parents vs teachers group, the schools vs families group, the male vs female group, and also a set of (problematically defined, socially constructed) racial

groupings. The ‘early history of developmental psychology in South Africa reflects a struggle with the concepts of sameness and difference between races, and with shared behavioural determinants in contrast to group specificity formed by variations in experience’ (Richter & Dawes, 2008: 309).

The definition of these ‘us vs them’ groups in Psychology were highly problematic, *and* it was also subliminal in many ways. The country was moving away from socially-constructed groupings at a socio-political level, but it had to be overcome at the personal, individual level too. During this time educational psychologists were therefore actively questioning the roles and responsibilities of all stakeholders within helping processes and seeking increased equity. However, the formal role of educational psychologists in education support structures were undergoing changes too.

Inside Out: Educational Psychology at The Margins of Formal Support Structures

Educational psychologists played prominent roles in the psycho-social support structures in the education sector in the pre-democratic years in South Africa. Roles were formalised and job opportunities were numerous. Psychometric assessment was integral to the practice of educational psychologists. Assessments were individual, it was frequently conducted and there was a strong assumption that interventions could not proceed if it were not based on comprehensive assessment data. In a democratic South Africa, the use of psychometric assessment tools however, presented complex challenges. Previously, psychometric instruments were developed and standardised on a relatively small part of the population. It was also restrictive in terms of language of instruction. Many instruments were only available in some of the indigenous languages and many were not available in languages other than English.

Concurrent to the shifts in educational assessment, the education sector was also aligning with international trends on inclusive education. Within these discourses, full inclusion of children with disabilities was strongly advocated. Previously, psychometric assessments were utilized to support children with disabilities. However, it was also used for special school

placements and the determination of psychological support services. Previous assessment practices of educational psychologists with children with disabilities were therefore now questioned. Psychometric assessment was viewed by some as mechanisms for exclusion. There was also a perception that psychometric ‘tests and testing were not indigenous to Africa’ (Foxcroft & Davies, 2008: 161). Educational psychologists now needed to find legitimate ways of supporting children with special needs, while not being able to rely on traditional modes of assessment and support.

This period saw the development of a number of alternative assessment methods (Foxcroft & Davies, 2008; Moletsane & Eloff, 2006). It also saw the subsequent development of interventions that was less focused on individual children, and more focused on group intervention, classroom-based interventions and systemic interventions at the school level.

However, on a structural level, formal “positions” for educational psychologists in the formal education departments disappeared. The ethos at the time, was that educational psychologists should be spending their time and effort on preventative measures, that would lessen the need for ‘remediation’ later on. As a result, many educational psychologists found other roles. In general, the formal role of educational psychologists in the education departments diminished.

Today, educational psychologists tend to function at the margins of formal support structures in both of the education departments, e.g. the Department of Basic Education and the Department of Higher Education and Training. Many are involved in project-based interventions with non-governmental organizations. In some instances, support services by educational psychologists are also integrated into research projects. However, the expertise of educational psychologists are not integrated into formal support structures in educational planning processes – even as *ad hoc* projects that relate to the roles and functions of educational psychologists are implemented.

Limitations of the Study

The paper focused on Educational Psychology broadly during the period of emerging democracy with a specific focus on the 2005 – 2015 period. It did

not focus on specific challenges within the field such as poverty-related challenges, literacy levels in schools, teacher effectiveness, the use of technology or adequate resourcing of learning environments. Even though themes such as educational psychological assessment or HIV and AIDS may be referenced, it is not discussed in-depth. Some of the trends that are highlighted in the paper may also not necessarily be unique to the South African context. Trends such as the move towards broader systemic interventions and the equalization of power relationships are also to be noted in the global context.

The paper also has the limitation of restricted retrospective analysis. It focused on the period 2005 – 2015, yet the nature of the reflections necessitated some cursory references to the period prior to 1994, e.g. to the pre-democracy period. The author relied on some, but not all-inclusive data from this pre-democracy period. In addition, the advanced literature search delimited the 2015 period, but the paper was finalized before the end of this period. It may therefore be, that some articles will still be published in the three month period between the writing of the paper and the end of the year in question.

The claim that educational psychologists increased their leadership roles in support and interventions may also not be unique to the educational psychology profession – it may indeed be consistent with developments in other helping professions. However, the leadership role of educational psychologists has been under-reported in the educational landscape in South Africa and this paper purports to highlight this notion. In effect, the paper illustrates that educational psychologists are not only leading support and intervention processes, but they are leading *different ways* of helping individuals, groups and systems.

The concept of interdisciplinarity and the identity of educational psychologists within the multiplicity of roles is under explored in this paper. There is heightened paradigm awareness amongst educational psychologists, and roles have been expanded to the systemic level. The granular meaning of these shifts is, however, yet to be determined.

Alvesson and Sköldberg's assertion that 'even ideologically and politically aware researchers risk being steered by their own text production, where influences from prevailing, free-floating discourses can gain the upper

hand and play their own fragmented game with the intentionally referential, supposedly politically aware text' (2000: 9), seem to be particularly pertinent when a reflective text on Educational Psychology is written. They claim that 'any ambition to determine 'how things are' or 'how best to interpret a phenomenon' [...] may then be regarded as illusory' (Alvesson & Sköldberg, 2000: 9).

Conclusion

It seems that every solution contains within it the start of the next challenge. As South African educational psychologists have sought to carve new pathways for their research and practice within South Africa's emerging democracy, new challenges have emerged. Old outdated practices have made way for new, broadened ways of thinking. 'Helping' as a concept has enlarged to include leading and facilitation. Virtuous cycles have been created and sustainability of interventions is emphasized. But educational psychologists' empirical research needs to be elevated beyond the descriptive level. In addition, blurred boundaries should not deter us from exploring comparative work in order to continue to strengthen our practice.

Badat and Sayed (2014) mention that twenty years into the South African democracy, we still have formally desegregated yet class-based educational institutions. We still witness continuing disparities and inequities and poor academic achievement for a majority of South African children. The work of educational psychologists, within this context, therefore remain critical.

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Irma Eloff is Dean of Education. Faculty of Education. University of Pretoria,

Contact Address: Irma Eloff. University of Pretoria. Pretoria. 0002. South Africa. Email: irma.eloff@up.ac.za

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First-Person Educational Psychology for Teacher Education Majors: A Biofunctional Understanding Intervention

Asghar Iran-Nejad, William Stewart, & Cecil Robinson¹

1) The University of Alabama

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First-Person Educational Psychology for Teacher Education Majors: A Biofunctional Understanding Intervention

Asghar Iran-Nejad, William Stewart, and Cecil Robinson
The University of Alabama

Abstract

This is a semester-long study of the development of first-person biofunctional understanding in educational psychology for teacher education majors. We defined biofunctional understanding as a spontaneous intellectual capacity. To reach its deep biological levels, sculpted by countless evolutionary millennia, students identified and dwelled in writing on their biggest idea of every week for a semester. They stated the idea in a simple sentence and followed by writing a concise paragraph to contemplate on it. Control sections equated their biggest idea with one most important to learn through the conventional learning-testing cycle of deliberate knowledge internalization or construction. Experimental sections fought the learning-testing-cycle urge and sought by hindsight the biggest idea of the most striking revelation (MSR) delivered to their awareness spontaneously by the biofunctional<>psychological spiral of their intuition>revelation<>reflection cycle. Results showed that experimental condition outperformed the control in the development of their insightful understanding measured by a Levels of Revelatory Strikingsness Scale (LRSS) suggesting that learners change their understanding as a function of their 1st-person revelations than 2nd/3rd-person evidence.

Keywords: intuition>revelation<>reflection spiral, first-person education, biofunctional understanding, insight, embodiment



Psicología de le Educación en Primera Persona para la Formación del Profesorado: una Intervención Biofuncional

Asghar Iran-Nejad, William
Stewart, and Cecil Robinson
The University of Alabama

Resumen

Usando cuatro secciones de un curso de grado de psicología de la educación con educación deliberada, se estudió en a posteriori el cambio no deliberado en el desarrollo de la comprensión biofuncional sobre sí mismos. Definimos la comprensión biofuncional como una capacidad intelectual espontánea; y para llegar a sus niveles biológicos profundamente arraigados, esculpidos por milenios de evolución, todos los estudiantes escribieron su principal idea acerca de ello cada semana durante un semestre. Las secciones de control equipararon su mayor idea con lo que ellos consideraron que era lo más importante a aprender a través del ciclo convencional de aprendizaje-evaluación en la internalización o construcción del conocimiento deliberado. Se animó a las secciones experimentales a combatir el ciclo de aprendizaje evaluación y a buscar a posteriori la idea esencial o mayor sorprendente revelación (MSR) consciente e involuntaria en la espiral biofuncional <> psicológica en su ciclo de intuición>revelación<>reflexión. Los resultados mostraron que las secciones experimentales superaron secciones de control en el desarrollo de su comprensión perspicaz medida por la Levels of Revelatory Strikingness Scale (EBLR). Llegamos a la conclusión de que los estudiantes son más propensos a cambiar su comprensión en función de sus propias revelaciones en primera-persona revelaciones que en respuesta a las evidencias en segunda/tercera persona presentadas por otros.

Palabras clave: intuición>revelación<>reflexión espiral, educación en primera persona, comprensión biofuncional, conocimiento, personificación.

Decades of interdisciplinary research have illuminated the processes that contribute to human psychological and biofunctional learning and understanding (Barrett & Satpute, 2013; Gendron & Barrett, 2009; Iran-Nejad, 1980/1987). Psychological learning and understanding processes lean on the side of mindful deliberation, active attention, effortful knowledge internalization or construction, symbolic content, informing others or being informed by them, and are relatively recent on the evolutionary scale. Biofunctional learning and understanding infuse intimately with affect (Holbrook, Sousa, & Haun-Holbrook, 2011), are the immediate source of nonsymbolic (or phenomenal) content, reveal their outcomes in the form of insight (or revelation), cannot readily inform or be informed by others, and are ancient on an evolutionary scale (Greene & Haidt, 2002; Iran-Nejad, 2015; Remmers, Topolinski, & Michalak, 2014). For the purpose of this study, we assume that when nondeliberate biofunctional and deliberate psychological sources of understanding integrate versus associate (hereafter represented, respectively, as $\langle \rangle$ versus – for short), interlevel biofunctional $\langle \rangle$ psychological perspectives are born (Wimsatt, 1976). According to McCauley (1986), interlevel theories are capable of exploiting “the descriptive and explanatory resources of theories from more than one level of analysis” (p. 196). On the psychological side of this integration ($\langle \rangle$) as opposed to association (-), the immediate manifestation of the interlevel spiral is an intuition \rangle revelation $\langle \rangle$ reflection cycle, in which the first greater than (\rangle) sign implies that intuition is the global coherence context for the revelation $\langle \rangle$ reflection cycle (Iran-Nejad, 1994).

There is evidence that all-involving performance learning activity (PLA) in this comprehensive cycle is characterized by a paradox of missing functions and that the hidden solutions to this missing function are biofunctional in origin (Iran-Nejad, 2013; Iran-Nejad & Bordbar, 2013). The cycle of the interlevel intuition \rangle revelation $\langle \rangle$ reflection is paradoxical because understanders may know on the side of psychological (i.e., phenomenal) experience that they get revelations—only with the benefit of hindsight—but they have no idea how; they are clueless about what happens on the side of biological activity (Iran-Nejad, 2013; Iran-Nejad & Bordbar, 2013; Prawat, 2000). Nevertheless, the working assumption behind the

current investigation is that, paradoxical or not, the interlevel biofunctional<>psychological spiral and its experiential intuition>revelation<>reflection cycle offer a more natural foundation for the development of understanding than a purely psychological or biological one (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013; Iran-Nejad & Gregg, 2001). This article reports the results of an intervention built inclusively on these ideas and aimed at engaging students in the more encompassing spiral just described, through the lens of education for the development of first-person understanding, hereafter 1st-person education for short.

As conceptualized here, 1st-person education assumes that (a) the learner is the self-sponsored hub of all performance learning activity (PLA) across all internal and external contexts, contents, and systems, (b) the immediate educational focus must be exclusively on performance learning and not at all on performance assessment in its current form, and (c) biofunctional understanding is an inevitable part of the working picture of 1st-person education. In other words, rather than internalizing external content piece by piece under the sequestered authority of 2nd/3rd-person educators (i.e., those other than individual learners themselves), the entire expanse of the triarchic—1st, 2nd, and 3rd-person—infrastructure of personal pronouns gets engaged around the hub of the first person of the learner as the self-sponsored common denominator of all the sources of learning, each serving its most natural role at the interest of the learner. The triarchic infrastructure of personal pronouns is by nature a wholetheme social organizer in the fullest sense of the term (Iran-Nejad, 1994). Even though personal pronouns may vary in symbolic form from one language or culture to another, nonsymbolic real-world and biofunctional embodiment join in the biofunctional<>psychological spiral to involve more or less the same wholetheme infrastructure for all languages and cultures, explicitly or implicitly (Iran-Nejad, 2013). Obviously, in English, these pronouns may be identified unexhaustively as I, we, us, me, mine (1st-person hub), you, yours (2nd-person), and he, she, him, her, they, theirs (3rd-person). The implication is that any experimental manipulation of learner understanding must be more holistic and balanced than today's symbolically-drowned 2nd/3rd-person education can possibly warrant.

A rough outline of the multiple facets and phases of the educational development of the biofunctional<>psychological understanding spiral is presented in Table 1. In putting together this table, we have assumed that the biofunctional<>psychological spiral makes the development of understanding inherently personal for the learner (Iran-Nejad, Stewart, & Parizi, 2009). The working picture portrayed in this table is in general accord with the recent developments in mind-body integration (e.g., Iran-Nejad & Gregg, 2001). It is also in line with the learner-centered movement of recent decades (below). At the same time, it contrasts with the psychological only cycle of learning-testing in which associative learning is defined as deliberate connection internalization of 2nd/3rd-person knowledge and testing is defined accountably by such 2nd/3rd-person authorities as the source of the evidence for the extent to which external knowledge internalization has taken place.

Table 1
Levels of Revelatory Strikingness Scale (LRSS) Showing Multiple Facets and Phases of (Educational) Development of Biofunctional<>Psychological Understanding Spiral that Causes Sustains hindsight Intuition>Revelation<>Reflection (Cycle Copyright © 1980-2015 by Asghar Iran-Nejad, Wholetheme Education Project)

LRSS Phase	Description	Interpretation based on and beyond the literature	Developmental phases of embodied understanding
0	unrelated, exclude from scale (kept in this study)	no or apparent trial-error evidence for learning	behavior only, no inference possible beyond observable
1	verbatim statement of 2 nd /3 rd -person knowledge imported from textbook or class notes	deliberate memorization in the learning-testing cycle of verbal knowledge acquisition	intralevel knowledge internalization only with no evidence for understanding
2	restatement in one’s own words of 2 nd /3 rd -person knowledge imported from book or class notes	deliberate engagement or improvisation in the learning-testing cycle of knowledge acquisition	intralevel internalization of a scaffolder’s understanding with no notable focus on personal understanding

3	1 st -person reproduction of 2 nd /3 rd -person schemas within the academic scope of a lesson taught	deliberate construction-reflection in the broader context of the cycle of learning-testing	intralevel internalization of scaffolder focal understanding and peripheral concern with personal understanding
4	1 st -person production of (1 st , 2 nd , 3 rd -person) insights in the academic scope of a lesson taught	deliberate foresight with possible engagement in hindsight intuition> revelation<>reflection	interlevel biofunctional<> psychological spiral with focal awareness of one's personal (un) understanding
5	1 st -person production of (1 st person) insights within the academic scope of a lesson one has never been taught.	deliberate foresight with flexible engagement in hindsight cycle of intuition> revelation <>reflection	interlevel biofunctional<> psychological spiral with problematized awareness of spontaneous psychological (un)understanding
6	multiple-source production of integrating (1 st , 2 nd , 3 rd -person) insights of a thematic scope one has never studied oneself.	deliberate foresight with situated intuitive flexibility and professional technical facility in a creative area of interest	spontaneous biofunctional understanding of paradoxical mutual inclusion functions with no psychosocial mutual exclusion solutions
7	1 st -person production of integrating (1 st , 2 nd , 3 rd -person) insights of a wholetheme scope one has never studied before.	deliberate foresight with contextual intuitive flexibility and professional technical artistry beyond a creative area of interest	biofunctional realization that mutual inclusion solutions to the paradoxical nature of understanding are ultimately biofunctional<>psychosocial

Table 1 is also a rough methodological thematic organizer for the study to be reported. In this table, LRSS 0 is defined as unrelated to interlevel integration (<>). LRSS 1 and 2 portray the conventional control level in the study representing deliberate internalization of 2nd/3rd-person knowledge. Understanding at this level amounts to knowledge association, differentiation, and categorization (Bransford & Schwartz, 1999; Brown, 1978; Shulman, 1986) achievable by seeking classification taxonomies for the input and improvising by association (Brown, 1978; Shulman, 2002). LRSS 3 represents the state of the art on the relationship between mindfulness and intuition as discussed by Remmers, Topolinski, and

Michalak (2014). LRSS 4-8, portray, in principle, the experimental level of the study, encompass a steady, but not necessarily linear shift, toward nondeliberate intuition>revelation<reflection cycle of spontaneous biofunctional understanding achievable through deliberately seeking hindsight revelations and dwelling reflectively on the most striking revelation (MSR) among them.

Internalization of Second/Third-Person Knowledge

A great deal of today's education is associative 2nd/3rd-person instruction aimed at internalizing other people's knowledge. To be sure, 2nd/3rd-person knowledge internalization has a place and much classroom interchange may be carried out in this way; but the process works best in the convenience of conversation-style informing or being informed by others. In fact, convenient conversation is perhaps the most interesting and beneficial manner of 2nd/3rd-person interaction, especially, when it happens to trickle down with ease to spontaneous levels of understanding. However, few people expect casual conversation from education. More often instruction mixes with strict accountability and tends to overtax convenient conversation. Under the pressure of the learning-testing cycle of knowledge internalization and construction, convenient conversation becomes something else (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013) even though it is not always easy to determine what. For example, teaching for psychological understanding in the style of the 2nd/3rd-person education may overburden or overplay the bottleneck of steady attention and effort in the course of active chunk-by-chunk associative learning (Atkinson & Shiffrin, 1968; Shiffrin & Schneider, 1977). Engagement may rapidly turn resource-intense and exhausting with insufficient benefit for learners, especially when there are no easy answers to the question of the personal relevance of teaching to the learner.

From time to time, 2nd/3rd-person instruction provides educators with rigorous and reasonably effective heuristics for guiding learners through the process of learning and understanding (Sweller, 1988; Sweller, Van Merriënboer, & Paas, 1998). But such effective heuristics are not prevalent. It is important to think about the range of practical options educational

psychology instructors, for example, have available to take to their teaching beyond the narrow learning-testing cycle of accountability. One popular resource available to university graduate teaching assistants is Bloom's hierarchy of educational objectives. Bloom and collaborators designed their taxonomies as an organizational framework for guiding teachers and learners in the constructionist process of selecting, elaborating associatively, and classifying the ideas in lectures and textbooks (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956; Krathwohl, 2002; Krathwohl, Bloom, & Marois, 1964). In an academic setting, learners select the ideas they think the teacher or the textbook author considers important, elaborate on them based on the connectionist schemas they have learned previously from teachers, and use their schemas to classify the information in their notes. They use constructionist elaboration to build structural links among the elements of the input content and with the knowledge they have previously stored in long-term memory (Mayer, 1980). For this purpose, Bloom's taxonomy included a hierarchical list of active learning techniques for the engagement of learners in deliberate comprehension, analysis, synthesis, application, and evaluation of the input. Relevance of the input to the person of the learner is not among these basic learning techniques.

First-Person Education

A major step toward targeting nondeliberate capacities of learners has been taken in the form of learner-centered education. Although already implied by the concept of active learning in the literature of cognitive psychology, the concept of *learner-centered* education was officially featured in a project sponsored by the American Psychological Association entitled "Learner-centered psychological principles: A framework for school reform and redesign" (American Psychological Association, 1997). The document for this project was drafted in 1991-1992, disseminated in 1993, revised in 1997, and eventually made available at the APA website. The project culled from the psychological research the evidence-based constructs and findings to represent the whole person of the learner, learning context, educational opportunities, and outcomes. The learner-centered project takes a leap forward in facing the previously-insurmountable challenge of assembling a

hitherto-fragmented assortment of psychological constructs for educators to use toward a global coherence context for educational practice (Iran-Nejad, 1994; McCombs, 2001). With the learner being the common denominator in diverse PLA settings, the learner-centered approach offered a promising solution toward a unified approach to classroom learning as a multiple-source undertaking (Table 1).

As another step closer to the biofunctional-$\langle \rangle$psychological approach, the National Research Council (NRC) published *How people learn: Brain, mind, experience and school* (Bransford, Brown, & Cocking, 2000). This publication, often used as a reader in graduate courses, was a collaborative endeavor among 16 leading researchers aimed at identifying the key findings toward a “new science of learning” for informing the design of pre-K through college learning environments. As another step toward unifying the global coherence context of the research-based educational practice, this eclectic volume is, therefore, a synthesis of several decades of theory and evidence from a wide range of disciplines including cognitive science, psychology, education, anthropology, neuroscience, computer science, and educational technology. The contributors to the volume captured points of convergence to compose “a solid research base ... [with] strong implications for how we teach” (2000, p. 14).

Other encouraging developments are linking the research on learner-centered teaching with the classic person-centered literature of the humanist Carl Rogers (1951, 1959). Represented in these converging developments are person-centered and learner-centered models widely apart in origin (1950s versus 1990s), psychological tradition (motivation versus information theory), and setting (therapeutic versus educational). In the process, systematically deliberate eclecticism of active self-regulation infuses with the dynamically spontaneous global coherence context of educational theory and practice (see Table 1, middle column). As defined by Cornelius-White (2007), the “classical approach emphasizes teacher empathy (understanding), unconditional positive regard (warmth), genuineness (self-awareness), nondirectivity (student-initiated and student-regulated activities) and the encouragement of critical thinking (as opposed to traditional memory emphasis)” (p. 113). In this excerpt, Cornelius-White articulates a convincing case for making the holistic context of global

coherence, diversity in setting and context, and personal relevance a high priority in education

Overall Framework for the Study

As already explained, the present study investigates a new approach to the spontaneous development of 1st-person understanding. The overall hypothesis is that the interlevel understanding (with a hyphen) biofunctional<>psychological spiral, along with its experiential (by hindsight) intuition>revelation<>reflection cycle, causes deeper 1st-person as well as 2nd/3rd-person understanding than the intralevel learning-testing cycle of today's 2nd/3rd-person education. However, the focus of the present study is on 1st-person understanding beyond 2nd/3rd-person education as practiced today. The two overall frameworks derived from the literature discussed so far in the introduction are shown in Figure 1 and Table 1.



Education for	Knowing by Revelation or Insight	Understanding by Reflection
Development of 1st-person Understanding		
Acquisition of 2nd/3rd-person Knowledge		

Figure 1. An organizer for wholetheme (top) and piecemeal (bottom) approaches to research and practice. Wholetheme knowing by revelation (spontaneous biofunctional understanding) and understanding by reflection (deliberate psychological understanding by hindsight) only apply to the top panel. The bottom panel, instead, represents piecemeal knowledge internalization by seeking taxonomies and improvising with them, an approach that is inconsistent with the wholetheme perspective (Iran-Nejad, 1994).

The cone at the bottom panel in this figure represents the learning-testing cycle of 2nd/3rd-person knowledge acquisition through classroom instruction from having no specialized knowledge of a given field (tip on the left) to possessing an expert's typical knowledge of the field, say educational psychology. The journey begins with (a) the domain-general or abstract knowledge of the field, or (b) domain-specific exemplars from the immediate environment, or (c) the interactive combination of the two and continues as the learner internalizes the field's 2nd/3rd-person knowledge base under the pedagogical authority of more knowledgeable experts. Therefore, the exterior wall of the cone defines its widest possible interior as the ultimate scope of the learner's psychological understanding within the up-to-the-moment confines of the specialized field of knowledge. LRSS 1-2 levels in [Table 1](#) represent this approach. The extent to which, if any, today's 2nd/3rd-person education engages the spontaneous development of 1st-person understanding has not, to our knowledge, been investigated in the past, hence, the present study for a comparative investigation of the two approaches delineated in [Table 1](#) and [Figure 1](#).

Shulman's (2002) seeking and improvising with knowledge taxonomies is a domain-general learning technique to the extent that it may jumpstart, at the tip of the cone in [Figure 1](#), the teaching and learning of any 2nd/3rd-person education course at any educational level. However, once the journey has begun, with zero prior knowledge of the specialized course, it creates a general-specific bottleneck for a monodisciplinary path of no return within the confines of the exterior wall of the cone in [Figure 1](#). Starting at the no-knowledge tip, learners seek, select, categorize, and internalize main ideas chunk by chunk using domain-specific/general learning-testing strategies such as the keyword mnemonic, underlining, predicting, and

summarizing (Dunlosky et al., 2013; Palinscar & Brown, 1984). As the journey moves from introductory to intermediate to advanced levels of specialization, the resulting general-specific hierarchy becomes more deeply embedded, more elaborate, and increasingly situated as learners continue to make and practice richer, stronger, more invariant, and more automatic connections (a) among important ideas, (b) with previously-accumulated concepts of the academic field, and (c) with their prior knowledge of the world applicable to the specific domain. At every step, the direct scope of learning is psychological understanding defined as deeper differentiation and wider psychological constructionism (Gendron & Barrett, 2009) and measurable by the ability of learners to restate in their own words the given 2nd/3rd-person knowledge without committing plagiarism or interjecting false intrusions (see [Table 1](#), LRSS 0-2). The terminal goal is expert-like mastery of 2nd/3rd-person knowledge on a journey licensable with an end diploma of some kind (Figure 1, lower panel).

The biofunctional<>psychological journey that supports 1st-person education is shown with the arrow at the top panel of Figure 1 (see also [Table 1](#)). This journey is comprehensive of all domains. The cylinder of the arrow represents up-to-the-moment intuitive (spontaneous biology-created) understanding and the globes on the arrow represent a surge in revelations of varying degrees of strikingness toward insightful reorganizations of people's comprehensive understanding. Expert-like mastery of the content of any specialized course of learning is not a formal-education focus but is replaced with an open-ended intuition>revelation<>reflection journey by hindsight using techniques sponsored and navigated deliberately by learners themselves.

Hindsight Intuition>revelation<>reflection is domain comprehensive and consists of deliberately seeking one's own nondeliberate (biology-given) revelations and, once found, reflecting on them in sustained writing or otherwise. The main reason for the assumptions that intuition and revelations are biology-given is that their arrival into awareness creates a paradox of a psychologically missing function and they come when they are psychologically unexpected (see [Table 1](#), right column, and below). When learners seek personally-embodied revelations, they face the challenge of navigating the open ground of their intuitive understanding. Therefore, they

are more likely to uncover revelations or clicks of understanding that are (a) personally relevant, (b) cover diverse content domains, and (c) follow the path of the understander's creative areas of interest (Feinstein, 2006). A related assumption behind the intuition>revelation<>reflection methodology employed in the present investigation is that sustained reflection (in writing) on one's personal revelations is an effective way not only to foster and hone one's own inventive capacities but also to develop the art of self-understanding.

Method

Participants

Participants were 162 college of education undergraduates. They were made available to researchers via the convenience sampling of their enrolment in four sections of an undergraduate educational psychology course required for teacher education majors. The majority of them were female in the age range of 19-22. They were mostly white with less than 10% from other ethnicities.

Early in the semester participants in all sections were asked to complete an IRB-approved informed consent form requesting them to volunteer to donate their individual course material (exam scores and PLA portfolios) for use in research in the scientific study of learning and teaching. Otherwise, the students in each section experienced what was the normal course of teaching and learning for their sections throughout the semester. To make the relatively large amount of course material more manageable, two additional levels of sampling were embedded in the study. For one sampling, participants were asked to select a subset of 5 of the larger set of their weekly writing PLAs and submit it in the form of a required bonus portfolio at the end of the semester. For the other sampling, course materials for 15 participants within each section were randomly selected for use in the study. Procedural details are presented below.

Teachers

As it is customary in many research universities, the course was taught by graduate teaching assistants (GTAs) under indirect faculty supervision. In this particular semester, three of the participating teachers were GTAs, each

teaching one section. The fourth teacher was a faculty member who taught one of the sections. There was one female GTA and three male teachers. One of the teachers was African American. The other three were white. Beyond some scheduling constraints, participating teachers were randomly assigned to the four sections of the same undergraduate educational psychology course. One experimental and two control sections were taught by doctoral GTAs. Another experimental section was taught by a faculty member. The three GTAs were nearly equal in the number of years (a) of teaching experience (with the same course) and (b) in the graduate program.

The Intervention

The intervention was a combination of a student-sponsored performance-learning activity (PLA) and the teaching that supported it. As described in the syllabus, the sustained weekly PLA task involved deliberately seeking a self-sponsored set of big ideas per week, selecting the biggest idea of the week from the set, stating it in a simple sentence, and elaborating concisely in an additional paragraph on what made the idea big from an educational standpoint. There was one PLA per week for the sustained duration of the semester.

Beyond these shared guidelines, the students in the control (LRSS 2-3, [Table 1](#)) and experimental (LRSS 4-7) sections received different treatments. The core of this treatment consisted of the different ways in which the *biggest-idea PLA* was defined by the section teacher for experimental and control sections; and the crust of the treatment came from the differences in the qualifications of the teachers for experimental and control sections. The goal, at least in principle, was a most natural infusion in practice—by both teachers and students—of this crust-core combination. The criterion of natural infusion was considered paramount because it determined each teacher’s definition of the biggest-idea PLA, both in the early-semester introduction to the course and the steady reinforcement of the same for the duration of the entire semester.

The teachers for the two experimental sections defined the biggest-idea PLA according to the intuition>revelation<>reflection cycle; and the teachers for the two control sections applied the learning-testing cycle (see [Table 1](#) and [Figure 1](#) and related text). Beyond the early-semester definition,

any further reinforcement as needed, and the teaching conducted accordingly, participating teachers and students went about their jobs as they saw fit.

More specifically, students in the control condition were expected to (a) work faithfully under the influence of the conventional learning-testing cycle, (b) go after 2nd/3rd-person knowledge, and (c) seek and internalize the big ideas that they considered to be important through the eyes of the classroom teacher, the textbook author, or ultimately the scientist. By comparison, students in the experimental condition were expected to (a) do their best to resist the temptation to work under the influence of the learning-testing cycle, (b) do everything possible to fight the urge to work for the grade, (c) go deliberately after the spontaneous development of their own biofunctional understanding, (d) seek by hindsight their own 1st-person revelations (or spontaneous insights), and (e) given the dynamic correlation between one's own revelations and one's interest (Iran-Nejad & Chissom, 1992), occupy themselves with ideas interesting to them, rather than ideas someone else considered important in the course. To get an idea about the eventual form a weekly PLA might take in the experimental condition, the reader may find it informative to examine the illustration presented in [Table 2](#).

Table 2

An MSRUBR Performance Learning Activity (PLA) by a Graduate Student in a First-Person Education Course. Students Were Encouraged to Seek Their Own Weekly Revelations for a Semester, Select the Most Striking Revelation (MSR) among Them, State It in a Concise Sentence, and Write a Concise Paragraph for further Understanding by Reflection (UBR).

MSR: The threat of originality causes revelations about oneself

UBR: Originality is scary. The reason that individuals are so threatened by originality is the unknown. Originality forces the individual to look inside themselves and find something that no one else has. But how do you know that your thought is different than everyone else's? The answer is confidence in oneself. By having confidence that you are an original creation then you can have confidence that you have the ability to be original. Yet, more importantly the threat or fear of having to be original makes one ask why that is so scary? It IS so scary because it shows that there is a lack of confidence in some aspect of your life. In exporting that aspect individuals can have revelations about their own personality. Personally, the threat of doing this project made me have the revelation that I was scared of not being smart enough. Creative individuals are always seen as intelligent. I was scared that my lack of creativity would show my lack of intelligence. However, upon further exploration within myself I realized that by letting go of my insecurities my originality came easier.

The above was the learning core of the intervention. The teaching crust of the intervention was as important as the learning core. The two GTAs teaching the control sections had no coursework, scholarly background or teaching experience in intuition>revelation<>reflection education. Therefore, their years of classroom learning-testing experience meant that they were qualified naturalistically to instruct their students according to 2nd/3rd-person education. However, these GTAs were coached by their faculty supervisor to test not only for knowledge internalization but also for understanding and application

The teachers for the experimental sections were different. The GTA had extensive coursework, collaborative research experience, a thesis, one senior-author journal submission, several junior-author submissions, many conference presentations, and two years of closely supervised teaching in 1st-

person understanding. Given this background, he was expected to be a naturally qualified advocate and practitioner of 1st-person education and of defining the same according the intuition>revelation<>reflection cycle.

The faculty member teaching the second experimental section had had lifelong interest and experience, more than 20 years of graduate teaching experience, about 16 years of GTA supervision, and more than 25 years of research, publications, and presentations on, or closely related to, 1st-person education. This faculty member provided additional teaching supervision for the GTA who taught the other experimental section. Overall, these teaching crust and core learning qualifications were assumed to provide in combination the overall prerequisite context across the control and experimental levels of the target intervention of the study.

Procedures and Dependent Measures

This course was taught as a naturalistic educational experience and not as an exercise in experimental science. An IRB was obtained for the purpose of being able to use the course products following the completion of the semester and grades submission. All sections used the same syllabus consisting of the course description, objectives, textbook, requirements, roughly the same semester schedule, and the general PLA and other guidelines.

The main requirement of interest to this study consisted of the students' written PLAs (see [Table 2](#)). There was also an objective multiple-choice component (a midterm and a final) consisting of 100 items (50 each) measuring knowledge, understanding, and application. For the PLAs, at the end of the semester, each student in all four sections submitted a "main portfolio" of their weekly big ideas. Each student also selected from the main portfolio their 5 biggest ideas of the semester and submitted them in a separate "bonus portfolio." The experimenters obtained the bonus portfolios from each of the four participating teachers, numbered all of the portfolios separately for each of the four sections, and used the numbers to randomly draw 15 portfolios from each of the four sections for a total of $5 \times 15 = 75$ big ideas from each section and a total of $4 \times 75 = 300$ big ideas for all sections. Then, these big ideas from all conditions were combined and fully

randomized and submitted to two independent judges to rate for use as the main dependent measure of the study.

Raters were given the 8-point LRSS rubric shown in the second left-hand column of [Table 1](#). The rubric scale ranged from 0 to 7 with all numbers in between labeled each in the manner described in [Table 1](#). The LRSS rating scale was submitted to two judges along with the expanded descriptions of the scale categories shown in [Table 1](#) and two separate examples for each category (not shown in [Table 1](#)). The judges were graduate research assistant raters selected by the experimenters for their qualifications and extensive coursework background in a combination of 2nd/3rd-person and 1st-person education. They were guided by the experimenters to go through practice sessions using big ideas that were not included in the main data set until they reached reasonable consensus on the scale categories. They then rated the whole set independently and two average rating scores, one for each of the two raters, were calculated for each of the 60 subjects across his or her 5 big ideas.

Results

Multiple Choice Test

We first analyzed the data for the multiple-choice tests. The midterm and final produced similar results. Therefore, we used their combined average. For the overall analysis, we used section as the independent variable. The one-way ANOVA was highly significant, $F(3, 56) = 8.23$, $MSE = 99.12$, $p < .001$, Partial Eta Squared = 0.31. The descriptive results are shown in [Table 3](#). Fisher's multiple comparison tests showed that Experimental Section 2 outperformed the other three sections ($p < .05$). This finding was unexpected. Due to the relatively greater emphasis on intuition>revelation<>reflection cycle, seemingly at the expense of the learning-testing approach, we were predicting lower performance for the experimental than the control sections. Even though the multiple-choice test favored the instruction in the control sections, the observed result revealed that the two experimental sections either did not differ or did significantly better than the control sections on it.

Table 3
Multiple Choice Test Means (and Standard Deviations) for Composite Midterm and Final

Condition (participants)	Section 1 (15)	Section 2 (15)
Control	68.73 (13.20) ^{Aab}	77.33 (09.46) ^{Ab}
Experimental	76.40 (09.59) ^{Aa}	86.73 (06.38) ^{Bb}

Notes. Pairwise experimental-control conditions with same lower case superscripts (a or b) are significantly different, $p < .05$. Upper case superscript (A or B) signify GTA-taught^A or faculty-taught^B conditions. Fisher’s least significant difference (LSD) multiple comparison tests, $df = 56$, standard error = 3.36.

Big Idea Ratings on Levels of Revelatory Strikingness Scale (LRSS)

For each subject, we averaged the ratings across that student’s 5 big ideas, resulting in one rating score per student for each of the two raters. Then, we calculated the Pearson correlation between the ratings from the two judges. This correlation was $r(58) = .89, p < .001$. Therefore, we averaged the rating for the two judges and used this combined LRSS score for further analysis. The means and standard deviations are in Table 4 along with the relevant significance levels. The one-way ANOVA involving the four sections run on the big-idea ratings (LRSS scores) was highly significant, $F(3, 56) = 101.24, MSE = 0.14, p < .001, \text{Partial Eta Squared} = 0.84$. Fisher’s least significant difference (LSD) multiple comparison tests showed that experimental conditions significantly outperformed both control conditions (see Table 4). Judges rated the level of revelatory strikingness (using LRSS) of the experimental big ideas (i.e., MSRUBRs) significantly higher than the control big ideas (i.e., main ideas, in the conventional sense of the term).

Table 4
Mean Big Idea Ratings (and Standard Deviations) on Levels of Revelatory Strikingness Scale (LRSS)

Condition (participants)	Section 1 (15)	Section 2 (15)
Control	1.58 (.39) ^{Aab}	1.26 (.44) ^{Aab}
Experimental	1.87 (.18) ^{Aa}	3.47 (.44) ^{Bb}

Notes. Pairwise experimental-control comparisons with same lower case superscripts (a or b) are significantly different, $p < .05$. Upper case superscripts (A or B) signify GTA-taught^A or faculty-taught^B. Fisher’s least significant difference (LSD) multiple comparison test, $df = 56$, standard error = .138

Discussion and Conclusion

On a weekly basis for a semester, the participants of this study sought big ideas and reflected on them in writing. The big ideas were defined differently for experimental and control conditions by instructors with correspondingly different biofunctional or conventional skills. Experimental participants were guided, by teachers relatively fluent in the nature of spontaneous biofunctional understanding, (a) to shed their customary 2nd/3rd-person leaning-testing skins and, instead, (b) to follow the hindsight trail of their own 1st-person revelations (i.e., their nontraditional understanding version of big ideas). By comparison, directed by teachers fluent in the teaching-testing traditions, those in the control condition followed the trail of 2nd/3rd-person main ideas in their class notes and textbook (i.e., their traditional version of big ideas). The two sets of biofunctional and conventional big ideas were then fully randomized and rated on their levels of revelatory strikingness (using LRSS) by two judges whose independent ratings highly correlated. The results showed that the big ideas of the experimental condition were significantly higher in the level of revelatory strikingness than those of the control condition. This finding supported the *a priori* prediction of our 1st-person education for the development of spontaneous biofunctional understanding relative to education for the

acquisition of the 2nd/3rd-person knowledge (Figure 1). It is also noteworthy that the results of the multiple-choice measure revealed that the focus on the development of 1st-person understanding had no detrimental impact on the acquisition of the 2nd/3rd-person course content.

This article is the first demonstration not only of spontaneous biofunctional understanding but also, in its context, of deliberate change in understanding. The vehicle identified for deliberate change was an intuition>revelation<>reflection cycle. In the present study, participants were encouraged to seek their own revelations and reflect on them in writing which, as the evidence suggests, caused further understanding. Therefore, we may tentatively conclude that deliberate change in understanding is more likely by reflection on 1st-person revelations than on the path of 2nd/3rd-person knowledge internalization. The educational approaches discussed here (Figure 1) delineated the conditions under which changes can or cannot occur in understanding (Table 1). Whereas people may not change their understanding by following the path of someone else's 2nd/3rd-person evidence or expectation, changes in understanding are possible through a 1st-person approach to education on the hindsight trail of intuition>revelation<>reflection spiral for the development of understanding in learners.

The two educational approaches in Figure 1 have deep, albeit often tacit, historical roots each in its own unique past. In as early as the 1980s, the piecemeal establishment of knowledge acquisition (see Figure 1, lower panel and Table 1, rows 1-3) was questioned, redefined, and embodied in the mutually inclusive (or wholetheme) context of intuitive understanding in the spontaneous ground of biofunctional-understanding. From this emerged a unified sense of an inherent self (upper panel; Iran-Nejad, 1994; Iran-Nejad, Clore, & Vondruska, 1984), as opposed to the acquired concept of disembodied self. Two aspects of this reformulation were emphasized. First, counterintuitive at the time, was the idea that the acquired self-concept was by nature phenomenal, transitory, and prone to isolation or forgetting and, by contrast, the spontaneous biofunctional understanding ground of the inherent sense of embodied self was corporeal, biological, enduring, inclusive, and immune to forgetting (see Table 1, rows 4-7). Second, mindful stability/change in the enduring self was a function of the level of coherence/incoherence of its ongoing organization, e.g., achievable through

resisting the usual and seeking the unusual simultaneously, which is exactly what the participants in the experimental conditions were guided to do—resist the customary learning-testing cycle, seek the hindsight trail of their own revelations, and make both enduring by mindfully reflecting on them in writing (Iran-Nejad & Gregg, 2001). These were the conditions; and over the years, the prepared the stage for the present investigation.

The educational approaches outlined in [Table 1](#) and represented schematically in [Figure 1](#) extend beyond their historical roots. They spell out when and why changes in understanding do not occur, consistent with existing interdisciplinary evidence ever since Bacon (1920). The (educational) research on the learning-testing cycle of knowledge internalization by way of deliberate psychological constructionism may have been the culprit, hiding behind the apparent difficulties in moving beyond knowledge and into the realm of understanding (see Bloom, 1984; Remmers et al., 2014). This difficulty is also evident in the pattern of the big-idea ratings shown in [Table 4](#). First, the students in the two control sections averaged no better than the expectation ([Table 1](#)) for the learning-testing cycle of the 2nd/3rd-person knowledge internalization (means: 1.58 and 1.26). This finding lends support for the observation that deliberate teaching-testing practices seldom cause more than knowledge internalization per se. Second, the performance of the students in the Experimental Section 1 is also indicative of the kind of challenges that is inherent in any deliberate attempts at directly changing people's 1st-person understanding. The GTA teaching this section had several years of experience and interest in many aspects of 1st-person education including both conceptual and practical knowledge of the intuition>revelation<>reflection cycle. Nevertheless, students in this experimental section outperformed those in the two control sections only by a narrow, albeit significant, margin. The observed mean was (1.87) and standard deviation was miniscule (0.18), barely reaching beyond the learning-testing cycle and by a narrow band still in the vicinity of the performance expectation range indicative of the 2nd/3rd categories of the LRSS rubric or the psychological understanding of the 2nd/3rd-person knowledge. In short, the extensive background and interest of the GTA teaching the Experimental Section 1 made no more than only a dent in the performance of the students in this section. By the same token, the

performance of the students in Experimental Section 2 is also noteworthy in this light. The faculty member teaching this section had lifelong interest, and several decades of experience and firsthand involvement in 1st-person education. However, the observed performance mean (3.47) and standard deviation (.44) for the students in this section averaged by a relatively narrow margin into the deliberate hindsight engagement of the intuition>revelation<>reflection spiral within the triarchic social infrastructure of the discipline as shown in Table 1, i.e.. LRSS 4 (Iran-Nejad, 1980/1987; Prawat, 2000). This is nowhere near a performance expectation inclusive of the full range of the LRSS rubric.

As it is often the case, there are alternative explanations. An obvious interpretation for the conclusion that the findings were the result of the experimental intervention is that the sheer number of the years of teaching experience brought about the results. In particular, the section taught by the faculty member with the lengthiest teaching experience revealed the most gain in the LRSS scores. Clearly, it would have been desirable but not possible to include a control section taught by a conventional faculty member with comparable years of teaching experience. However, all in all this alternative explanation is less likely. First, it does not explain the significant gain by the Experimental Section 1 taught by the GTA with comparable background experience as the two control sections. Second, the experimental teachers were selected a priori based on their *relevant* experience and not by *the sheer years* of experience; and their intervention-relevant teaching experience is more likely to have made the difference than their intervention-irrelevant experience. Nevertheless, for this and related reasons caution is advisable in drawing conclusions; and generalizations about these preliminary findings must await perhaps as many years as it has taken to beat the project into its current shape.

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Asghar Iran-Nejad is Professor of Educational Studies, The University of Alabama

William Stewart is Professor Emeritus, The University of Alabama

Cecil Robinson, is Associate Professor in Educational Psychology, The University of Alabama

Contact Address: Asghar Iran-Nejad, Educational Studies, Tuscaloosa, AL 35487, email airan-ne@ua.edu

Instructions for authors, subscriptions and further details:

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Measuring Preschool Children Temperament: Implications for Preschool Care and Education Practice

Sanja Tatalović Vorkapić, Darko Lončarić¹

1) Faculty of Teacher Education, University of Rijeka

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Measuring Preschool Children Temperament: Implications for Preschool Care and Education Practice

Sanja Tatalović Vorkapić,
*Faculty of Teacher Education
University of Rijeka*

Darko Lončarić
*Faculty of Teacher Education
University of Rijeka*

Abstract

With the aim of measuring preschool children temperament, EASI temperament Survey has been applied. Preschool teachers (N=192), all female, rated a total of N=3275 children (1612 girls and 1639 boys) with mean age M 4.368 (SD=1.482) within age range between 7 months and 7.7 years. Validation for the instrument was run. Factor analysis on principal components with Oblimin rotation and reliability analysis were performed on data based on preschool teachers' ratings. Three-factor solution has been determined: Emotionality, Activity and Sociability, which have explained 57.427% variance. As it was expected, impulsivity component was not replicated. Subscales inter-correlations and gender and age differences confirmed results from prior research. Overall, the findings were discussed within the frame of preschool children temperament development and variables related to the characteristics of observers. Several significant implications for preschool teachers practice and the quality of educational process have been emphasized

Keywords: temperament, preschool children, teachers' ratings, EASI temperament survey, educational process

Medición del Temperamento de los Niños en Edad Preescolar: Implicaciones para el Cuidado Preescolar y la Práctica Docente

Sanja Tatalović Vorkapić,
*Faculty of Teacher Education
University of Rijeka*

Darko Lončarić
*Faculty of Teacher Education
University of Rijeka*

Resumen

Con el objetivo de medir el temperamento de los niños en edad preescolar, se aplicó la encuesta de temperamento EASI. Los maestros de preescolar ($N = 192$), todas mujeres, midieron a un total de $N = 3275$ (1612 niñas y 1639 niños) con edad media de 4.368 M ($SD = 1,482$) con edades entre los 7 meses y 7,7 años. Se realizó la validación del instrumento. El análisis factorial de componentes principales con rotación y análisis de fiabilidad Oblimin se realizaron en los datos basados en las calificaciones del profesorado de preescolar. Se han determinado tres factores: Emotividad, Actividad y Sociabilidad, que han explicado 57,427% de la varianza. Como se esperaba, el componente de impulsividad no se repitió. Interrelaciones entre las sub-escalas y las diferencias por género y edad confirmaron resultados de investigaciones previas. En general, los resultados fueron discutidos en el marco del desarrollo del temperamento de los niños de preescolar y las variables relacionadas con las características de los observadores. Se ponen de relieve implicaciones importantes para la práctica docente en preescolar y la calidad del proceso educativo.

Palabras clave: temperamento, preescolar, medidas del profesorado, encuesta temperamento EASI, proceso educativo

Temperament is often defined as ‘a subset of early-developing personality traits that display biological origins and are consistent across situations and time stimulated behavioral genetic studies of child temperament’ (Spinath & Angleitner, 1998, p. 948). It represents the set of some major individual differences in people and it is clearly demonstrated early in life (Rothbart, 2012). Moreover, it is ‘relatively stable within context, but not impervious to experience’ (Nigg, 2006, p. 398), what implies its strong determination by genetics and environment (Berk, 2008; Kail & Barnfield, 2014). Nevertheless, even though the temperament research have lasted from 1950s, there are numerous theoretical models and measurement methods today (Luby et al., 1999; Merenda, 1999; Rothbart & Mauro, 1990; Zupančič, 2008; Sleddens et al., 2012; Tatalović Vorkapić & Lučev, 2014), what brings many disagreements about what temperament really is. In their work, Zentner and Bates (2008) and Zentner and Shiner (2012a) discuss various concepts and measures of infant and child temperament. Although, each of these measures demonstrates certain advantages and disadvantages, the EASI model of child temperament has been chosen as the basic one in this study (Buss & Plomin, 1984), due to its potential to fulfil criteria of ‘basic traits’ of personality (Zentner & Shiner, 2012a). Considering the facts that EASI dimensions have been reliable identified across methods, ages, genders and cultures (Bould, Joinson, Sterne & Araya, 2013; Mathiesen & Tambs, 1999), showed moderate heritability (Spinath & Angleitner, 1998), has been recognized in non-human species (Diamond, 1957) and demonstrated significant identification with biological trait markers such as those from FFM (Angleitner & Ostendorf, 1994; Zentner & Shiner, 2012b), they presented as a solid option to be verified in this study. Therefore, there are two main contributions of this particular research. The first one is related with EAS temperament model verification in general. The second one is related with the enhancement of Croatian preschool practice since there is a lack of temperament measures in our country that could be reliable applied by preschool teachers.

EAS Temperament Model

Buss and Plomin (1975, 1984) created EASI temperament model on the basis of expansion of Diamond's ‘phylogenetic’ approach (1957) in defining

the temperament. The main Diamond thesis lied on the observation that all existing models and their verifications failed to distinguish between temperament basics and their cultural elaboration. He proposed that the solution to this problem should be found in the animal world. Similarly to this proposal, Zuckerman (1991) proposed four criteria for basic traits personality as previously mentioned. He noted that there are four temperamental traits presented in the humans and animals: affiliativeness, aggressiveness, fearfulness and impulsiveness. The additional remarks of Buss and Plomin (1975, 1984) were related to the criteria of early appearance of temperamental traits in ontogenesis, their heritability and continuity throughout life span. At the beginning, the model postulated that the child's temperament could be measured in three dimensions - emotionality, activity, sociability and impulsivity.

Emotionality refers to how quickly a child becomes agitated and begins to negatively react to stimuli from the environment. In other words, it presents the predisposition to get easily distressed. The children differentiate on this dimension due to their differences in their nervous system. Some children respond more quickly and automatically experience greater arousal than the others do. Thus, this particular EASI-dimension is similar to reactivity dimension in the approach of Rothbart (Rothbart & Derryberry, 1981; Rothbart, 2011, 2012). During the first few months of life, emotionality is expressed through disapproval (such as crying), which appears in uncomfortable situations. Later in the first year, emotionality is differentiated either according to the reactions of fear either to the reactions of anger. What emotionality will children develop manifested in their behaviour depends on their experiences. Within this dimension, a child who is highly emotional may get excited quickly, be more fearful, cry easily, or show some other strong emotional responses. A child low on this dimension could appear to be more relaxed, more easy going, and less interested in his or her environment.

The 'total activity level refers to the total energy output' (Buss & Plomin, 1975, p. 32-33). The activity dimension presents a child tempo (speed) and energy use. Children with high ratings on this dimension are highly dynamic and constantly on the move. They are prone to explore new places and prefer physical activity and games. Their highest interest is for very stimulating

activities, so sometimes they could be difficult to settle down. This activity level determines by how fast and how far a child can go, but the environment determines in which direction baby could move.

Finally, sociability relates to the child's level of interaction with others. It refers to the child's tendency to be with other people, i.e. the propensity to connect with others and responding to social stimuli. Children high on this dimension prefer team sports and any kind of group activities. They are more comfortable while interacting with others in social settings. Therefore, children estimated high on this dimension do not like to be alone and often encourage contact and interaction with others. On the other side, those low on sociability may prefer solitary activities and experience anxiety around strangers or new situations. Although according to this EASI-model the temperament is biologically determined, social development is explained by interaction's way. In other words, the child's levels of EASI-dimensions may be genetically determined, but the child's overall social development depends on the kind of the interaction with his/her environment (Rothbart, 2011).

Even though EASI-model of temperament originally included impulsivity, due to results of factor analysis it was excluded from the model (Buss & Plomin, 1975). The main reason was the lack of possibility to replicate this dimension due to the fact that is composed of various components. The correlations of impulsivity with other factors were too high, so the EASI-II was created to diminish these negative sides of EASI-I. Nevertheless, further studies demonstrated the replicability of impulsivity only in school-aged children. Therefore, two measures are created: EASI-I and EASI-II Temperament Survey for Children (Buss & Plomin, 1984). In those studies, authors did not succeed to replicate the impulsivity. So, EASI-I was identified as EAS temperament survey very often in relevant literature. Considering the basics of this theoretical model, EASI-I was used in this study too, even though the sample consisted of preschool children.

Temperament Assessment

Considering the temperament assessment in our country, it is important that two facts are emphasized. First, one of the reasons to run validation of EAS Temperament Survey in our country is the lack of similar instruments in

preschool practice, which could provide preschool teachers and psychologists to collect objective and reliable data on child temperament. Secondly, it is of outmost significance that ratters of children's temperament are preschool teachers, since the context of kindergarten and developmental outcomes are very important within this particular temperament research. Therefore, even though there are numerous measures for assessing temperament, such observation scales, structured interviews, rating scale (teacher, parent and self-reports) and physiological techniques, the application of questionnaire rated by preschool teachers in this study justifies its main aim. Zentner and Bates (2008) provided a detailed overview of widely used questionnaire measures of children's temperament within which different forms of EAS Temperament Survey (according to children's age) are presented, too.

Using the questionnaire is the most common and economical. However, one should be aware of methodological problems of temperament assessments arising primarily from meta-emotions of parents and preschool teachers, which may affect the child's behaviour (Brajša-Žganec, 2002). Thus, the child's behaviour is not only the result of temperament than of educational and parental influence. It is quite logic to expect that the level of parent-teacher agreement on measures of temperament would be low. This definitely suggests rather significant contextual effects in the way children's temperament is expressed and manifested through behavioural patterns (Goldsmith, Reiser-Danner & Briggs, 1991). Therefore, it is very important to have in minded that if developmental or learning outcomes are important, than more appropriate estimators for children's temperament would be preschool teachers, rather than parents. This is the case in this research. Furthermore, since it was reasonable to expect a certain level of disagreement between preschool teachers and parents' rating on this scale, it was expected to remove form the EASI Temperament Survey all items that are specific to home-context. Since there are no any, what is one of the major advantages of this scale because the same version could be applied among preschool teachers and parents as ratters; its full form was used in this study. Although Munis and colleagues (2007) demonstrated the significance and utility of much more complex measure for preschool teachers to use in assessing children's temperament than EAS survey, this

study's contribution lies in the fact that there is a very small number of similar studies in our country. There is very small number of valid and reliable temperament measures to be used by preschool teachers, so this should be changed. This of course brings up a new question, which is related to finding a solution to diminishing the subjectivity of estimator or personal equation of preschool teacher, since their estimations could not be identical. The study findings of Neale and Stevenson (1989) clearly demonstrated significant ratter bias of spouses, especially with greater bias for monozygotic than for dizygotic twins. However, this could be one of the guideline for one of the future studies in this research field.

Objective of the Study

Therefore, regarding described EASI temperament model and the significance of preschool teachers to be the estimators of the children's temperament, the main aim of this study was to validate EASI Temperament Survey for children in Croatian kindergartens. What is important for preschool teachers to objectively identify and understand various children's temperament in the context of kindergarten? The answer is described the best in the outlook of Zentner and Bates (2008) and it pointed out that adults' responses to children's temperamental characteristics are crucial for their healthy temperament development. Several studies confirmed this postulate. Kochanska and colleagues (1997, 2007) demonstrated that gentle versus harsh way of mothers' parenting style is the best for the children who are highly fearful. The same author determined that fearless children have the healthiest development with mothers who are warm and fun. Furthermore, Arcus (2001) found that more challenging than supportive way of parenting is the best for the children who exhibit high negative emotional responses. Bates and colleagues (1998) showed that mothers who are highly controlling in response to the small child misbehaviours have the highest success in preventing of developing externalizing behaviour problems in their children. Paulussen-Hoogeboom and colleagues (2007) determined significant positive correlation between less supportive parenting with more restrictive control and children's negative emotionality. Finally, van den Akker and colleagues (2010, p. 494) 'identified negative and positive parenting as environmental mechanisms that were related to the

development of temperament profiles over time'. Altogether demonstrated that children's temperament has the major effect on the choosing the right adults' responses, so to have a valid and reliable instrument for assessing temperament in the kindergarten presents a significant advantage in the work of preschool teacher.

Method

Participants

The study involved a total of N=192 preschool teachers (all female) who were observing on EASI Temperament Questionnaire a total of N=3275 children (1612 girls and 1639 boys) with mean age M=4.368 (SD=1.482) within age range between 7 months and 7.7 years. According to collected data, assessments were carried out in 41 kindergartens with average number of five preschool teachers per one kindergarten ranging from one to 15 of them. For the purposes of this study, early and preschool institutions were selected randomly from six counties. Educators are selected as convenient sample of educators employed in these kindergartens. All children of mixed (142 teachers) and nursery (50 teachers) educational groups that normally lead by preschool teachers who have been participated in this study were assessed. In average, one educator evaluated 17 children in her educational group, within range of 1-54 children. The mean age of preschool teachers was M=34.799 (SD=9.581) in the age range of 22-61 years, with an average working experience of M=11.987 years (SD=9.618) ranging from 3 months to 42 years of service. Kolmogorov-Smirnov test showed that distributions of children age (K-Sz=7.517, p=0.001), preschool teachers' age (K-Sz=2.149, p=0.001), and their working experience (K-Sz=1.916, p=0.001) significantly differed from normal distribution.

Regarding the results from the first factor analysis, it is needed for results of children under 2.5 age to be excluded, the final sample of observed children consisted of N=2917 children (1448 girls and 1468 boys) with average age of M=4.627 (SD=1.231) within age range between 2.5 and 7.7 years. This sample of preschool children was rated by 183 preschool teachers and average number of observed children per one preschool teacher was 16, ranging from 1-44 children.

Measure

For purposes of assessing the temperament, EASI Temperament Survey has (Buss & Plomin, 1975, 1984) has been applied. This questionnaire has the purpose of assessing the children's temperament from early and preschool to late school age. It is originally created for parents to do the estimations. In this particular study, the scale that has been already translated to Croatian language and applied in Croatian studies has been used (Sindik & Basta-Frljić, 2008). It measures four behavioural categories according to which child could be more or less emotional, active, social and impulsive. Therefore, it consists of four subscales (each of them has five items) with 20 items in total. Items from determined three-factor structure (Sociability, Activity and Emotionality) could be observed in the Table 1. Impulsivity subscale items were: "Is prone to impulsivity", "Learning self-control is difficult to her/him", "Easily becomes bored", "Easy learns to resist the temptation" and "Quickly alternates toys in the game". The children's temperament is rated according to the frequency of certain behavioural patterns on the 5-point Likert scale (1-very rare, never; 2-rare; 3-sometimes; 4-often; 5-very often, always). The total result is ranging from 5-25, and results are separately calculated for each subscale. Relating to EAS reliability, Matthiesen and Tambs (1999) determined satisfactory internal consistency (Cronbach $r=0.70$) in a four-year high stability of these results over time, with a coefficient of 0.79 (in children aged 30-50 months), and 0.68 (in children aged from 18 to 50 months). Reliability coefficient (Cronbach's alpha) of the entire questionnaire survey in Croatian sample was $r=0.74$ (Kovačić, Milotti & Benaković-Ranogajec, 2006). Test-retest reliability EASI questionnaire was high when mothers were assessed preschool children in two consecutive months (Buss & Plomin, 1984). In the study of Sindik and Basta-Frljić (2008) the reliability coefficient (Cronbach's alpha) of the whole questionnaire was 0.71, and for each subscales as follows: emotionality $r=0.71$; activity $r=0.73$; sociability $r=0.68$; and impulsivity $r=0.62$.

Procedure

The study was conducted in the institutions for early and preschool care and education in six counties and twenty-five cities: Istarska N=42 (Višnjan, Umag, Pazin, Medulin, Labin, Fažana), Međimurska N=2 (Čakovec), Primorsko-goranska N=103 (Viškovo, Rijeka, Rab, Opatija, Novi Vinodolski, Matulji, Malinska, Lovran, Krk, Kostrena, Klana, Crikvenica), Sisačko-moslavačka N=5 (Sisak), Zadarska N=10 (Novalja, Biograd) and Zagrebačka N=38 (Zagreb) Counties. Cities and counties in kindergartens were selected randomly. Figure 1 is presenting the number of preschool teachers by each city.

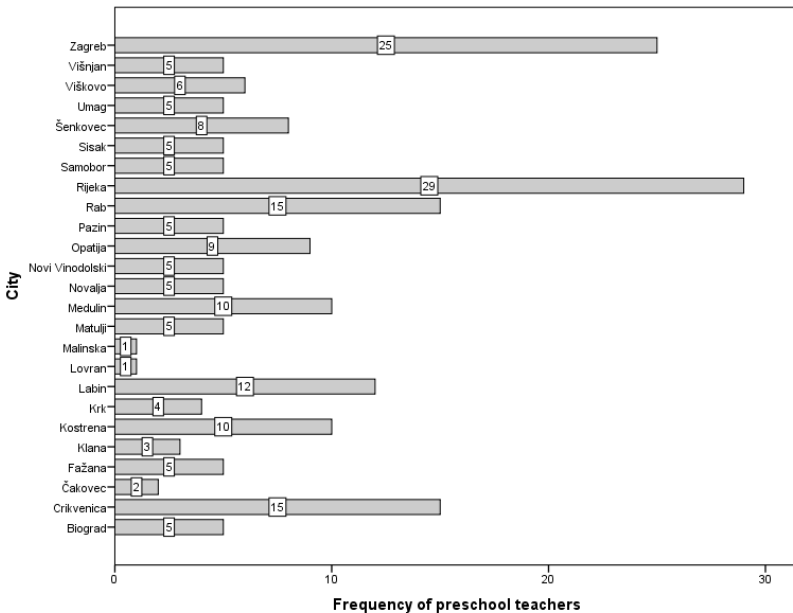


Figure 1: Bar chart of the frequency of preschool teachers by each city from six counties

Considering the ethical requirements, the kindergartens' managers were asked to read and accept detailed informed consent for participating in this research. After obtaining the consent by the managers, informed consent was presented to the parents of all children who were attending these kindergartens. Finally, after getting parents' consent for participation in the research, all preschool teachers have been informed about the aim of this study and the phase of collecting the research data could start. With the EAS Temperament Survey, preschool teachers have received instruction how to rate children's temperament. Preschool teachers, same as parents, were familiar with the information that the research is voluntary and anonymous. Data confidentiality has ensured in the way that all preschool teachers had their own codes, same as each child had its own code. It was emphasized to preschool teachers that they should do temperament assessment only in those groups where they know the children. The instruction they get was:

In front of you is the temperament survey and you should rate the every child in your group you coded before on presented items. Estimate one child's temperament at a time, after 3-5 days of observations – if you know a child (group) before, you will need less time to evaluate. Do not assess the children all at once, but the first day of a one third, the second day of the second third and the third day of the last third of children. Upon completion of the assessment, please check if you miss any item. Upon completion of this research, detailed feedback will be given to all kindergartens that have been participated in the research. Thank you for your cooperation." Upon completion of the assessment, the researchers collected completed questionnaires (one filling scale has lasted between 5-7 days), and overall data collection has lasted for 6 months.

Data analysis included the exploratory and confirmatory factor analysis component model (Hotelling) with Oblimin rotation, reliability analysis, descriptive analysis and analysis of variance by gender.

Results and Discussion

In the Table 1, the items that were retained in the final factor structure with their communalities and factors' saturations on the principal components could be seen. In addition, their basic descriptive parameters, means and standard deviations could be analysed.

In the first step, conducted exploratory factor analysis with Oblimin rotation resulted indeed in a 4-factor structure, but the arrangement of items was completely different with the existing theoretical concept. Especially, impulsivity subscale items were dispersive. According to the fact, that observing and rating toddlers presented a rather specific situation of estimation (concerning the fact that it is very difficult to rate self-regulation at this age (Kail & Barnfield, 2014) and possibility of the adaptation period to the nursery (see Mihčić, 2010), it was decided to exclude all data collected within observation of toddlers of 7 months to 2.49 years. Moreover, age categories were grouped according age mid-points: 2.5-3.49=3 years; 3.5-4.49=4 years; 4.5-5.49=5 years; 5.5-6.49=6 years; and 6.5-7.7=7 years (Agresti, 2007; Powers & Xie, 2008).

In the second step, exploratory and confirmatory factor analysis with Oblimin rotation was conducted again, and since impulsivity subscale items have been still very dispersive and completely disturbed the existing theoretical model, impulsivity items were excluded and three factors were inflicted. Finally, because of these two steps in conducted factor analysis, the final rotated factor matrix on the principal components with Oblimin rotation was determined (Table 1). Cattell's Scree plot has confirmed this factor solution. Three factors were retained and all of them had Eigenvalues higher than 1.00. Furthermore, it was decided to keep this final factor-structure solution regarding to the fact that Kaiser-Guttman's criteria tends to hiperfactorisation, and since this factor structure showed the least variation from the original theoretical model. Therefore, regarding the exclusion of Impulsivity factor, it could be concluded that original results of Buss and Plomin (1975, 1984) have been confirmed in this study, what was not so surprising. A valid guideline for future research drawn from this finding could be that this factor structure should be verified in school-aged sample, when the real place of impulsivity scale could be revealed.

Table 1

Final pattern matrix of principal components: Sociability=1, Activity=2, Emotionality=3, with Oblimin rotation, communalities and descriptives for each item

D EASI items	Communalities	Principal components			Descriptives	
		1	2	3	M	SD
EASI11 Likes to be with others	.690	-.838			4.314	.868
EASI12 Makes friends easily	.652	-.802			3.931	1.027
S EASI14 Shows tendency toward independence	.443	-.672			3.900	1.085
EASI4 Is carefree and cheerful	.511	-.657			4.180	.861
EASI15 Prefer playing alone rather than with others	.496	.635			2.230	1.138
EASI9 Prefers quiet, inactive games to more active ones	.550		-.759		3.176	1.109
EASI8 Cannot sit still for a long time	.639		.719		2.683	1.196
A EASI10 Is restless during meals and in similar situations	.626		.648	.339	2.304	1.218
EASI6 Is always on the go	.581	-.412	.586		3.950	.963
EASI7 Is off and running as soon as he/she wakes up	.449		.584		3.577	1.193
EASI13 Tends to be shy	.397		-.426		2.523	1.154
EASI2 Cries easily	.711			.848	2.386	1.178
E EASI5 Is irritable	.668			.769	2.326	1.122
EASI1 Gets upset easily	.615			.765	2.699	1.190
EASI3 Is easy to scare	.586			.696	2.203	1.116
Eigenvalues		4.154	3.064	1.369		
Percentage of explained variance		27.694	20.427	9.306	57.427%	
		%	%	%		

The names of determined factors are: Sociability (N=5 items), Activity (N=6 items) and Emotionality (N=4 items), and they explained in total 57.427% of variance. Even though two items showed significant factor saturation on more than one component, it was decided to keep them since reliability analysis did not change if they have been removed. By this decision, the possibility of comparison with prior results was kept high. According to the factors structure, it could be seen that the item “Is carefree and cheerful”, that was originally belongs to subscale Emotionality, showed significant saturation at the factor Sociability in this study. Moreover, item “Tends to be shy” that originally belongs to the scale Sociability, moved to the subscale Activity. These two specific findings could be explained by the variable of ratters’ characteristics and the context variable. To be carefree and cheerful is definitely understood in the social context and within social interactions between children. On the other side, shyness was understood so consequently observed and rated, as a component of activity level in children, and not within social context, what is very interesting. These findings again confirmed previous studies on great relevancy on specificities of ratter and the context in which children have been observed and estimated (Munis et al., 2007).

Descriptive Parameters, Reliability Levels, Age and Gender Differences Among Pre-Schoolers in EAS-Dimensions

The means, standard deviations, reliability coefficients (Cronbach Alpha) and intercorrelation of EAS-subcales were presented in the Table 2. All three subscales showed satisfactory levels of reliability (Cronbach alpha), and the reliability levels are familiar with those from previous studies (Zentner & Shiner, 2012a). Since, determined reliability levels are not so high, this definitely could lead us to conclusion that some other, new items would be desirable to be included in the EAS Survey, especially some that are totally context dependent. Of course, while doing this, research should properly determine if research would be carried within kindergarten context (preschool teachers as ratters) or home (parents as ratters).

Table 2

Descriptives: Means (M), Standard deviations (SD), reliability coefficients Cronbach Alpha and Spearman correlation coefficients and significance levels for three EAS-subscals

EAS-subscals	Descriptives		Cronbach alpha	EAS-subscals' correlations	
	M	SD		2	3
1.Sociability (N=5)	4.019	0.733	0.785	0.146**	-0.381**
2.Activity (N=6)	3.136	0.736	0.720	1.000	0.161**
3.Emotionality (N=4)	2.402	0.908	0.808		1.000

**p<0.05; **p<0.01*

Intercorrelations of these three dimensions indicated the expected structure of their relationship, which is also evident in the original study (Buss & Plomin, 1984). In addition, the determined correlations are small, so it is evident that the independence of the subscales is rather high, what has shown by factor analysis. It is reasonable to expect a significant positive correlation between activity level and negative emotionality at the one side, and from the other between activity and sociability. Although, these positive correlations are rather small, due to a large sample they are significant too. In other words, children who express high level of activity are also highly sociable and have larger amount of expressing negative emotions. It is reasonable to expect very high sociability to be related with higher activity in children. In addition, very high activity probably leads children to numerous conflicts with the environment, what could explain its significant positive relationship with negative emotionality. Moreover, very high and negative significant relationship has been determined between negative

emotionality and sociability, what was expected. Children who often express negative emotions are less desirable within peers and had lower levels of social skills, what led them to lower sociability and behaviour problems (Orne, 2012). If the other side of the emotionality-sociability coin is observed, lower sociability kids had less social support, what brings them easily to more often experiencing negative emotions. Finally, analysing the means of EAS-subcales determined among Croatian preschoolers as rated by their preschool teachers, it could be observed that their negative emotionality is rather small, activity level moderate and the sociability level rather high. In comparison to the research of Sindik and Basta-Frljić (2008), it could be seen that preschool teachers in this study have estimated activity and sociability levels of children higher for one scale-point. Negative emotionality has been rated similar in both studies. However, in both these studies ratters were preschool teachers. For example, in the study of Bould and colleagues (2013), where estimators of children's temperaments were their mothers, the rate of negative emotionality was the same as here, but the highest rate was given to activity than to sociability level. It is possible to conclude about desirable and substantiated behavioural patterns in kindergarten depending on preschool teachers' estimations. On the other words, it is possible that, according to parents' rates, activity has the most reinforcement in difference to negative emotionality and sociability. On the other side, since preschool teachers gave the highest rates to sociability, it could be concluded that the social behaviours are the most desirable one, what is in coincidence with the aim of National curriculum framework for early and preschool care and education in Croatia (2011). Therefore, while analysing the EAS-findings in pre-schoolers it is very important to be aware of context dependency (Munis et al., 2007), what should be taken into account in every future research on preschool children's temperament.

Furthermore, age and gender differences analysis were run, and the results could be observed in the Table 3. Overall, results in this study have confirmed prior findings and theoretical assumptions (Kail & Barnfield, 2014). Regarding the age differences in EAS-dimensions (Table 3, Figure 2), significant decline by age has been determined in negative emotionality, what was expected.

Table 3

Main effects of age and gender differences in relation to Sociability (S), Activity (A) and Emotionality (E): ANOVA results and Scheffe test for inter-group age differences

EAS subscales	Age					Gender				
	Age	N	M	SD	Anova* Age	Gender	N	M	SD	Anova* Gender
S	a:3	639	3.800	.783	F _(4,2889) = 47.613***	M	1458	3.953	.757	F _(1,2891) = 24.510***
			c,d,e							
	b:4	700	3.870	.738						
			c,d,e							
	c:5	710	4.090	.684						
		a,b,d								
	d:6	645	4.270	.634		F	1435	4.087	.702	
			a,b,c							
	e:7	200	4.191	.698						
			a,b							
A	a:3	633	3.226	.751	F _(4,2822) = 3.582**	M	1420	3.271	.738	F _(1,2824) = 100.148***
			d							
	b:4	691	3.137	.775						
	c:5	688	3.117	.735						
	d:6	624	3.086	.687		F	1406	2.999	.708	
			a							
	e:7	191	3.072	.680						
E	a:3	640	2.712	.844	F _(4,2891) = 83.994***	M	1458	2.430	.907	F _(1,2893) = 2.586
			c,d,e							
	b:4	700	2.696	.912						
			c,d,e							
	c:5	709	2.262	.847						
		a,b,d								
	d:6	646	2.008	.808		F	1437	2.375	.909	
			a,b,c							
	e:7	201	2.156	.930						
			a,b							

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Subscripts of means present the groups with statistically significant difference with other means.

Children gain more experiences, learn how to socialize and regulate their emotional experiences, especially negative emotions, and how to protect themselves from negative experiences in general, so the negative emotionality decline by age is expected (Berk, 2008). Considering the activity level, significant decline by age could be observed only between age of three and six – other differences are not significant. This finding is similar to the observations of Buss and Plomin (1975) that there were no significant differences in activity before age of four. Finally, significant main effect of age was determined in sociability level. In other words, significant inclination of sociability has been determined by age. This finding was expected too, since higher levels of social skills and greater sociability presents one of the developmental tasks in preschool age (Berk, 2008). All findings were similar to previous research results in our country (Sindik & Basta-Frljić, 2008) and in other countries (Bould et al., 2013).

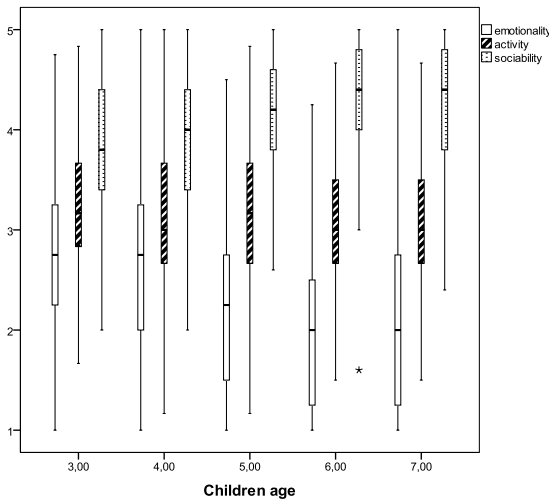


Figure 2. Boxplot of EAS-dimensions according to children’s age (3, 4, 5, 6 and 7 years)

Finally, gender differences were analyzed based on ANOVA (Table 3, Figure 3). There were no significant differences between boys and girls in negative emotionality. In difference to that, preschool teachers rated boys as significantly more active than girls and girls significantly more sociable than boys. These findings are totally in accordance with gender roles, children’s socialization and the way children have been educated, within their homes and kindergartens (Rothbart, 2011).

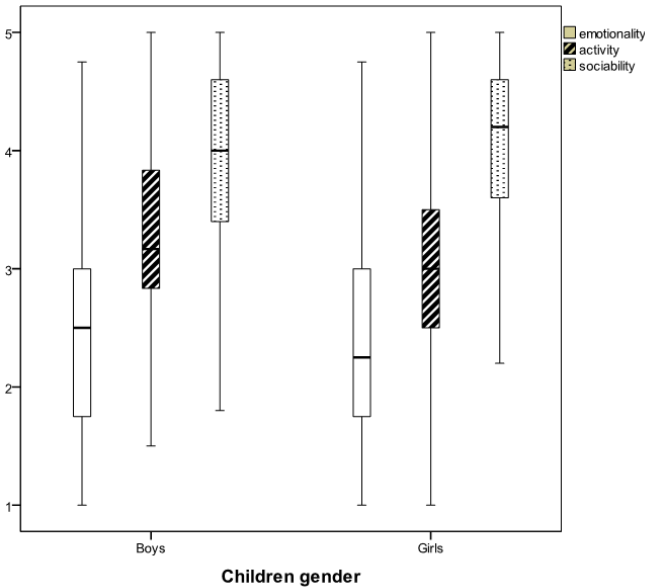


Figure 3. Boxplot of EAS-dimensions according to children’s gender

Conclusion

The aim of the study was to measure preschool children temperament applying EASI Temperament Survey for Preschool Children in our country. Generally, it should be noted that three of the four subscales of the original EASI Survey have been determined in this study. After two-step of exploratory and confirmatory factor analysis on principal components with

Oblimin rotation, the impulsivity subscale was excluded. This step was not so surprising since previous studies have demonstrated non-replicability of this scale on the sample of preschool children. On the other side, since development of self-regulation and impulsivity decline are the major developmental and educational tasks in the school aged children, it is expected for preschool teacher to recognize and rate them clearer in that later age, than in the preschool period. Therefore, the next step should include validation of EASI in our country in school-aged children.

Moreover, same as Munis and colleagues (2007) and Rothbart (2011) emphasized the context dependency showed to be the determining factor in temperament development and rating process in this study too. This could be seen in two items that showed no similarities to theoretical model of EAS, but rather the understanding of their meaning of preschool teachers who rated children's temperament. The same argument could properly serve for explanation of descriptive parameters of EAS-subcales, if they are compared to the same findings but rated by parents. Then, one could be asking: "Which estimations are closer to the real children's temperament – these from preschool teachers or these from parents?". Based on this study results, some clear implications for preschool care and education practice could be drawn. Since, the main contribution of this research lies in the fact that Croatian kindergartens lack of valid, objective and reliable temperament surveys that could help preschool teachers, psychologists and pedagogists to longitudinally follow the temperament changes and characteristics of preschoolers and accordingly to that data create quality pedagogical and educational work with children, the answer to that question is not so important. What is important to be able to objectively measure children's temperament and to use these results within training programs for preschool teachers "(...) to find rearing practices that are appropriate for a child's given temperament" (Zentner & Bates, 2008, p. 29).

Finally, determined age and gender differences are consistent with developmental aspects of theoretical model and prior research results (Kail & Barnfield, 2014). According to them, it would be very useful to conduct a longitudinal study that provides reliable answers to some questions here and possible interaction's effects. Creating research designs for future cross-cultural research would provide insight into the analysis of gender

differences, and differences in practice between institutions for early and pre-school education in different countries.

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Sanja Tatalović Vorkapić is Assistant Professor at the Faculty of Teacher Education, University of Rijeka

Darko Lončarić is Assistant Professor Faculty of Teacher Education, University of Rijeka

Contact Address: University Avenue 6, 51000 Rijeka, Croatia. email: sanjatv@ufri.hr

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English Teachers' Self-Efficacy Beliefs and Students Learning Approaches: the Role of Classroom Structure Perception

Farhad Mazlum¹, Fereshteh Cheraghi², Mahdi Dasta³

1) Maragheh University

2) Kharazmi University

3) Shahid Beheshti University, and Management and Planning Organization

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Farhad Mazlum
Maragheh University

Mahdi Dasta
Shahid Beheshti University

Fereshteh Cheraghi
Kharazmi University

Abstract

This study aimed at investigating the direct and indirect effects that teachers' self-efficacy beliefs exert on students' learning approaches via affecting their perceptions of classroom structure. The sample included 40 English teachers and 240 first-grade female students from high schools in Iran. To collect data, three questionnaires were applied: (a) Self-Efficacy Beliefs Questionnaire was answered by the teachers, and (b) Study Process Questionnaire and Survey of Classroom Structure Goals were given to the students. Path analysis revealed that, via Motivating Tasks, Mastery Evaluation, and Autonomy Support, teachers' self-efficacy beliefs had an indirect and positive effect on students' deep learning approaches but an indirect and negative effect on their surface learning approaches. Also, teachers' self-efficacy beliefs affected students' deep learning approaches directly and positively but their surface learning approaches directly and negatively. Moreover, it was found that Motivating Tasks, Mastery Evaluation, and Autonomy Support had direct and positive effects on students' deep learning approaches but direct and negative effects on their surface learning approaches. All the relationships between model variables were statistically significant. The results tend to verify that students' perception of classroom structure plays a mediating role between teachers' self-efficacy beliefs and students' learning approaches.

Keywords: self-efficacy, classroom perception, learning approaches

Creencias de Autoeficacia del Profesorado de Inglés y Aprendizaje del Alumnado: Rol de la Percepción del Aula

Farhad Mazlum
Maragheh University

Mahdi Dasta
Shahid Beheshti University

Fereshteh Cheraghi
Kharazmi University

Resumen

Este estudio tuvo como objetivo investigar los efectos directos e indirectos de las creencias de autoeficacia del profesorado sobre el aprendizaje del alumnado a través de su percepción de la estructura del aula. La muestra incluyó a 40 maestros de inglés y 240 estudiantes de primer grado de secundaria en Irán. Se aplicaron tres cuestionarios: (a) Self-Efficacy Beliefs Questionnaire al profesorado, and (b) Study Process Questionnaire y Survey of Classroom Structure Goals al alumnado. El análisis reveló que las creencias de autoeficacia del profesorado en Tareas Motivadoras, Dominio en Evaluación y Autonomía, tuvieron un efecto indirecto y positivo en enfoques profundos de aprendizaje y un efecto indirecto y negativo en enfoques superficiales.. Además, las creencias de autoeficacia del profesorado afectaron enfoques de aprendizaje profundos directa y positivamente, así como directa y negativamente enfoques superficiales. Por otra parte, se encontró que las Tareas Motivadoras, Dominio en Evaluación y Apoyo a la Autonomía tuvieron efectos directos y positivos sobre los enfoques de aprendizaje profundos de los estudiantes, pero efectos directos y negativos sobre sus enfoques superficiales. Todas las relaciones entre las variables del modelo fueron estadísticamente significativas. Los resultados tienden a verificar que la percepción del alumnado sobre la estructura de clase desempeña un papel mediador entre las creencias de autoeficacia del profesorado y los enfoques de aprendizaje de los estudiantes.

Palabras clave: autoeficacia, percepción del aula, enfoques de aprendizaje

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The term *learning approaches* has been widely used since 1970. According to Biggs (2003), learning approaches are methods that students use when they do learning tasks with regard to learning results. He makes a distinction between *deep* and *surface* learning approaches. Learners with deep learning approaches focus on understanding, associating, and relating the ideas or concepts in a learning task. When such learners study, they put newly learnt materials into more comprehensive and coherent conceptual frameworks or structures. Learners with surface approaches, on the other hand, tend to memorize facts and reproduce them later, without any focus on the coherence and logic existing within them or any attempt to create or discover new relations in what they have learnt (Biggs, 2003).

There are almost three views about whether the approaches which students adopt are stable or not. Some researchers hold that they are essentially stable in all learning situations (Eley, 1992). According to the second group, learning approaches are flexible depending on learning environments and contexts (Entwistle & Peterson, 2004). Finally, there are some others who argue that learning approaches are both stable and variable (Peterson, Rayner, & Armstrong, 2009). Curry (2002) states a variety of constructs that researchers have turned to their in study students' learning (e.g., instructional preferences, learning style, and cognitive style) can be conceptualized like the layers of an onion. Learning strategies are the outer layers of the onion, implying that they are most influenced by the environment. This also implies that compared to other constructs, learning strategies are most adaptable to change.

A key question for researchers is to understand how students learning can change in particular contexts. The answer to this question would let them make generalizations of such learning experiences and better understand students' learning strategies. That different students employ different learning methods is to state the clear. It is already known that some students are highly motivated and eager to learn and understand whereas some others seek to only pass the course through minimal learning possible (Biggs, 2003). It is also agreed that some teachers foster their students' interest to learn while others do not (Sadlo & Richardson, 2003). Students' learning

motives and their perceptions of learning environment are just two of the factors that affect their learning (Prosser & Trigwell, 1999). Biggs (2003) notes that students' learning is affected by what he calls a *complex ecosystem* which brings about changes in their learning process. The ecosystem consists of several variables, one of which is learning context and environment which plays an important role in learning (Biggs, 2003).

Research studies that focus on classroom and school-level environments have produced promising findings leading to an enhancement of the learning and teaching process. According to Fraser (1998), learning environment refers to psychological, pedagogical, and social context in which learning takes place and which influences students' achievement and attitudes. In their learning environment studies, several researchers (e.g., den Brok, Brekelmans, & Wubbels, 2004) have demonstrated that teachers' and students' perceptions of the classroom environment influence cognitive and affective outcomes. They have also shown that there is a strong relation between students' outcome and their perceptions about their learning environment.

Research findings suggest that students' positive perceptions of the learning environment can affect their cognitive outcomes (Wubbles & Brekelmans, 2005), classroom attitudes (Kim, Fisher, & Fraser, 2000), and satisfaction (Strayer, 2012). How students perceive the classroom structure is highly significant since such perceptions affect their motivation and performance considerably. Blackburn (1998) discusses three measures of classroom perceptions: motivating tasks, autonomy support, and mastery evaluation. The first measure deals with the extent to which students find classroom tasks to be meaningful, relevant, and interesting to them. The second is concerned with whether students think the teacher supports their autonomy through providing opportunities to choose and by encouraging responsibility for self-regulated learning. Finally, the third measure establishes the extent to which students find that the evaluation and recognition practices are fair, focus on learning, and de-emphasize social comparisons and competition.

It is believed that students' perceptions of learning environment influence their learning approaches. Researchers such as Ramsden (1992) argue that

students' perceptions of learning environment are more important than the learning environment itself since such perceptions determine their learning approaches. He believes that to change students' learning approaches we do not try to change the learners rather we seek to change their experiences or perceptions of their learning environment. Learning environments oriented to problem-solving (Mergendoller, Maxwell, & Bellisimo, 2000) encourage deep approaches. The students, however, are likely to adopt surface learning approaches when they perceive that the assessment tasks ask no more than reproducing the learnt materials (Entwistle & Ramsden, 1983) In other words, students' perception of the assessment procedure affects their learning approaches too. Case and Gunstone (2003) demonstrated that when students perceived a supporting role from their teachers, they adopted deep approaches. Furthermore, students' perception of the assessment goals seemed to play a role; when they believed assessment is intended to help them learn better, they turned to deep approaches again.

It is important to note that classroom structure is based on teachers' goals and values. Educational theory suggests that teachers themselves are one of the most important determinants of whether a classroom exhibits higher versus lower quality of instruction (Desimone, Smith, & Fris-vold, 2007; Mashburn et al., 2008). There is substantial research evidence that teachers have great potential to affect students' educational outcomes (Anderson, 2004). The teachers' role is not limited to knowledge transmission. It includes teaching learners how to learn and encompasses boosting their confidence, motivating, enhancing self-esteem and organizing an appropriate learning environment (Williams & Burden, 2000).

There is a great emphasis on teachers' behaviors, views, perceptions, beliefs, theories, and motivational levels in education. Teachers' self-efficacy beliefs play a key role in determining how they organize their teaching. The construct of self-efficacy has evolved from Bandura's social cognitive theory. Bandura (1997) defined self-efficacy as the "belief in one's capabilities to organize and execute the courses of action required to produce given attainments" (p.3). It is believed that these perceived capabilities influence behavior (Czerniak & Chiar-elott, 1990) in that when a person holds a belief that his or her behavior can lead to a desired outcome, he or she executes the behavior to achieve that outcome. As the concept of self-

efficacy is applied to teaching and teachers, it is defined as the belief about the role of one's capabilities to bring about desirable changes in students' behaviors and achievements.

There is evidence that teachers' perceptions of their self-efficacy play an important role in students' educational outcomes. Evidences show that there is a relationship between teachers' self-efficacy beliefs and students' achievement and motivation. Teachers' self-efficacy beliefs also affect their teaching activities, commitment, and behaviors. Pajares (1992) found a strong relationship between teachers' educational beliefs and their lesson planning, instructional decisions, classroom practices, and subsequent teaching behaviors. According to Dembo and Gibson (1985), teachers who do not have a strong sense of self-efficacy, such that they do not believe they are capable to affect student performance positively, may not accept responsibility for motivating students or take the necessary steps to do so. Teachers with a low sense of self-efficacy are more likely to attribute difficulties in teaching to student failure and make fewer, more tentative, innovations to ameliorate the difficulties.

Goddard and Goddard (2001) concluded that teacher self-efficacy was related to improved planning and organization (Allinder, 1994), student-centered learning (Czerniak & Schriver, 1994), the use of activity-based learning (Enochs, Scharmann, & Riggs, 1995), and a more humanistic approach to student control (Woolfolk & Hoy, 1990).

In order to determine how teachers' efficacy affects student achievement, Ross (1994) analyzed 88 teacher efficacy studies and concluded that teachers who have a higher sense of efficacy are more likely to: (1) use new approaches and strategies for teaching, (2) use management techniques which enhance and reinforce student autonomy and diminish student control, (3) provide special assistance to low-achieving students, (4) build students' self-perceptions of their academic skills, (5) set achievable goals, and (6) persist if their students fail (cited in Woolfolk, Hoy, & Spero, 2000).

Studying affective characteristics among teachers is, therefore, a promising area of research that has the potential to shed light on what

constitutes effective teaching. There is little known about the relationship between teachers' particular characteristics such as self-efficacy beliefs and students' perceptions of classroom structure. Most studies are focused on students' self-efficacy beliefs. For example, in study of Green et al (2004) path analysis was used to test predictions of a model explaining the impact of students perceptions of classroom structures (tasks, autonomy support and mastery and evaluation) on their self-efficacy, perceptions of the instrumentality of class work, and their achievement goals. While in order to determine how teachers' self-efficacy beliefs affects students perceptions of classroom structures and student learning approaches further research is needed.

The proposed model in this study is based on socio-cognitive, constructivist, and learning approaches and earlier related studies (Blackburn, 1998; Pajares, 1992; Green et al., 2004; Yilmaz, 2011). In this model, teachers' self-efficacy beliefs affects students' learning approaches both directly and indirectly—through students' perceptions of classroom structure. The model is an indication of the fact that teachers' self-efficacy beliefs play a key role in building learning environments for the learners. More importantly, it is the learners' perceptions of these environments that lead them to adopt either deep or surface learning approaches. In earlier studies, the direct and indirect effects and relationships of these three variables have been given little attention. More specifically, earlier studies examine the relationships between two variables and how one affects the other. This study, however, attempts to provide a more comprehensive picture through discussing a mediating variable—learners' perceptions of classroom structure—and how these variables affect each other directly as well as indirectly. The model consists of three variables: Teachers' self-efficacy beliefs as the endogenous variable and learners' perceptions of classroom structure and their learning approaches as the endogenous variable.

Purpose of Study

The purpose of the study is to determine how well this theoretical model fits the data from a sample of high school English students in Iran. English

involves various components (e.g., reading, writing, oral communication, grammar skills, creative expression, etc.) and English classes provide an intriguing context to study variables such as students' perception of classroom structure and English teachers' self-efficacy beliefs and the relationship between them. Therefore, this study is an attempt to examine how teachers' self-efficacy beliefs directly and indirectly influence Iranian high school students' learning approaches in English classes. Broadly speaking, the study and its findings can help with a better understanding of factors affecting students' learning approaches in English classes.

Significance and Justification of the Study

As went before, the relationships between these variables have been investigated in previous studies. But the present study does so in the framework of a tentative model and goes beyond a 'one-to-one' approach to variable investigation. In other words, the complexities and intricacies inherent in classroom realities are reflected more since the role of a mediating variable is highlighted. As a result the study is a step toward filling the gap in prior studies in which the direct and indirect effects of variables on each other is paid little attention.

Besides, the findings of this study would demonstrate if Iranian students' perceptions of classroom structure affect their learning approaches—hence enabling us to examine the relationship in Iranian context. The results would help us better understand what influences Iranian students' learning approaches in English classes.

The model (figure 1) is based on Bandura's social cognitive theory and constructivist view of the learning process is shared by social cognitive theorists (e.g., Schunk & Zimmerman, 1996) and learning approach theorists (e.g., Biggs, 2003).

The three variables in the model are: (1) teacher's self-efficacy as the exogenous variable, (2) students' perceptions of classroom structure, and (3) students' learning approaches as the endogenous variable that also is based on research studies in literature (e.g., Pajares, 1992; Greene et al., 2004; Blackburn, 1998; Yilmaz, 2011).

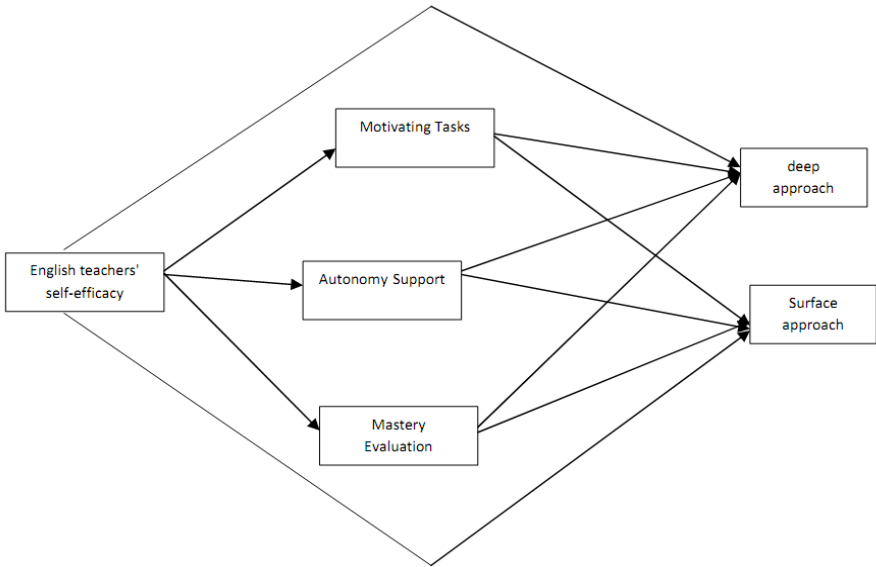


Figure1: suggested model for relationship between teacher efficacy, students' perception of classroom structure and their learning approaches

Research Hypotheses

Hypothesis one: Teacher's self-efficacy has direct and indirect effects on students' learning approaches

Hypothesis two: Teacher's self-efficacy has a direct effect on students' perception of classroom structure

Hypothesis three: Students' perception of classroom structure affects their learning approaches directly.

English Education in Iran

Nowadays, English plays a pivotal role in knowledge and information transmission globally (Wang, 2008). Therefore, English education enjoys a high status in national curricula of many countries and is seriously discussed by educational policymakers and curricula planners throughout the world. In Iran, several foreign languages such as English, French, Russian, Chinese, and German are formally included in the national curriculum; however, it is the English language that is known as the prime and the only foreign language in practice. Iranian students begin learning English formally when they are twelve or thirteen. Due to general inefficiency of English education in public sector (Mazlum, 2013), private language schools have recently increased in number. In general, due to problems pertaining to textbooks, teacher and student factors, the late start of the course..., English education in Iran's public schools is encountered with challenges and problems reflected in several local studies (Riazi, 2005; Hayati & Mashhadi, 2010; Atai & Mazlum; 2012).

Participants

Through random sampling, 40 female English teachers and 240 first-grade high school students were selected from public schools in Yazd, Iran. The participating students were taught by the participating teachers. The population consists of all female English teachers and first-grade students in Yazd city. Yazd has two districts; therefore, equal number of participants was randomly selected from each district for both groups (i.e. teachers and students). The average age of students and teachers was 16 and 29 respectively. Teachers' teaching experience varied from 3 to 14 years.

Instruments

Study Process Questionnaire: This questionnaire can help with the identification of possible problem areas in the way students study. The revised *Study Process Questionnaire* (SPQ) has been developed by Biggs et

al. (2001) for the evaluation of students' learning approaches. It is a 20 item, five-scale Likert questionnaire that is intended to evaluate deep and surface approaches only (while each approach has a motivation and a strategy dimension). For the reliability, Cronbach's Alpha was applied in this study. It turned to be 0.58 for the deep approach and 0.68 for the surface.

Survey of Classroom Goals Structure: This is used to measure students' perceptions of class structure. Their perceptions reflect their understanding of the learning environment, performance goals (getting a good score or giving the right answer) as well as mastery goals (motivation tasks, mastery evaluation, and autonomy support). Using confirmatory factor analysis, Green et al. (2004) revised the factor structure (loading) of Blackburn's Survey of Classroom Goals Structure (SCGS). Three independent factors (i.e., sub-scales) were identified: (1) Motivation Tasks with 11 items, (2) Autonomy Support with 6 items and, (3) Mastery Evaluation with 11 items. In their study, Cronbach Alpha Coefficients for Motivation Task, Autonomy Support, and Mastery Evaluation were 0.85, 0.65, and 0.80 respectively. In this study, the coefficients turned out to be 0.75 for Motivation Tasks, 0.58 for Autonomy Support, and 0.64 for Mastery Evaluation.

Teacher's Self-efficacy Beliefs Questionnaire: Developed by Schwarzer, Schmitz, and Daytner in 1999, this questionnaire is a 10 item measure that identifies job skills and groups them into four major areas: (a) job accomplishment, (b) skill development on the job, (c) social interaction with students, parents, and colleagues, and (d) coping with job stress. The measure was constructed following Bandura's social cognitive theory. The questionnaire is a four-scale Likert one and includes ten items. The scores range from 10 to 40. For the reliability, Cronbach's Alpha was applied in this study. It turned to be 0.72.

The psychometric properties of these instruments have been investigated in earlier local studies and in Iranian context (Yamini, 2008).

With the official permission of the Organization of Education Office in Yazd, first, several districts were randomly selected followed by the random selection of some high schools. Forty English teachers and 240 students (6

The present study sought to investigate the mediating role of perceptions concerning motivation tasks, autonomy support, and mastery evaluation among self-efficacy beliefs and deep and surface learning approaches. To predict deep and surface learning approaches, path analysis was applied to examine the suggested model. Figure 2 shows the path coefficients of the suggested model.

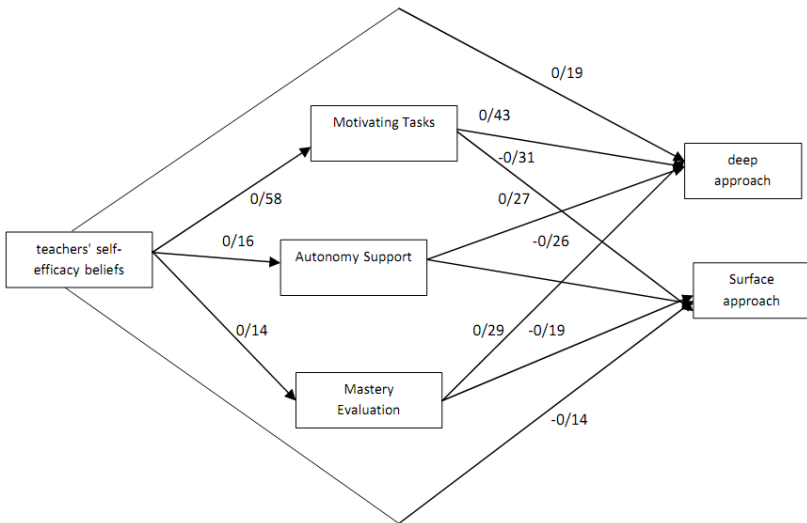


Figure 2: fitted model for relationship between teacher efficacy, students' perception of classroom structure and and their learning approaches

Figure 2 shows that all paths are significant. Compared with all the other variables of the study, the direct effects of teachers' self-efficacy beliefs on motivation perception and through motivation perception on deep approaches have been more- which is 0.58 for the first and 0.43 for the latter. Teachers' self-efficacy beliefs (i.e., the exogenous variable) affect students' surface and deep learning approaches through motivation perception, mastery evaluation, and autonomy support. The effect procedure

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is as follows: self-efficacy beliefs have direct effects on both deep approaches (0.19) and surface approaches (-0.14). They also have an indirect effect on deep approaches (0.32) and surface approaches (-0.23). In Table 2, direct and indirect coefficients, all research variables along with their significance levels are presented.

Table 2
Direct and indirect effects of all research variables on each other

Path	Direct effect	Indirect effect	Total effect	Variance
From self-efficacy beliefs on motivation tasks	0.58 **	-	0.58 **	0.28
From self-efficacy beliefs on autonomy perception	0.16 **	-	0.16 **	0.13
From self-efficacy beliefs on mastery perception	0.14 **	-	0.14 **	0.09
From self-efficacy beliefs on deep approaches	0.19 **	0.32 **	0.51 **	0.32
Motivating perception	0.43 **	-	0.43 **	0.21
Autonomy perception	0.27 **	-	0.27 **	0.16
Mastery perception	0.29 **	-	0.29 **	0.18
From self-efficacy beliefs on surface approaches	-0.14 **	-0.23 **	-0.37 **	0.21
Motivating perception	-0.31 **	-	-0.31 **	0.16
Autonomy perception	-0.26 **	-	-0.26 **	0.11
Mastery perception	-0.19 **	-	-0.19 **	0.10

Table 3 shows the model fit indexes. The model fit is considered to be appropriate provided that χ^2 is not statistically significant but in larger samples the index is usually significant and therefore is not an appropriate index to fit models. Furthermore, if χ^2 / df is above 3, it would not lead to an acceptable fit. For AGFI, GFI, and CFI indexes, above 0.90 and for RMSEA, less than 0.06 is an indication of appropriate and acceptable fit. Above 0.80 is an acceptable fit for CFI, GFI, and AGFI indexes and below 0.08 for RMSEA (Hooper et al., 2008).

Table 3
Model fit indexes of path analysis

χ^2	df	χ^2 / df	CFI	GFI	AGFI	RMSEA
1241.23	647	1.91	0.89	0.93	0.91	0.05

It is observed that model fit indexes, GFI, AGFI, and RMSEA are at appropriate levels and therefore the model fits the data adequately.

Discussion and Conclusion

The purpose of this study was to investigate the direct and indirect effects that English teachers' self-efficacy beliefs exert on students' learning approaches via affecting their perceptions of classroom structure. The results of this study revealed that teachers' self-efficacy beliefs have direct effects on students' both deep and surface approaches, but the effect is positive for the first and negative for the second approach. To explain this finding, it can be argued that belief in perceived capabilities affects behavior as reflected in earlier studies in literature (e.g. Czerniak & Chiar-elott, 1990). Thus, a person who believes he or she is capable of achieving a desired goal or outcome is more likely to follow the necessary behaviors for the attainment of that goal or outcome. Similarly, teachers who have high self-efficacy perceptions take better advantage of classroom time and spend it more effectively, criticize their students less for their incorrect and wrong answers, and guide them to right answers by asking questions. Teachers with low self-efficacy beliefs, however, spend more time on irrelevant activities and employ ineffective techniques and strategies to guide their students (Yilmaz, 2011). Teachers with high self-efficacy perception rely on their students' learning capacity more compared to those with low levels of self-efficacy, and they endeavor to create an effective educational life using a variety of strategies, methods, and techniques in the classroom (Alderman, 1999).

Teachers who do not have high self-efficacy perception (i.e., do not believe they are capable of affecting their students' behaviors positively) do

not feel responsible for motivating their students (Dembo & Gibson, 1985). Teachers' self-efficacy beliefs lead to an increased perception of learning efficacy in students (Anderson et al., 1988), facilitate their involvement in classroom activities, and increase their efforts to solve problems (Ross et al, 2001). Therefore, the fact that teachers' self-efficacy beliefs have direct and positive effects on students' deep learning approaches—the findings of this study—is rooted in behaviors of a teacher with high self-efficacy. The behaviors, activities, and thoughts of such teachers can influence the learning approach students adopt.

The results of the study also revealed that students' perception of classroom structure (motivating tasks, mastery evaluation, and autonomy support) affects their learning approaches (surface and deep) directly and significantly. To explain this finding, it might be said that students' motivation and goals develop within the broader social and psychological context in which they learn. If students experience threat, anxiety, and discrimination in their learning environment and if their teacher is an unfeeling and demotivated one who has a negative attitude towards teaching and his or her learners, students will adopt surface learning approaches since such a learning environment does not entail in itself the necessary motivational and emotional conditions for the development of deep approaches. This coincides with the findings of Greene et al. (2004). In their study, they found a positive relationship between autonomy support perception and deep strategies and mastery goals.

When students believe that the teacher focuses on mastery in learning or on deep understanding, they tend to develop a similar attitude too. In other words, when students feel that the teacher values and merits competence and awards better performance, they internalize such values (Ryan et al., 1998). Teachers who use more individual assessment (compared to group assessment) and consider their students' errors as a natural part of learning process decrease the effects of social comparisons and fear from failure in their students (Snow & Jackson, 1994). If the assessment goal is social comparison rather than mastery, most students would only try to get the right answer and a higher score. As a result, they would not be interested in understanding concepts but memorizing them.

Task design is regarded as a component of classroom structure perception. The findings of the study suggest that students who view tasks as potentially meaningful and motivating tend to adopt mastery goals. Thus, in line with arguments and suggestions in previous studies (e.g., Green, 2004), teachers are suggested to design and use tasks that have functional values and are interesting. This will motivate students intrinsically partially because doing such tasks is more enjoyable (Boekaerts, 1999). Overlooking the role of valuable, motivating and interesting tasks and too much reliance on textbooks might undermine the importance of students' active learning. This, in turn, might lead students to develop a passive attitude towards learning and adopt surface approaches to learning (Kember & Wong, 2000).

One more finding of this study relates to the mediating effects of classroom structure perception. It was found that teachers' self-efficacy beliefs through classroom structures (motivating tasks, mastery evaluation, and autonomy support) affects students' surface and deep learning approaches. To explain the finding, it can be maintained that teachers' self-efficacy beliefs are not independent from other social and psychological determinants like classroom structure perception that affects performance and motivation. They affect teachers' teaching activities and behaviors (Skaalvik & Skaalvik, 2007). Research findings confirm that teachers' capability in managing classroom and organizing learning are the key factors. Compared to teachers with low levels of self-efficacy perception, teachers with high self-efficacy perception are more likely to be instructionally creative and to use management and teaching methods that support students' autonomy. These teachers assign responsibilities according to learner needs (Jordan, et al., 1993) manage classroom problems (Chacon, 2005) and keep students focused on task (Podell & Soodak, 1993).

Teachers who believe in their capabilities are more likely to employ a model of strategies that reduces negative effects and enhances class expectations which are formed on warm interpersonal relations and academic endeavor (Woolfolk, 1998). Also, teachers with a great sense of self-efficacy tend to be humanistic rather than custodial. In other words, the more efficacious the teacher, the less custodial to control students and the more likely he or she is to support student autonomy and responsibility.

Now that students' motivation and learning behaviors are affected by their perceptions of psychological-social context of the classroom, teaching methods, pedagogical tasks, etc. teachers need to rely on their capabilities in order to provide a satisfactory learning environment and, as a result of this, make their students' perceptions of learning environment positive. All this would enhance their students' learning outcomes because in providing an effective learning environment the key is the teacher's belief in his capability to manage the class and organize learning. If teachers really believe that they can affect their students' learning positively, they would make any attempts to create the required environment. Students find such an environment a positive one and their positive perception of the learning environment affects their learning outcomes positively.

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Farhad Mazlum, English Department, Faculty of Human Sciences, Maragheh University, Maragheh, Iran PO Box: 55136-553

Fereshteh Cheraghi, Kharazmi University

Mahdi Dasta, Shahid Beheshti University, and Management and Planning Organization

Contact Address: English Department, Faculty of Human Sciences, Maragheh University, Maragheh, Iran PO Box: 55136-553
mazlumzf@yahoo.com

Instructions for authors, subscriptions and further details:

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Digital Systems for Open Access to Formal and Informal Learning

Laura Martí Ros¹

1) University of Lleida, Spain

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Review

Sampson, D. G., Ifenthaler, D., Spector, J. M. & Isaias, P. (Eds.) (2014). *Digital systems for open access to formal and informal learning*. Springer International Publishing.

Digital systems and services for technology-supported learning and education, referring to innovative methods, tools/systems and technology-supported services, are recognized as the key drivers to transform the way in which individuals, groups and organizations “learn” and “think”. Wegerif (2015) argues that there is enough empirical evidence to support the claim that technology shapes thinking from within, developing thinking skills. On this view technology is not just seen as a means to deliver educational goals, but as something that ought to be taken into account in shaping those goals (Swan, Lin & van’t Hooft, 2008). These transformations influence: objectives—moving from acquiring new ‘knowledge’ to developing new and relevant ‘competences’, methods—moving from ‘classroom’-based teaching to ‘context-aware’ personalized learning, and assessment—moving from ‘lifelong’ degrees and certifications to ‘on-demand’ and ‘in-context’ accreditation of qualifications. Within this context, promoting open access to formal and informal learning is currently a key issue in the public discourse and global dialogue on education.

These transformations boosted by technology have led to new research challenges which are discussed in this volume. This book captures the current state of the art in both *Theory and Practice* (Part I) and *Methods and Technologies* (Part II). The volume consists of 20 chapters selected from among peer-reviewed papers presented at the CELDA (Cognition and Exploratory Learning in the Digital Age) 2012 conference as well as scholars from around the world who were invited to contribute to this book with particular topics.

The book presents high standard research around the next five key themes in education:

a) The evolution of University Open Courses in transforming learning. The book brings new knowledge about how to face two educative challenges

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on this topic, on the one hand, how to design learner-centered online courses for the masses, facilitate students' engagement, commitment, and learner connectedness to the distributed resources. And, on the other hand, the book discusses the assessment of students learning online.

b) The construction of an educative framework to provide social features for building and sustaining web-based educational communities. In this view, two chapters in the book develop research insights in communities, one of them as a repository of best teaching practices from 2000 European schools and, another chapter, as an on-line educational portal to support open access to teaching and learning of people with disabilities.

c) Digital Game-Based Learning. The book explores three different areas in this field: i) learning theory that frame digital game design and its implementation in educational settings; ii) the role of digital games in enhancing entrepreneurship education; and iii) active creation of digital games as learning tools.

d) Mobile Learning. The book presents interesting research in science in which mobile data can play a significant role bringing ideas and data from the real world into the classroom. Students can work on these data, from a realistic point of view and can identify big scientific ideas.

e) Technology as an environment to support dialogic spaces to enhance group learning, group creativity and in promoting Learning to Learn together skills (L2L2) as key competences for the 21st Century. The book presents research in designing high quality technology-enhanced learning environments to promote engagement and reflection about how we can better learn with other people.

An in-depth blueprint of the promise, potential, and imminent future of the field, *Digital Systems for Open Access to Formal and Informal Learning* is an essential reading for researchers and practitioners, as well as, undergraduate and postgraduate students, in educational technology and learning sciences.

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Laura Martí Ros
Faculty of Education
University of Lleida
lauramarti@pip.udl.cat